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Billie H. Hix

BILLIE H. HIX
Chief, Technical Systems Branch
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Research Center

Chief, Archives Branch
The Albert F. Simpson Historical
Research Center

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TRIPTANE

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CASE HISTORY

OF

TRIPTANE

(2,2,3-trimethylbutane)

402.11-6

A pure hydrocarbon, one of the nine isomeric heptanes, used as a blend agent in tests to determine its value as an aircraft engine fuel or as a primary reference standard for knock testing of aviation gasoline.

Documents in this case history were obtained from the files of Air Technical Service Command, Wright Field, and Headquarters, Army Air Forces, Washington, D.C.

Classified documents are included herein and, therefore, compliance with pertinent sections of AR 380-5 is necessary.

Compiled by
Historical Office
Air Technical Service Command
Wright Field
May 1945

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SUMMARY OF THE TRIPTANE PROJECT

Triptane is the short form name of a hydrocarbon which the Geneva
*(30) Convention designated 2,2,3-trimethylbutane. Only eight of the nine possible isomeric heptanes were known up to 1920 when Professor Georges Chavanne prepared the ninth, triptane, at the University of Brussels (Belgium). At just about this time the question of knock became of interest to the automotive industry when antiknock fuels were taken under
(42) consideration in an effort to realize more horsepower from less fuel. In
(30) 1927 the Ethyl Gasoline Corporation prepared 250 grams of triptane. At the same time General Motors Research Division, Detroit, Michigan, per-
(34) formed a series of engine tests with triptane. By 1934 progress in fuels made it advisable to extend the octane scale beyond 100, and triptane was favorably considered as a reference fuel. By 1935 more than two gallons of triptane had been prepared by laboratory methods for use in tests with a supercharged engine, but it was appreciated that no real progress was forthcoming until triptane could be procured at reasonable cost which was impossible using laboratory methods.

(30) In August 1939 the Army expressed an interest in triptane. Proposals
(1) were circulated and the Shell Oil Company bid $80 a gallon; the Ethyl
(2) Gasoline Corporation bid $35 a gallon and received a purchase order for
(3) 125 gallons in 1940. Tests revealed that as much as 24% power output increases could be secured with triptane and 100 octane blends in which
(4,26) the triptane constituted a substantial portion of the mixture. The NACA reported that triptane research funds were exhausted at Ethyl, and it was apparent that if tests were to continue, triptane must be produced
(5) in quantity. Fortunately a number of commercial concerns had evinced an
(7) interest in the new chemical. General Motors, in particular, having spent several millions between the two wars in fuels research as an aspect of engine development, had explored the utility of triptane and allocated $400,000 to construct a pilot plant to yield up to 4000 gallons monthly for test use as a blending agent, a superfuel for take-offs, or as fuel
(8) for redesigned engines of high output and economy. This plant, sponsored
(42,9) by the War Department, was finished by the end of 1943. Another commercial
(6) concern, the Universal Oil Products Company, Chicago, Illinois, undertook
(10) investigations on triptane, and proposed to establish a 4000 gallon per
(21) month pilot plant. The AAF considered sponsoring such a plant to augment
(22,23) healthy competitive interest in triptane, but the Petroleum Administration
(27,28) for War in Washington vetoed the proposition as unnecessary duplication.

* The numbers placed in parentheses in the margin refer to the documents found in the Document File attached.

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(25) (9) By January 1944 the General Motors pilot plant was producing three barrels of triptane per day, and demonstrated potentialities for future large scale production at commercially sound costs. Until this time it had been impossible for the AAF to conduct an adequate test program even though the value of triptane had been recognized because only laboratory quantities had been available at excessive costs. The Assistant Chief of Air Staff for Materiel, Maintenance, and Distribution, Washington, recommended immediate utilization of the General Motors product in both fighter and bomber tests with emphasis on range extension. (11,22) (29) A Wright Field conference of NACA, Navy, AAF and General Motors representatives established a joint test program. The Materiel Command, Wright Field, authorized the purchase of 10,000 gallons of triptane for the test program. (20) (31) (35,39) General Motors offered to provide this quantity at no cost, but in line with Army policy against accepting gratuities, a contract was drawn to cover the purchase at one dollar.

By August 1944, the triptane test program had proceeded far enough to reveal that the ceiling of fuel quality within the framework of existing engines and fuel production facilities could be reached without recourse to triptane which cost approximately four times as much as other available blends. (41,40) Triptane was recommended for continued research especially with a view to improving existing knock rating scales. To continue the test program, the AAF contracted in January 1945 with General Motors for an additional 10,000 gallons of triptane for one dollar. At the direction of the Petroleum Administration for War, General Motors offered to provide sample quantities of triptane, at no cost to a selected list of engine and fuel concerns as a stimulus to triptane research. (46,47)

By April 1945 it was conceded that there was little or no possibility of using fuels markedly in excess of existing quality ceilings in the current war, but the Office of the Assistant Chief of Air Staff, Materiel and Services, Washington, recommended that a program with postwar objectives be drawn up on a 3B priority to design an engine for use with superfuels, and to describe the composition of such a fuel. (55)

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Report Number OC-93
Project Number 40-1

Number of Pages 7

RESEARCH LABORATORIES DIVISION
GENERAL MOTORS CORPORATION

Detroit, Michigan

TRIPTANE

Reported by:
Wheeler G. Lovell
Organic Chemistry Department

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Approved by:

T. A. Boyd, Head of Department

H. C. Mougey, Technical Director

August 20, 1943

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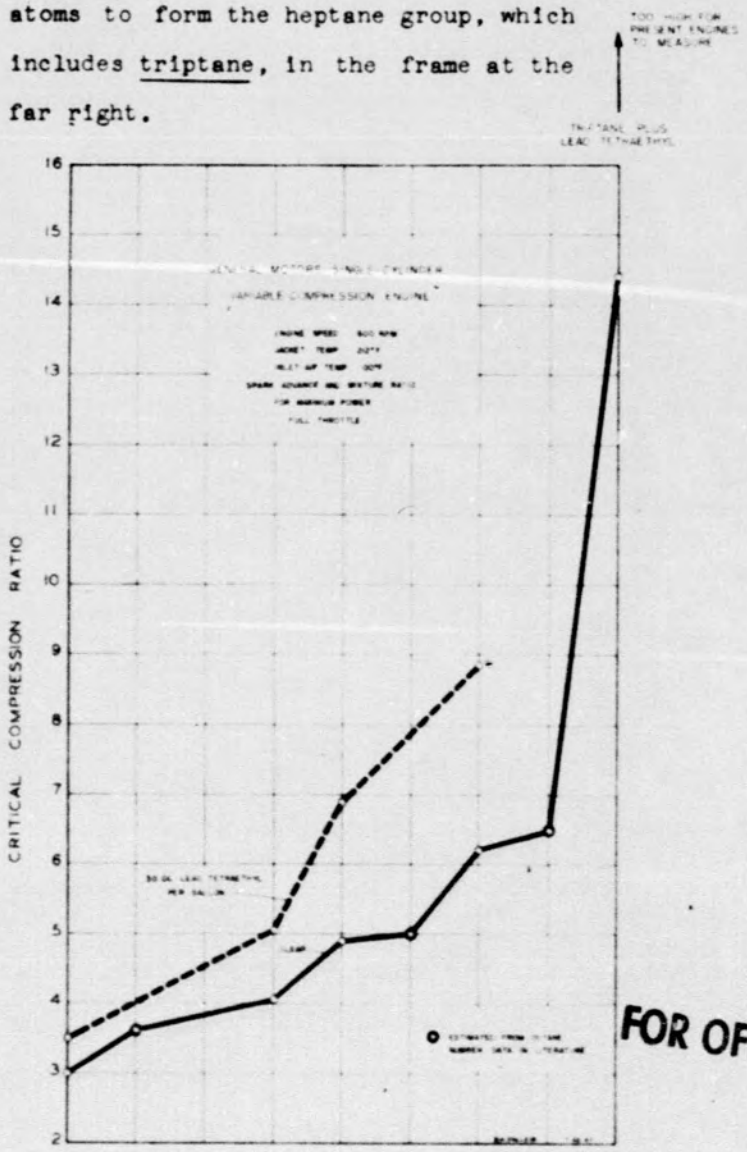
This chart shows the possible combinations of 7 carbon and 16 hydrogen atoms to form the heptane group, which includes triptane, in the frame at the far right.



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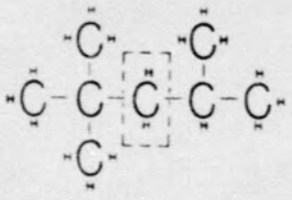
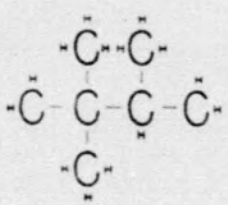
The table of iso-octane and triptane below shows two interesting examples of the effect of changes in molecular structure. The only difference is the removal from iso-octane of one carbon atom and two hydrogen atoms, marked by a box, to form triptane. This results in the great difference in the value of the compounds as fuels as shown in this table.

	Limiting Compression Ratio	
	Clear	With 3cc lead
Iso-octane 	7.3	11.3
Triptane 	14.4	Too high to measure in present laboratory equipment.

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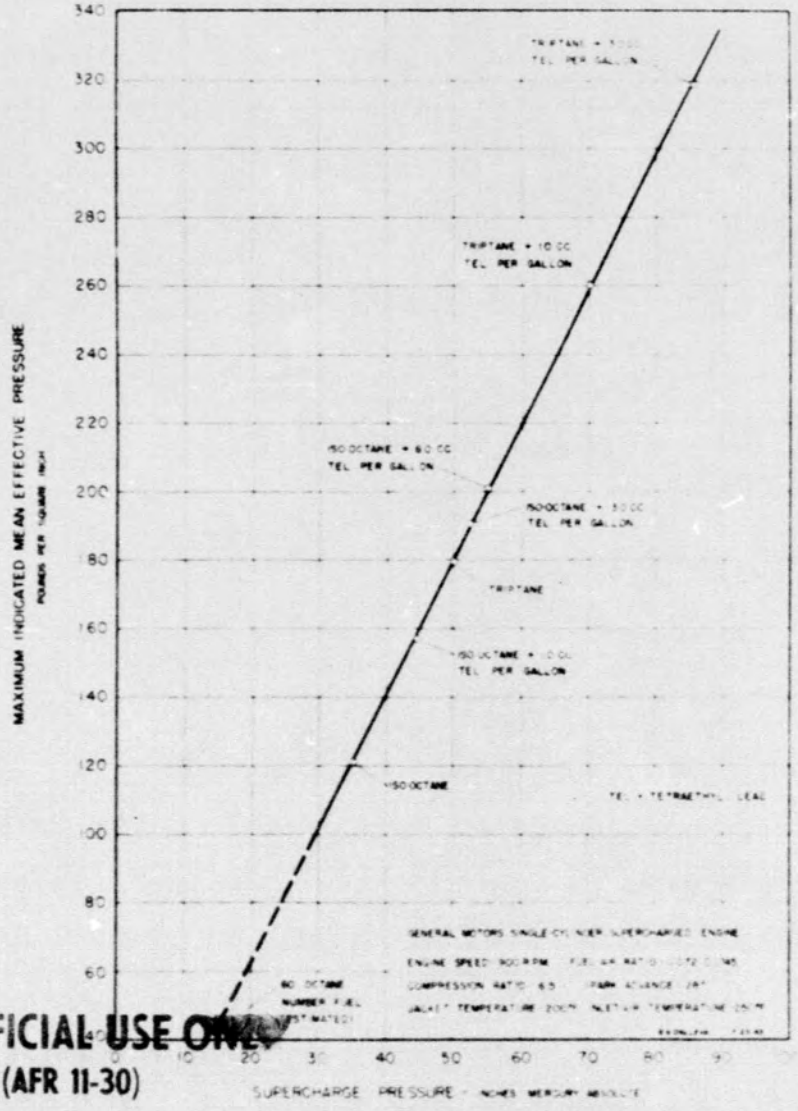
This chart shows that it is possible to get about twice as much horse power from triptane plus 3 cc of tetraethyl lead per gallon as from iso-octane, which is 100 octane clear, plus 3 cc of lead.



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1. (U) AFP #156242
29 Feb. 1940
(File: Contract Files)

Initial AAF procurement of triptane (2,2,3-trimethylbutane) dated back to 29 Feb. 1940, when Authority for Purchase, [hereinafter referred to as AFP] #156242 was issued from the Power Plant Lab. (WF) authorizing the purchase of from 125 to 200 gals. of the compound, depending on the price quoted. AAF interest in triptane was based on its possibilities as an aircraft engine fuel or as a primary reference fuel for determining antiknock values. Ratings obtained by Ethyl Gasoline Corp., N.Y.,N.Y., indicated that triptane was equal to iso-octane (100 octane clear) plus 6.0 ml. tetra-ethyl lead [hereinafter referred to as TEL] per gal. in antiknock value. Knock tests showed that triptane would permit an increase in engine output of from 40 to 60% before being limited by detonation. The AAF foresaw the "extreme military importance" of triptane, should these ratings prove to be correct. It was the intention of the AAF to encourage the petroleum industry to find various means of producing triptane in quantity.

2. (U) IOM 15 Apr. 1940
From: Maj. H.Z. Bogart
Actg. Chief, Exp. Eng. Sect., Eng. Div.,WF
To: Chief, Contract Sect. WF
(File: Contract Files)

Power Plant Lab. (WF) efforts to procure triptane were reviewed in an IOM from the Actg. Chief, Exp. Eng. Sect. to the Chief, Contract Sect. dated 15 April 1940. It was pointed out that Ethyl Gasoline Corp. did not bid at the time of the first AFP because it was having some difficulty in developing a satisfactory process for the manufacture of pure triptane. However, Shell Oil Co. bid on the first circular proposal, but no award was made, as the price was considered excessive. AFP #156242 was then issued in Feb. 1940, but Ethyl Gasoline Corp. still did not bid. Again a bid was received from Shell Oil Co., on Circular Proposal #40-1275, but no award was made because the price was too high. Following the opening of the second circular, Ethyl Gasoline Corp. informed the Power Plant Lab. (WF) that if the bid request were recircularized it would now submit a bid.

3. (U) P.O. #40-6926
22 April 1940
(File: Contract Files)

Inquiry X-40-5278 dated 17 April 1940 was issued to Ethyl Gasoline Corp. after it had indicated its willingness to bid on triptane. This Inquiry resulted in Purchase Order #40-6926, dated 22 April 1940, in which the Air Corps ordered 125 gals. of triptane from Ethyl Gasoline Corp. at $35.00 per gal. for a total cost of $4,375.00.

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4. (U) TT 28 Jan. 1943
From: Brig. Gen. F.O. Carroll
Eng. Div., WF
To: Brig. Gen. B.W. Chidlaw
AC/S (E), Wash.
(File: Central Files)

Eng. Div. (WF) desired that Col. D.G. Lingle of the Aeronautical Board (Wash.) be advised of results of tests of triptane on a full scale R-1830 (Pratt & Whitney) engine and on a Cooperative Fuels Research [hereinafter referred to as CFR] supercharged test engine, and of single cylinder tests by Shell Oil Co. and Wright Aeronautical Corp. The following statement was made by Eng. Div. (WF) to summarize test data: "In general triptane in small concentrations in blends has few advantages over commercial octanes but advantages expected to increase as concentration in blend increases or as knock value requirement increases."

5. (C) Ltr. 20 April 1943
From: Nat'l Advisory Committee for Aeronautics
Wash.
To: CG, Mat. Cen., WF
Attn: Col. E.R. Page
(File: Central Files)

In a letter to the CG, Mat. Cen. (WF) dated 20 April 1943, the National Advisory Committee for Aeronautics, [hereinafter referred to as NACA] asked the AAF Mat. Cen. to comment on the advisability of continuing the research they had been sponsoring in the Ethyl Corp. Chemical Laboratory with regard to the commercial preparation of triptane. It was their understanding that the AAF was backing a General Motors triptane process which had reached the pilot plant stage. In the attached reply to NACA dated 31 May 1943, Maj. C.D. Seftenberg, Asst. Tech. Exec. (WF) stated that the Mat. Cen. was not in a position to determine the practicability of further research in Ethyl laboratories, and suggested that this matter be handled by the Special Group of the NACA Sub-Committee on Aircraft Fuels and Lubricants.

6. (U) Ltr. 24 June 1943
From: Universal Oil Products
Chicago, Ill.
To: Chief, Fuel & Oil Test Unit, Mat. Div., WF
(File: Central Files)

In a letter to the Chief, Fuel & Oil Test Unit, Mat. Div. (WF), dated 24 June 1943, Universal Oil Products Co., [hereinafter referred to as UOP] Chicago, Ill., referred to their confidential report, "Production of Triptane" [not attached]. This letter constituted the authority to release the report to the special panel of the NACA Sub-Committee for Fuels and Lubricants devoted to the triptane synthesis.

7. (U) Rpt. #OC-98
General Motors - Triptane
20 August 1943
(File: Central Files)

A General Motors report on triptane, dated 20 Aug. 1943, contained an explanation of the effect of molecular structure on knock in aviation fuel, with charts and tables illustrating the different ratings obtained with various molecular arrangements. It was apparent that the possibilities of triptane could not be accurately estimated, since they exceeded the measuring capacity of current engine designs.

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8. (C) Memo 1 Sept. 1943
Status of General Motors
Triptane Project
(File: Central Files)

In a Memorandum on the triptane project, dated 1 Sept. 1943, General Motors discussed construction of its pilot plant, its operation, estimated output, utilization and increase of output, commercial applications, and continuing research and development. The pilot plant, designed after a small-scale working laboratory model and erected at a cost of approximately $400,000 was scheduled to begin operation on 13 Sept. 1943. General Motors' immediate goals were (1) to make a sufficient amount of triptane for preliminary full-scale engine tests evaluating it as a fuel, and (2) to evaluate the technical and commercial possibilities of the manufacturing process. Future plans included an output of 4,000 gals. of triptane per month, an investigation of the possibilities for linking the production of triptane to the aviation fuel supply in a commercially sound manner, and a program of mechanical design and combustion studies.

9. (C) Memo 13 Sept. 1943
From: Col. D.G. Lingle
Chief, Av. Petrol. Br.
Supply & Ser. Div.
Wash.
To: AC/AS, M&AD, Wash.
(File: Central Files)

Col. D.G. Lingle, Chief, Av. Petrol. Br., Supply & Ser. Div. (Wash.) outlined for the AC/AS, M&AD (Wash.) the steps taken by Av. Petrol. Br. to assist General Motors in the construction of a triptane pilot plant. He further stated that Av. Petrol. Br. was planning, in cooperation with General Motors, to conduct (1) a test program of various possible triptane blends; and (2) an investigation of the commercial application of the pilot plant process to large scale production.

10. (C) Ltr. 24 Sept. 1943
From: Universal Oil Products
Chicago, Ill.
To: CG, Mat. Com., WF
(File: Central Files)

Following up WF's interest in its process for the production of triptane, UOP submitted a second report 24 Sept. 1943. [not attached] This report included data on the blending properties of UOP triptane in various fuels, estimated cost of a pilot plant(capacity 1000 gal./wk.), process and design specifications for a pilot plant, estimated cost of hydrogen generating equipment, equipment weights of pilot plant equipment, list of possible equipment suppliers, and flow chart of the pilot plant.

11. (C) MM 27 Sept. 1943
From: Col. J.W. Sessums, Jr.
Exec. Office, AC/AS
M&AD, Wash.
To: Brig. Gen. B.W. Chidlaw
Chief, Mat. Div., Wash.
(File: Central Files)

Viewing the possibility of range extension and increased power for take-off with the use of triptane fuel, Col. J.W. Sessums, Exec., Office AC/AS, M&AD (Wash.), advocated early testing of the B-17, B-24 and P-47 airplanes.

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12. (C) Ltr. 4 Oct. 1943
From: Socony-Vacuum Oil Co. New York, N.Y.
To: CG, Mat. Com., WF
Attn: Mr. R.V. Kerley
(File: Central Files)

In response to a WF inquiry as to the manufacture of triptane, the Socony-Vacuum Co., New York, stated conclusively that it was not practicable at the time for it to make triptane in quantities for full-scale engine work. The capacity of its unit was only 5 gals. per month. Although it was possible to increase this to two barrels per month by converting existing laboratory equipment, this program would involve a large expenditure of funds and utilization of all their manpower. Likewise, any utilization of refinery equipment would result in a loss of Grade 100/130 (standard combat) fuel production. Socony-Vacuum favored turning its efforts toward improving the process for manufacture of triptane.

13. (C) Memo 20 Dec. 1943
From: Col. D.G. Lingle, Chief Aviation Petrol. Br. Air Ser. Div., Wash.
To: AC/AS, M&SD, Wash.
(File: Central Files)

In a Memo for the AC/AS, M&SD (Wash.) Col. D.G. Lingle Chief, Av. Petrol. Br., Air Ser. Div. (Wash.), reported the highlights of a conference at General Motors, Detroit, Mich., on 2 Dec. 1943 attended also by Maj. H.C. Dees of Av. Petrol. Br., Mr. R.V. Kerley, Chief, Fuels & Oils Test Unit, Mat. Com. (WF), and Mr. C.F. Kettering, Vice President, General Motors Corp. It was established that (1) triptane manufactured by General Motors would be made available to the AAF shortly after the first of the year, and (2) General Motors wished to restrict the testing of triptane, classified as a Secret Project by the Office of the Under Secy. of War, to the laboratories of NACA and the Military Services. A conference was scheduled for Jan. 1944 to investigate the practical possibilities of the General Motors process for large scale production of triptane.

14. (C) Procure. Br. Memo #43-48-18, 30 Dec. 1943
From: Brig. Gen. B.E. Meyers Dep. AC/AS, M&SD, Wash.
To: CG, Mat. Com., WF
Attn: Procurement Div.
(File: Central Files)

Procurement Br. Memo No. 43-48-18, dated 30 Dec.1943, directed Procurement Div. (WF) to negotiate a letter of intent for triptane with General Motors Corp., to be followed by a firm contract conforming to terms set forth in a letter to Mr. C.F. Kettering of the same date. The Mat. Com. was instructed to cooperate with NACA triptane evaluation program, and supply any needed flight test equipment.

15. (C) Ltr. 30 Dec. 1943
From: Col. J.W. Seesums Executive, Office AC/AS, M&SD, Wash.
To: Mr. C.F. Kettering Research Laboratory Div., General Motors Corp., Detroit, Mich.
(File: M&S)

A letter from the office of the AC/AS, M&SD (Wash.), dated 30 Dec. 1943, informed General Motors of the Army Air Forces' desire to obtain a quantity of triptane for evaluation as an aviation gasoline fuel component. Reference was made to a forthcoming letter of intent authorizing the supply of 10,000 gals. of triptane at a price not to exceed $1.00 per gal.

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16. (C) Ltr. 30 Dec. 1943
From: Col. J.W. Sessums
Executive, Office
AC/AS, M&SD, Wash.
To: Nat'l. Advisory Com.
for Aeronautics, Wash.
Attn: Dr. G.W. Lewis
(File: M&S)

The office of the AC/AS, M&SD (Wash.) informed NACA in a letter dated 30 Dec. 1943 that the AAF had given assistance in General Motors in the construction of a triptane pilot plant. NACA was requested to carry out the testing program to evaluate triptane as a component of aviation fuel by means of laboratory and flight tests. The program was cited as a basis for future decisions on the expanding of efforts and materials in connection with contemplated large scale production of triptane. Fuel for the tests was to be supplied to NACA after 1 Jan. 1944 through the AAF from General Motors production. It was stated that test programs would be furnished through the Power Plant Lab. (WP) and that the CG, Mat. Com. would specify the distribution of test data.

17. (C) Ltr. 1 Jan. 1944
From: Col. R.C. Wilson, Chief
Devel. Eng. Br., Mat.
Div., Wash.
To: CG, Mat. Com., WP
Attn: Chief, Power Plant Lab.
Thru: Tech. Exec.
(File: Central Files)

The office of the Chief, Devel. Eng. Br., Mat. Div. (Wash.), directed the Power Plant Lab. (WP) to maintain direct liaison with NACA to insure proper coordination and direction of the triptane testing program.

18. (U) Report of a Conference on Triptane 4 Jan. 1944
(File: Power Plant Lab.)

Representatives of the AAF, Petroleum Administration for War [hereinafter referred to as PAW], and the War Production Board [hereinafter referred to as WPB] decided after discussing a visit to the General Motors triptane pilot plant at Detroit, Mich., that the possibilities of large scale production of triptane by the General Motors process should be investigated. Col. Lingle proposed that this investigation be conducted by a committee of AAF, WPB, and PAW representatives. He also proposed that information on the General Motors triptane process be restricted to individuals in attendance at the conference [see document] and representatives of General Motors, except as specifically approved by the AAF. The conference resulted in the formation of an investigating committee consisting of one AAF, one WPB, and three PAW officials, and the decision to inform General Motors by letter of the work contemplated.

19. (C) Ltr. 4 Jan. 1944
From: Nat'l. Advisory Com.
for Aeronautics, Wash.
To: AAF Hdq., Wash.
Attn: Col. J.W. Sessums
(File: M&S)

In a letter to AAF Hdq. (Wash.), dated 4 Jan. 1944, NACA indicated their willingness to cooperate with the AAF in undertaking a program to evaluate triptane as a component of aviation fuel.

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20. (C) AFP #381767
6 Jan. 1944
(File: Contract Files)

AFP #381767, issued 6 Jan. 1944 from the Power Plant Lab. (WF), authorized the procurement of 10,000 gals. of triptane to stated specifications at a total estimated cost of $10,000. By way of explanation, it was stated that earlier procurement of 125 gals. of this fuel from Ethyl Corporation at $35.00 per gal. had resulted in limited aircraft engine tests. Data obtained had proved very promising, but there had been no further source of triptane at the time. By initiating procurement from General Motors of 10,000 gals. of this material, enough to start a test program, the AAF planned to evaluate triptane as a component of aircraft engine fuel and determine the practicability of large-scale production of the material.

21. (C) Ltr. 19 Jan. 1944
From: Brig. Gen. F.O. Carroll
Chief, Eng. Div., WF
To: Universal Oil Products
Co., Riverside, Ill.
(File: Central Files)

Replying to a letter from UOP dated 24 Sept. 1943, Eng. Div. (WF) stated that UOP's proposal for the construction of a triptane pilot plant had been forwarded to the AC/AS, M&D (Wash.), together with the Mat. Com.'s recommendation that AAF assistance be given in this construction. The assistance referred to was not to be financial, but was to consist of priorities for steel, parts, electrical equipment, etc.

22. (C) 1st Ind. 20 Jan. 1944
From: Brig. Gen. F.O. Carroll
Chief, Eng. Div., WF
To: CG, AAF, Wash.
(File: Power Plant Lab.)

The Mat. Com. (WF) was aware of three methods for the manufacture of triptane -- the UOP, the Socony-Vacuum, and the General Motors processes. General Motors had received AAF assistance in the matter of priorities for the construction of their pilot plant, which produced triptane from by-products of chemical industries. It was the opinion of Eng. Div. (WF) that like assistance should be given to UOP, whose process involved the synthesis of triptane from petroleum products. Commenting on this policy, Eng. Div. stated, "...active support to more than one commercial organization for production of triptane will encourage further competitive development and will be consistent with normal practice of the Army Air Forces in encouraging the petroleum industry generally in the development and production of new products." Eng. Div. also recommended that the Office of R&W be made responsible for evaluating triptane production processes, and for creating a pool of information on triptane production to determine the commercial possibilities of any one or combination of processes.

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23. (C) R&R-1, 25 Jan. 1944
From: Brig. Gen. B.W. Chidlaw
Chief, Mat. Div., Wash.
To: Col. D.G. Lingle, Av. Petrol. Br., Air Ser. Div., Wash.
(File: MAS)

[redacted] Mat. Div., (Wash.) requested the comments of Av. Petrol. Br., Air Ser. Div. (Wash.) with regard to the matter of assisting UOP to obtain priorities for construction of a triptane pilot plant.

24. (C) Ltr. 31 Jan. 1944
From: Brig. Gen. F.O. Carroll
Chief, Eng. Div., WF
To: CG, AAF, Wash.
Attn: AC/AS, MSAD, Devel. Eng. Br., Wash.
(File: Central Files)

Eng. Div. (WF) announced the scheduling of a conference for the week of 24 Jan. 1944 at WF for the purpose of outlining a test program for triptane fuel. Representatives of NACA, Navy Bureau of Aeronautics, General Motors Research and Mat. Com. planned to attend.

25. (U) Report on General Motors Triptane Process, 31 Jan. 1944
From: H.P. Metzner, Office of PAW, Wash.
To: R.B. Cragin, Asst. Dir. of Refining, PAW, Wash.
(File: Power Plant Lab.)

Dr. Faith of WPB (Wash.), and Dr. M.R. Mandelbaum and Mr. H.P. Metzner of PAW (Wash.) visited Detroit, Mich., on 28 Jan. 1944 to confer with Messrs. Kettering, Richards, Lovell, Boyd and Campbell of General Motors with regard to the triptane pilot plant. Chemistry of the triptane process was expressed in the following three steps: (1) dehydration of tertiary amyl alcohol over an alumina catalyst to form trimethylethylene (2) methylation of trimethylethylene using a calcium oxide catalyst and (3) hydrogenation of triptane to produce triptane [note typographical errors in steps 2 and 3 in document]. Pilot plant capacity was estimated at 3 barrels a day of 98% triptane, an amount sufficiently adequate for the contemplated engine tests of the fuel. General Motors' interest naturally inclined toward the possibilities of engine performance as presented by the use of superior fuels. However, it was agreed that their triptane process showed promise for commercial large-scale manufacture.

26. (C) Extract from a Memo 31 Jan. 1944
From: W.L. Faith, Office of Prod. & Research Devel. WPB, Wash.
To: Dr. D.B. Keyes, WPB Wash.
(File: Central Files)

Reporting on a visit to General Motors triptane pilot plant, Redford, Mich., and General Motors research laboratories, Detroit, Mich., on 28 Jan. 1944, Mr. W.L. Faith of WPB (Wash.), listed the advantages of triptane over other known fuels, as reported by General Motors. These advantages were higher LC [single cylinder laboratory knock test method for determining lean or cruise antiknock value] and SC [single cylinder laboratory supercharged knock test method for determining rich or take-off antiknock value] ratings, low temperature sensitivity, and exceptional lead susceptibility. With further reference to the value of this fuel, Mr. Faith stated, "It does not appear advisable to consider the use of triptane in small amounts as an additive to other fuels. Its chief value is expected to be as a major constituent of a fuel."

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27. (C) Ltr. 5 Feb. 1944
From: R.B. Cragin, Asst. Dir. of Refining, Pet. Admin. for War, Wash.
To: Col. D.G. Lingle, Av. Petrol. Br., Air Ser. Div., Wash.
(File: Power Plant Lab.)

Confirming a decision previously agreed upon in discussions with representatives of Av. Petrol. Br., Air Ser. Div. (Wash.), Mr. R.B. Cragin, Office of the PAW (Wash.), stated that the existence of the General Motors pilot plant, with its capacity for meeting requirements for triptane, obviated the need of further pilot plants. Assistance in the construction of a UOP pilot plant was thought necessary only in the event of large-scale production of triptane.

28. (U) R&R-2, 10 Feb. 1944
From: Col. D.G. Lingle, Chief Av. Petrol. Br., Air Ser. Div., Wash.
To: AC/AS, MMAD, Mat. Div. Wash.
(File: MAS)

In R&R-2, dated 10 Feb. 1944, Col. Lingle cited the following reasons for not recommending a UOP triptane pilot plant: (1) the functioning of the General Motors plant, and (2) the high quality charging stock (iso-octane) required in the UOP process, making practicability of large-scale production unlikely. It was noted that the Mat. Com. had information on the manufacture of triptane by the Socony-Vacuum Oil Co. Av. Petrol. Br., Air Ser. Div. (Wash.), requested full details on the process.

29. (C) Memo Rpt. ENG-57-531-255
21 Feb. 1944
(File: Power Plant Lab.)

A conference was held at WF on 27 and 28 Jan. 1944 between representatives of NACA, the Navy Bureau of Aeronautics, General Motors Corp., and the Mat. Com. to draw up a test program suitable for determining the desirability of triptane as a component of aviation fuel. Triptane and some other fuels for the NACA tests were to be supplied by the Mat. Com., the remainder by NACA. It was agreed that the general test program [See attached Appendix I for details] would include comparative knock ratings in 1C and 3C engines, Cooperative Universal engines, multi-cylinder aircraft engines and possibly in flight tests to compare the combustion characteristics of various components in fuel blends. Distribution of NACA test reports was specified as follows: (1) Bureau of Aeronautics (2) four copies to Mat. Com. (WF), which would forward three to the AC/AS, MMAD (Wash.), and (3) two copies to Mr. T.A. Boyd of General Motors. The test program was expected to yield conclusive data permitting the preparation of satisfactory rich and lean rating fuels from various high octane fuel components, and indicating the military value of these fuels for long range patrol or bombardment operation.

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30. (U) Memo 22 Mar. 1944
"History of Triptane"
Prepared by Dr. George Calingaert, Dir. of Chem. Research, Ethyl Laboratories Detroit, Mich.
(File: Power Plant Lab.)

Triptane was first discovered by Prof. Georges Chavanne, a Belgian, who prepared 25 grams of the hydrocarbon in 1922. About 1927 both Ethyl Corp. and General Motors were investigating the engine behavior of isomeric heptanes, one of which was triptane. This compound was recognized by Ethyl Corp. in 1934 as a possible means of extending the octane scale beyond 100. When 1500 cc. of triptane were prepared in 1935, tests were conducted by Ethyl's engineering lab. and checked against earlier General Motors data. The same year, tests on an additional 2 gals. in a supercharged engine showed triptane to be equal to isooctane plus 6 cc. or more of lead. However, triptane could not be considered as a standard reference fuel until it could be made available commercially at a reasonable price. In 1939 the AAF made known its intention to procure 100 gals. of triptane. The Dow Chemical Co. supplied Ethyl Corp. with a 325 gal. batch in 1940, 125 gals. of which was sold to the AAF at $35.00 per gal. NACA acted upon the suggestion of Dr. George Calingaert of Ethyl Laboratories and called a conference for 3 March 1942 at Ohio State University in Columbus, O., to be attended by all persons interested in or possessing knowledge of the commercial preparation of triptane. The purpose of the conference was to coordinate existing knowledge and perfect a commercial process, to the ultimate advantage of the Military Services. The oil industries, WP, Ethyl, General Motors and PAW were represented. PAW was to correlate all information, but it was evident that no process had yet been developed which showed promise for the production of triptane in large quantities at reasonable cost. In March 1943 General Motors disclosed the existence of a triptane pilot plant which would eventually make the fuel at $.25 per gal. The announcement by UOP in Aug., claiming to have perfected a process for the manufacture of triptane, concluded Dr. Calingaert's history of triptane.

31. (U) Ltr. 4 April 1944
From: Research Lab. Div.
General Motors Corp.
Detroit, Mich.
To: CG, Mat. Com., WP
Attn: Lt. Dean Sweeney
(File: Contract Files)

Letter Contract No. W33-038 ac-1881, for 10,000 gals. of triptane from General Motors, was returned unsigned to the Mat. Com. (WP). The explanation given was that the fuel required was for experimental use, and not for sale on a commercial basis. General Motors preferred to furnish the fuel at no cost to the Government in exchange for information obtained in tests evaluating triptane.

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32. (C) R&R-3, 24 April 1944
From: Col. R.C. Wilson, Chief Devel. Eng. Br., Mat. Div., Wash.
To: Brig. Gen. L.P. Whitten Chief, Air Ser. Div. Wash., and Col. D.G. Lingle, Chief, Av. Petrol. Br., Air Ser. Div. Wash.
(File: M&S)

Mat. Com. (WF) had no knowledge of the details of the Socony-Vacuum Oil Co.'s triptane process. In an R&R, Comment No. 3, dated 24 April 1944, Col. R.C. Wilson, Chief, Devel. Eng. Br., Mat. Div. (Wash.) stated that a request for this information was being forwarded directly to Socony-Vacuum.

33. (C) IOM 19 May 1944
From: Brig. Gen. F.O. Carroll Chief, Eng. Div., WF
To: Chief, Procurement Div. WF
Attn: Lt. Dean Sweeney
(File: Contract Files)

Eng. Div. (WF) recommended that no deviation be made from the stated Air Corps policy of accepting no gratuities. The original quotation of $1.00 per gal. for triptane in AFP #381767 was thought to be fair, inasmuch as General Motors refused to name a price. With regard to the distribution of test data to General Motors, reference was made to Memo Rpt. EMC-57-531-235, dated 21 Feb. 1944, which reported an agreement that Mr. T.A. Boyd receive two copies of all test results and data directly from NACA. It was pointed out, however, that the Government, in releasing reports to General Motors, reserved the right to distribute the same or Summary reports "to any other reputable engine or fuel manufacturer." No objection was anticipated from General Motors, since test work would not reveal the General Motors process.

34. (U) Notes on triptane, prepared by R.V. Kerley, Chief, Fuels & Oils Br., Power Plant Lab., WF approx. May 1944
(File: Power Plant Lab.)

Important developments in the history of triptane were reviewed in notes prepared by Mr. R.V. Kerley, Chief, Fuels & Oils Br., Power Plant Lab. (WF). Reference was made to the support given by WF to General Motors and other triptane processes. Commenting on triptane as a component of aviation fuel, Mr. Kerley wrote, "Regardless of statements to the contrary no large scale manufacture has been started and no triptane is at present available or planned in military or commercial aircraft engine fuels."

35. (C) IOM 31 May 1944
From: Col. D.C. Swatland Chief, Procurement Div. WF
To: Chief, Legal Branch
Attn: Attorney's Unit Major Knight
(File: Contract Files)

The Chief, Procurement Div. (WF) recommended that a formal contract be negotiated with General Motors Corp. for 10,000 gals. of triptane conforming to stated specifications. Since the Government could not accept the material gratuitously, the price of $1.00 for the entire batch, quoted by General Motors on the telephone, was agreed upon.

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36. (C) Ltr. 6 June 1944
From: Col. H.Z. Bogert, Actg. Chief, Eng. Div., WF
To: CG, AAF, Wash.
Attn: AC/AS, M&SD, Wash. Lt. Col. C.D. Gasser
(File: M&S)

Consideration of additional facilities for the testing and evaluating of triptane led Eng. Div. (WF) to request clarification of two apparently conflicting statements issued from the office of the AC/AS, M&SD (Wash.). In a Memo dated 20 Dec. 1943 [See also Doc. #137] it was directed that the basic tests of triptane be confined to NACA laboratories and the Military Services while in a letter to NACA dated 30 Dec. 1943 [See also Doc. #167], it was stated that the CG, Mat. Com. (WF), would specify the test program and the distribution of test reports. The Mat. Com. saw no need for consideration of either the source of or the process of manufacturing triptane in scheduling any necessary tests. Specific permission was requested "to distribute either the material or test reports to any organization as may be considered desirable in normal handling of fuel evaluation programs." This authority was granted in the attached 1st Ind. dated 12 June 1944, from the Chief, Devel. Eng. Br., Mat. Div. (Wash.)

37. (C) Ltr. 8 June 1944
From: Research Lab. Div. General Motors Corp. Detroit, Mich.
To: CG, Mat. Com., WF
Attn: Lt. Dean Sweeney
(File: Contract Files)

General Motors clarified their position with regard to the distribution of triptane reports when it became apparent that contractual negotiations were being delayed over the issue. They maintained that it had never been their intention to interfere with the distribution of test results by Governmental agencies; that in specifically requesting copies of reports on triptane they had merely been guaranteeing that General Motors, among others, would receive such reports. They insisted upon the enforcement of only one restriction, -- that which concerned the process by which triptane was manufactured, which was subject to Secrecy Orders issued by the U.S. Patent Office.

38. (C) 1st Ind. 26 June 1944
From: Brig. Gen. F.O. Carroll Chief, Eng. Div., WF
To: CG, AAF, Wash.
Attn: AC/AS, M&SD, Wash. Devel. Eng. Br.
(File: Central Files)

It was the opinion of Mat. Com. (WF) that desirable discussions and comments on the triptane test program would result if distribution of reports were extended to include carefully selected groups. Therefore, Mat. Com. recommended that in addition to General Motors, the Bureau of Aeronautics, and the Mat. Com., the following distribution be accomplished: (1) preliminary reports to members of NACA Subcommittee on Fuels and Lubricants, and (2) final, approved Memo Reports to members of NACA Subcommittee on Fuels and Lubricants and other qualified organizations. It was further recommended that permission be granted for representatives of reputable oil companies and engine manufacturers to discuss triptane informally with members of the NACA, Bureau of Aeronautics, and AAF, the activities which directed the testing program.

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39. (C) Contract No. W33-038 ac 1881, 25 July 1944 (File: Contract Files)

Contract No. W33-038 ac 1881, entered into 25 July 1944, provided for the furnishing and delivery of 10,000 gals. of triptane from General Motors Corp. at a total cost of $1.00. Specifications for the fuel, details of delivery, and responsibility for property accountability were designated. Provision was made for two copies of all data obtained from tests of triptane fuel to be furnished to General Motors by the Government which, however, retained the right to distribute this same information to any other engine or fuel manufacturer.

40. (C) Extract from Summary Memorandum on the General Motors Triptane Process, 1 Aug. 1944, prepared by members of an informal investigating committee. (File: MAS)

A committee of AAF, PAW, and WPB representatives authorized to investigate the possibilities of large-scale triptane production by the General Motors method prepared a summary memorandum, dated 1 Aug. 1944. A discussion of triptane as a fuel constituent revealed the following facts: (1) one barrel of triptane was equal to about 2.6 of alkylate; (2) facilities for the manufacture of 2,3-dimethylbutane and isooctanes, other hydrocarbons which showed promise of pushing back the ceiling of fuel quality, could be built at less cost than additional facilities for triptane; (3) triptane displayed no unique properties which would make its use preferable to a sufficiently larger volume of alkylate in fuels of current quality; (4) only the discovery of unique properties, or consideration of extremely high quality fuels, would justify a commercial application of the triptane process at present indicated costs.

41. (C) Memo 14 Aug. 1944
From: Col. D.W. Benner, Chief Air Ser. Div., Wash.
To: AC/AS, M&SD, Wash.
(File: MAS)

In a memo dated 14 Aug. 1944 to the AC/AS, M&SD (Wash.), Col. D.W. Benner, Chief, Air Ser. Div. (Wash.), summarized the development of the General Motors triptane project, and made recommendations based on findings of the informal investigating committee. He pointed out that the amount of time required to bring triptane in production in commercial quantities was estimated at two years. The cost in materials and labor was figured from $16,500 to $27,000 per day for quantities up to 4,000 barrels per day, with additional quantities proportionately raising the estimate. On a similar basis, high quality alkylate would run about $3,000 per daily barrel of plant capacity. Col. Benner concluded that triptane, as produced by the General Motors process, did not offer a practical advantage in the production of either the current Grade 100/130 [standard combat] fuel, or the proposed Grade 115/145 improved fuel. He recommended that development of the General Motors process be further encouraged, but that "no concentrated effort be made at this time by the AAF to bring triptane into large scale production." Attention was called to the possibilities of triptane as a

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means of improving the knock rating scale, and as a standard for use in aircraft engineering test work necessitating fuel of exceptionally high antiknock quality.

42. (U) Draft of a paper prepared by C.F. Kettering, Vice Pres. General Motors, Detroit, Mich. "The Effect of Molecular Structure of Fuels on the Power and Efficiency of Internal Combustion Engines" 15 Aug. 1944 (File: Power Plant Lab.)

Mr. C.F. Kettering reviewed the history of triptane, outlined the production of a sample, and discussed the use of the fuel, in a paper prepared for presentation at a general meeting of the American Chemical Society in New York in Sept. 1944. He mentioned tests conducted at WF in 1941 in a full-scale aircraft engine, which found triptane to be superior to any other fuel previously tested. General Motors findings showed that it was possible to obtain almost three times as much horsepower from leaded triptane as from iso-octane. Samples of triptane produced in the General Motors pilot plant were furnished in 1944 to WF, NACA, Allison Division of General Motors, and General Motors Research Laboratories where single-cylinder test engines were showing promising results. The need for engine design to keep pace with fuel development was emphasized.

43. (C) Memo 29 Aug. 1944
From: Col. D.W. Benner, Chief Air Ser. Div., Wash.
To: AC/AS, MAS, Wash.
(File: Power Plant Lab.)

The recommendation of Eng. Div. (WF) that distribution of information on tests of triptane be extended to include members of the NACA Subcommittee on fuels and lubricants and certain reputable oil companies was concurred in by Col. Benner. The Col., however, wished to go even further, and include all manufacturers of aviation gasoline who could advantageously use such information. He stated, "It is believed that the AAF should cooperate as far as reasonable and practicable with all the companies engaged in the production of aviation gasoline, and should not encourage reliance solely on a small part of the industry." In conclusion, he recommended that PAW draw up a rough draft of a distribution list for final approval by the AAF.

44. (C) 2nd Ind. 8 Sept. 1944
From: Brig. Gen. F.O. Carroll Chief, Eng. Div., WF
To: CG, AAF, Wash.
Attn: AC/AS, MAS Lt. Col. C.D. Gasser
(File: Central Files)

Commenting on the confidential nature of the material covered in Mr. Kettering's report, "The Effect of Molecular Structure of Fuels on the Power and Efficiency of Internal Combustion Engines," and on the secret classification carried on it by the Commissioner of Patents, the Chief, Eng. Div. (WF) approved presentation of the paper to the closed meeting of American Chemical Society, "provided distribution of the paper is handled in accordance with Army regulations for the handling of classified documents, and provided no further publication of the paper is made."

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45. (C) AFP #39247
28 Nov. 1944
(File: Contract Files)

Continuation of the initial triptane test program to permit further evaluation of the material as a constituent of aviation fuel and to indicate its commercial possibilities in large-scale quantities necessitated additional procurement of the fuel. AFP #39247 was issued 28 Nov. 1944 from the Power Plant Lab. (WF), authorizing the purchase of 6,000 gals. from General Motors at a total estimated cost of $6,000.

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46. (C) Ltr. 6 Dec. 1944
From: A.B. Culbertson
Asst. Director of Refining, PAW, Wash.
To: Pratt & Whitney
East Hartford, Conn.
Allison Div., General Motors, Indianapolis Ind.
Ranger Aircraft Engines
Farmingdale, L.I.
Wright Aeronautical Corp., Paterson, N.J.
Packard Motor Car Co.
Detroit, Mich.
(File: Central Files)

The principal manufacturers of aircraft engines were informed by the Asst. Director of Refining, office of the PAW (Wash.), that General Motors, anxious to encourage development of triptane and distribution of information on the subject, was making available sizable quantities of the fuel from their pilot plant production. All requests for quantities of triptane were to be approved by the Refining Div. of PAW before being placed directly with General Motors. General Motors had agreed to furnish the material gratis in cases where the requests were for reasonably small amounts.

47. (C) Ltr. 7 Dec. 1944
From: A.B. Culbertson
Asst. Dir. of Refining
PAW, Wash.
To: Lt. Col. C.D. Gasser
Hdq., AAF, Wash.
(File: MAS)

Assuming that AAF Hdq. (Wash.) wished to take advantage of General Motors' offer to procure triptane for use in WF laboratories, the Asst. Dir. of Refining, office of the PAW (Wash.) forwarded a copy of a letter, dated 6 Dec. 1944, which was being widely circulated [see preceding document]. The AAF was requested to advise PAW of contemplated orders of triptane from General Motors. As a matter of information, it was noted that General Motors would produce something over 1,000 gals. per month.

48. (C) Ltr. 13 Dec. 1944
From: Col. D.C. Doubleday
Chief, Eng. Br., Mat. Div., Wash.
To: Asst. Dir. of Refining
PAW, Wash.
(File: MAS)

The Chief, Eng. Br., Mat. Div. (Wash.), advised the Asst. Director of Refining, PAW (Wash.), of negotiations then under way between ATSC and General Motors to fill a requirement for 10,000 gals. of triptane for use in NACA's testing program.

49. (C) Ltr. 28 Dec. 1944
From: Asst. Dir. of Refining
PAW, Wash.
To: CG, AAF, Wash.
(File: MAS)

The office of the PAW (Wash.), acknowledged receipt of information from AAF Hdq. (Wash.) concerning the requirement for triptane to be used in NACA tests for the ATSC. It was noted that General Motors had already set aside 5,000 gals. toward filling the order.

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50. (C) AFP #420161
28 Dec. 1944
(File: Contract Files)

AFP #420161, dated 28 Dec. 1944, was issued from the Power Plant Lab. (WF) to cover procurement, at a total estimated cost of $4,000, of an additional 4,000 gals. of triptane for use in continued evaluation tests of the fuel.

51. (U) TT 3 Jan. 1945
From: Research Lab. Div.
General Motors Corp.
Detroit, Mich.
To: Capt. D. Sweeney
Contracting Officer
Procur. Div., WF
(File: Contract Files)

General Motors advised Procurement Div. (WF) of its desire to have the new triptane contract on AFP's 420161 and 394247 similar to contract W33-038 ac 1881, with the same terms, conditions, specifications and price, with delivery of the first 5,000 gals. by 30 Jan. 1945 and the remaining 5,000 gals. by 30 May 1945.

52. (C) Ltr. 4 Jan. 1945
From: Nat'l Advisory Com.
for Aeronautics, Wash.
To: Director, ATSC, WF
Attn: TSENO (TSEPL-5)
(File: Power Plant Lab.)

A letter dated 4 Jan. 1945, from NACA to Eng. Div. (WF) set forth the procedure for the distribution of NACA reports as follows: (1) after approval by NACA (Wash.) reports were forwarded to ATSC Liaison Office, (2) copies were sent to the Bureau of Aeronautics and the AAF simultaneously, (3) one week after transmittal to Army and Navy, reports were sent to members of the NACA Subcommittee on Fuels and Lubricants, and (4) three weeks after transmittal to the Army and Navy, copies were sent to the petroleum companies, engine manufacturers, and other agencies requested by ATSC. The entire controversy over the dissemination of information on triptane was dissolved when the attached list was compiled, specifying the distribution of test reports.

53. (C) Contract No. W33-038
ac 7711, 22 Jan. 1945
(File: Contract Files)

Under the terms of Contract No. W33-038 ac 7711, entered into 22 Jan. 1945, General Motors agreed to furnish the AAF with an additional 10,000 gals. of triptane at a total cost of $1.00. Provisions made for price, specifications, and conditions were essentially the same as those under Contract W33-038 ac 1881, in compliance with a request to that effect from General Motors.

54. (C) Memo Rpt. TSEPL-5-531-415
7 March 1945
(File: Power Plant Lab.)

At the request of the ATSC Liaison Officer at NACA, a conference was held in Cleveland, O., on 19 and 20 Feb. 1945, to discuss the results of tests conducted to date on triptane and high octane blending agents. Representatives from NACA, the Bureau of Aeronautics, and the Mat. Com. (WF) were present at the conference. The status of the test program to date was as follows: (1) all small single cylinder laboratory knock testing completed, (2) single and multi-cylinder full scale testing about one-half completed, (3) B-24D flight testing about

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two-thirds completed. The results of the NACA tests indicated that, previous opinion notwithstanding, there were hydrocarbons and high octane blend agents equal to or better than triptane from the standpoint of knock rating. These included neohexane, diisopropyl, toluene, and methyl tertiary butyl ether, all more easily obtained than triptane. Apparently the value of triptane as a high-octane blending agent was contingent upon its ability to compete economically with a number of already available hydrocarbons.

55. (C) Ltr. 14 April 1945
From: Col. J.G. Moore, Exec. AC/AS, MAS, Wash.
To: Director, ATSC, WF
Attn: Chief, Eng. Div., WF
(File: Power Plant Lab.)

In a letter to the Director, ATSC, dated 14 April 1945, the office of the AC/AS, MAS (Wash.), outlined a program of engine development proposing the use of super fuels ranging from Grade 140/200 to 160/300, with triptane as a blend agent or as the fuel itself. It was hoped that either by modifying an existing engine model or by designing a new one, a conventional engine model would emerge, which would be capable of taking full advantage of the high quality fuel.

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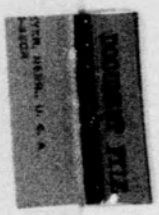

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...ity for Purchase ... ac 14696

PURCHASE ORDER No. AC-6926

TERMS METHOD PROPOSAL X 48-5178

THE ABOVE SPACE TO BE USED BY THE PURCHASE BRANCH ONLY

		Unit	Estimated Unit Price	DESCRIPTION OF MATERIAL OR SERVICES TO BE PURCHASED.	Unit Price
1	125	gal.		Triptane (2,2,3-trimethylbutane) meeting the specification requirements of Exhibit "A" attached. Subject to Inspection & Test at Destination	35.00
	150	gal.			
	175	gal.			
	200	gal.			

Bid shall be submitted for each of the quantities listed. The Procuring Agency reserves the right to award the contract on any one of the quantities listed.

INCORPORATE / ELIMINATE } LIQUIDATED DAMAGE CLAUSE

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THIS AFP CANCELS AND SUPERSEDES AFP 30-156[illegible]

COMPLETE

1

Total Estimated Cost $ 5,000.00 CLASSIFICATION 06-A

B—FUNDS			A—FUNDS		C—FUNDS		
EXPEND ORDER No. MISCL. CHARGE No.	Project No.	Item No.	Project No.	Item No.	Project No.	Class. No.	Item No.
531-1-46	71-2	531-1					

MATERIAL TO BE OBLIGATED FOR: Power Plant Laboratory WANTED NOT LATER THAN (See Note) (Date)

DELIVER TO: Supply Officer, Wright Field, Dayton, Ohio

Procurement Data Number of Sets DATE FURNISHED

Remarks on the following matter marked with "X" appear in the space below:

1. Recommended Sources of Supply X 2. Government furnished material 3. Tools, patterns, etc., loaned by Government
4. Should Serial Number be assigned 5. Point of Inspection X 6. Increase Existing Orders 7. General Remarks: X

1. Ethyl Gasoline Corporation, 726 E. Milwaukee Avenue, Detroit, Michigan.
Shell Oil Company, Inc., Shell Building, St. Louis, Missouri.
Phillips Petroleum Company, Bartlesville, Oklahoma.
Standard Oil Development Company, 26 Broadway, New York, New York.
Union Oil Company of California, Union Oil Building, Los Angeles, California.
Standard Oil Company of California, 225 Bush Street, San Francisco, California.

5. Destination Wright Field, Dayton, Ohio

7. In accordance with R.S.O.M. 38-19, the following information is furnished:
This is a pure chemical compound which will be used by the Power Plant Laboratory to determine its value as an aircraft engine fuel and/or its value as a primary reference fuel for determining the antiknock value of aircraft engine fuels having

Delete 10 days

(OVER)

Proc. Auth. No. AC 11 P 11-1311 A 0205-0

Proc. Auth. No. AC P A

Proc. Auth. No. AC P A

Upon due inquiry made it was found that the articles enumerated hereon could not be procured from any other branch of the Government without transfer of funds, or the immediate need of these supplies or the remoteness of this station from point of supply precludes their procurement from any other branch of the Government.

Initiated by Robert V. Kerley

Major, Air Corps, Chief, Power Plant Lab.

Chief, Power Plant Laboratory

2/29/40

Chief, Production Engineering Sec.

Cleared

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antiknock values in excess of that of 2,2,3-trimethyl pentane. The fuel will be used in full scale single cylinder aircraft engines and in Cooperative Fuel Research engines.

b) Tentative ratings obtained on very small quantities of this chemical compound have been obtained by the Ethyl Gasoline Corporation which indicate that triptane is equal to iso-octane plus 6.0 milliliters tetraethyl lead per gallon in antiknock value. If this rating is correct, triptane would be of extreme military importance in preparing fuels of exceptional antiknock value.

c) This is a new compound. It has previously been prepared only in small quantities (approximately one or two gallons).

d) A considerable number of petroleum companies are extremely interested in the possibilities of manufacturing triptane as a fuel or as a primary reference standard for knock tests provided full scale single cylinder ratings substantiate supercharged Cooperative Fuel Research engine test results. Procurement of from 125 gallons to 200 gallons of the compound, depending on the price quoted, will encourage the petroleum industry to determine methods for handling this material and will provide sufficient fuel for limited exploratory knock tests to determine whether this fuel is relatively stable under various operating conditions. If previous knock test results are substantiated, triptane will permit engine output to be increased from 40 to 60 per cent before it is limited by detonation. The addition of tetraethyl lead to triptane is expected to increase the figures given. It is, therefore, of considerable military importance that this fuel be procured for investigation.

Circular Proposal No. 40-367 was cancelled due to the high price quoted for this product. Recent information has been obtained to the effect that triptane meeting the requirements of this specification may be obtained at a cost of less than one-half the price quoted in response to the previous circular.

Request 10 days opening.

Note: [illegible] gallons to be delivered by May 1, 1940 and the remainder to be [illegible] rate of not less than fifty gallons per month thereafter.

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(AFR 11-30)

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TO: Chief,

SUBJECT: (Symbol)

Subject:

ENGINEERING ENGR.
Engines
Propellers
Aircraft
Armament
Equipment
Accessories
Communications
Misc.

PRODUCTION ENG.
Attack
Reinforcement
Cargo
Observation
Pursuit
Training
GFE
Radio
Misc.

CONTRACTS
Administration
Legal
Purchase

FIELD SERVICE
Administrative
Depots
Supply
Maintenance

INSPECTION

1.

for Purchase

Ethyl

ing a

Consequently

estimate

and said

per gallon.

from the

gallon

view of

2. The second

circular was issued and

curement being made because

Gasoline Corporation did not

bid and performance bond with the

in their letter dated April 8.

Simmons of the Contract Administration

ceived from the Shell Oil Company

per gallon. No award was

too high.

3. Since the time of opening of that circular,

Mr. Kerley of this Section conferred

Ethyl Gasoline Corporation by telephone

the bid request were recircularized to the

ation, Attention Mr. S. D. Heron, the

could bid on this material. This material is at the present time

being synthesized by the Ethyl Gasoline

imately 200 gallons of this

quantity approximately

for the Air Corps, pending

gallons of the material

Corporation for their own private

the batch will be sold to

interested in this

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WAR DEPARTMENT
ARMY AIR FORCES
Form No. 93B
(Rev. Jan. 20, 1940)

Address all correspondence regarding this order for attention of

FJK:MEG

Ditto Master
WAR DEPARTMENT
ARMY AIR FORCES

CO. ACT No. W535 ac-11496

ORDER No. 40-6926

To insure prompt payment, place this Order Number on all Packages, Bills, and Correspondence.

PURCHASE ORDER

To ETHYL GASOLINE CORPORATION,
405 Lexington Avenue,
New York, New York.

Ship to Quartermaster, Wright Field,
Wright, Greene County, Ohio,
marked for: Air Corps Supply
Officer.

Date April 22, 1940.

Ship on transportation charges prepaid.
May 1, 1940

Delivery within ____ days from date of receipt of this order.

Terms Net - 30 days after receipt and acceptance of materials.

ALL ARTICLES MUST BE DELIVERED F. O. B. destination.

Inquiry K-40-5278 dated 4/17/40 which by specific reference is made a part hereof,

In accordance with your ____ proposal dated ____ and subject to all conditions and requirements hereof and to all advertisements, circulars, specifications, and samples expressly described or referred to herein, entered by you for furnishing the following articles at the prices stated and at the time, place, and in the manner herein specified.

Item No.	Quantity	Unit	Class. 06-A. ARTICLE	Unit Price	Total Price
1.	125	gal.	TRIPTANE (2,2,3-trimethylbutane) commercially pure. This material shall be not less than 97 mol. percent pure 2,2,3-trimethylbutane. The finished material must meet the following specifications: Refractive Index 20_D, max. = 1.3898 min. = 1.3892 Density $\frac{20}{4}$, max. = 0.6918 min. = 0.6907 Freezing point, °C., max. = -25.0 min. = -31.0	$35.00	$4,375.00

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(Continued on Page Two)

Acknowledge this order and state delivery. When shipment will be made.

Final inspection and acceptance at destination.

When ready for inspection, and if practicable, ten days in advance thereof, notify

AC D ? 71-1361 ; 0705-0

Power Plant Lab. (Dayton) 71-2, 331-2, 331-1-86.

2/24/40.

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Distillation Range:- The distillation range shall not exceed 2.0°C. and must include the boiling point of 80.88°C.

Unsaturation: Unsaturation shall be determined by bromine number in accordance with the method of A. W. Francis as described in Industrial and Engineering Chemistry, Vol. 18, 1926, pp. 821, 822 and 1095:
"Estimation of the Unsaturated Content of Petroleum Products".
The amount of bromine absorbed shall be not greater than 16 mgm per gram of fuel.

NOTE: Material may be supplied either in 5-gallon metal containers or in non-returnable steel drums of approximately 50-gallon capacity.

NOTE: Order number must be marked on shipment. Individual containers to be marked showing name of material, quantity, and name of manufacturer.

CERTIFICATE WITH INVOICE: Sub-paragraph (a) of paragraph 17 on the reverse side of page 2 of Inquiry referred to on page 1 hereof is applicable hereto.

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Purchase made in the open market under the provisions of Par. 4-h, AR 5-240. Previous advertising on Circular Proposal No. 40-1275 resulted in receipt of only one bid which was excessive, and further advertising would not alter the results.

Approved 4/23/40
(Signed) A.E. Jones
Lt. Col. AC
Chief, Contract Sec.

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TELETYPE MESSAGE

PRIORITY

DATE: Jan. 23, 1943. 3:30 P.M.

FROM: [illegible] Division

ATTENTION: [illegible] (2).

REMOVE FROM RECORDS

T. C. DUNGAN, Maj., A.C.
FOR T. C. [illegible],
Brig. General, U.S.A.

[illegible]-I-7302. . . . ADVISE COLONEL D. C. LITTLE OF HEADQUARTERS AAF BOARD THAT DATA AVAILABLE ON KNOCK RATINGS VS TRIPTANE AND TRIPTANE BLENDS INDICATE THE FOLLOWING: TESTS ON CFR SUPERCHARGED V-1650 ENGINE 100/ TRIPTANE IN HOUSTON TYPE 100 OCTANE FUEL PERMITS 13.5% POWER INCREASE. SAME ENGINE 15% TRIPTANE IN 100 OCTANE FUEL PERMITS 21% POWER INCREASE. SAME ENGINE 20% TRIPTANE IN 3 PLUS 3 ML. PERMITS 35.0% POWER INCREASE. FULL SCALE R-1830-92 USING 25% TRIPTANE IN 5 PLUS 3 ML. PERMITTED 9% POWER INCREASE AT CO FUEL AIR RATIO. THIS BLEND FULL SCALE RATING EQUIVALENT TO 5 PLUS 5 ML. UNLEADED TRIPTANE IN R-1830 EQUAL TO 5 PLUS 6 ML. FUEL SCALE SINGLE CYLINDER TESTS BY SHELL AND WRIGHT AERONAUTICAL SHOW UNLEADED TRIPTANE TO FALL IN RANGE 5 PLUS 3 TO 5 PLUS 6. VOLATILIZATION CHARACTERISTICS OF TRIPTANE ARE SLIGHTLY BETTER THAN REFERENCE ISOOCTANE. IN GENERAL TRIPTANE IN SMALL CONCENTRATIONS IN BLENDS HAS FEW ADVANTAGES OVER COMMERCIAL OCTANES BUT ADVANTAGES EXPECTED TO INCREASE AS CONCENTRATION IN BLEND INCREASES OR AS KNOCK VALUE REQUIREMENT INCREASES.

[illegible]

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463.8-1-Vol 16

W350

JEROME C. HUNSAKER, SC. D., CHAIR
GEORGE J. BEAR, SC. D., VICE CHAIR
CHARLES G. ABBOT, SC. D.
LT. GEN. HENRY H. ARNOLD, U. S. A.
LYMAN J. BRIGGS, PH. D.
VANNEVAR BUSH, SC. D.
DONALD H. CONNOLLY, S. S.
WILLIAM F. DURAND, PH. D.
MAJ. GEN. OLIVER P. ECHOLS, U. S. A.
ROBERT H. HINCKLEY, A. B.
CAPTAIN SYDNEY M. KRAUS, U. S. N.
FRANCIS W. REICHELDERFER, SC. D.
REAR ADMIRAL JOHN H. TOWERS, U. S. N.
EDWARD WARNER, SC. D.
ORVILLE WRIGHT, SC. D.

[redacted]

LANGLEY MEMORIAL AERONAUTICAL LABORATORY
LANGLEY FIELD, HAMPTON, VA.
AMES AERONAUTICAL LABORATORY
MOFFETT FIELD, CALIF.
AIRCRAFT ENGINE RESEARCH LABORATORY
CLEVELAND, OHIO

[redacted]

NATIONAL ADVISORY COMMITTEE
FOR AERONAUTICS
1500 NEW HAMPSHIRE AVE., DUPONT CIRCLE
WASHINGTON, D. C.
TELEPHONES: EXECUTIVE 3018, 3116, 3017

April 20, 1943.

5

Commanding General,
Materiel Center,
U.S. Army Air Forces,
Wright Field, Dayton, Ohio.

Attention: Colonel E. R. Page.

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(AFR 11-30)

Dear Sir:

The National Advisory Committee for Aeronautics on recommendation of the Subcommittee on Aircraft Fuels and Lubricants, and the Committee on Power Plants for Aircraft, has sponsored a research investigation in the Chemical Research Laboratory of the Ethyl Corporation on the possible large-scale commercial methods of preparing triptane as a fuel for use in aircraft engines. In this connection there is enclosed a copy of a letter dated April 5, 1943, from Dr. George Calingaert, Director of the Ethyl Chemical Laboratory, briefly summarizing the results obtained.

With regard to the advisability of extending the research conducted by the Ethyl Corporation laboratory it is understood that the Army Air Forces are sponsoring the development by the General Motors Research Laboratories of another possible process for the commerical production of triptane, and that this process is now in the pilot plant stage.

Inasmuch as the funds under which Dr. Calingaert has been conducting his investigation have been exhausted, consideration is being given to the possible extension of his research. The Committee would appreciate being advised as to whether it appears worthwhile to continue the investigation of methods of preparing triptane on a commercial basis in the Ethyl Corporation Chemical Laboratory in view of the process that is being developed by the General Motors Laboratories.

FOR VICTORY BUY UNITED STATES DEFENSE BONDS AND STAMPS

CENTRAL FILES
5-25-43

MAY 31 1943

Very truly yours,
NATIONAL ADVISORY COMMITTEE
FOR AERONAUTICS

[redacted]
Director of
Aeronautical Research

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[redacted] COMMAND

Reference: [illegible]

MAY 21 [illegible]

National Advisory Committee for Aeronautics,
1500 New Hampshire Avenue, DuPont Circle,
Washington, D. C.

463.8

Gentlemen:

This is in reply to your letter, dated April 20, 1943, relative to the synthesis of triptane.

The Material Command is not in position to determine whether further work should be conducted by Dr. Goldsworthy on the synthesis, in commercial quantities, of triptane. Since Mr. A. A. Boyd is making the Special Group dealing with the problems of this synthesis, it would appear that the Special Group of the Sub-Committee on Aircraft Fuels and Lubricants should handle this question.

Very truly yours,

CHESTER D. SEFTENBERG,
Major, Air Corps,
Asst. Technical Executive.

JUN 2 [illegible]

cc: Mat. Com Lia. Officer at
the N.A.C.A. Aircraft Engine
Research Lab., Cleveland
N.A.C.A. Lia. Br., Engr. Div.

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EXECUTIVE DIRECTIVE

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oc-6-992

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AFMC-100-WP-6-30-45-5 MIL

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TECH. EXEC.
ADM. EXEC.
C. O.
BUD. OFF.
EXP. ENG.
CONTRACT
ENGR.
PROD. DIV.
PROD. ENG.
PROD. CONT.
I. P. S.
A. S. C.
TECH. DATA
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OTHERS

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X

UNIVERSAL OIL PRODUCTS COMPANY
OWNER & LICENSOR DUBBS CRACKING PROCESS
CHICAGO, U.S.A.
NEW YORK
50 WEST 50TH STREET

310 S. Michigan Ave.
Chicago, June 24, 1943

Registered Mail -
Return Receipt Requested

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(AFR 11-30)

Mr. Robert V. Kerley
Chief, Fuel & Oil Test Unit
U. S. Army Air Corps
Materiel Division
Wright Field
Dayton, Ohio

Re: Triptane

Dear Sir:

In accordance with your request at meeting which our Mr. Bogen had with you and others on June 18th regarding Triptane, we enclose four copies of our confidential report on "Production of Triptane", dated June 7, 1943.

This is your authority to release the report to the special panel of the NACA Sub-Committee for Fuels and Lubricants devoted to Triptane syntheses. You understand that this clearance, however, is subject to Army approval which no doubt you will arrange to obtain. We understand the group who will receive copy of this report is as follows:

T. A. Boyd - General Motors
J. B. Hill - Sun Oil Company
Sam Heron - Ethyl Corporation
G. Davis - Standard Oil Development Co.

This release is being made with the definite understanding that we consider this a highly important and confidential piece of work resulting from much effort and expense, and that our interests will be fully protected.

Your acknowledgment will be appreciated.

Yours very truly,

UNIVERSAL OIL PRODUCTS COMPANY

J. G. Alther
Vice President

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Report Number OC-93
Project Number 40-1

Number of Pages 7

RESEARCH LABORATORIES DIVISION
GENERAL MOTORS CORPORATION

Detroit, Michigan

TRIPTANE

Reported by:
Wheeler G. Lovell
Organic Chemistry Department

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Approved by:

T. A. Boyd, Head of Department

H. C. [illegible], Technical Director

August 20, 1943

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August 20, 1943

The future development of automotive and aircraft engines will depend upon how well management, as well as engineers, understand the fundamental fuel problem. This problem is how to produce very high octane fuels and how to design engines to take advantage of their great possibilities.

High octane number, or freedom from knock, is dependent upon the arrangement of atoms in the molecule of the fuel, and also upon the amount of tetraethyl lead added.

On the following pages we will show you some of the different molecular arrangements so you may see what a great difference is made by simple changes in molecular structure. Shown also is the particular combination (triptane) which we have picked out as being the most ideal fuel component, together with some of its performance curves, and some pictures of the pilot plant now under construction. On the final page is the layout of a larger plant, many of which would be needed, provided the fuel should go into general use.

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The chart below shows all of the 18 possible combinations of 8 carbon atoms and 18 hydrogen atoms which make the octane group. The one in the frame, which is iso-octane, is rated at 100 octane number, and is the basis of present 100 octane fuels. The full line curve indicates the highest compression ratio at which the compounds alone can be used as fuels in our test engine. The dotted curve shows corresponding values for the compounds with 3 cc of tetraethyl lead per gallon.

The first compound, or combination of carbon and hydrogen atoms, (at the left) is normal octane and shows an increase of about 0.5 ratio only for 3 cc of lead, while iso-octane shows about 4 ratios increase, or eight times as much.

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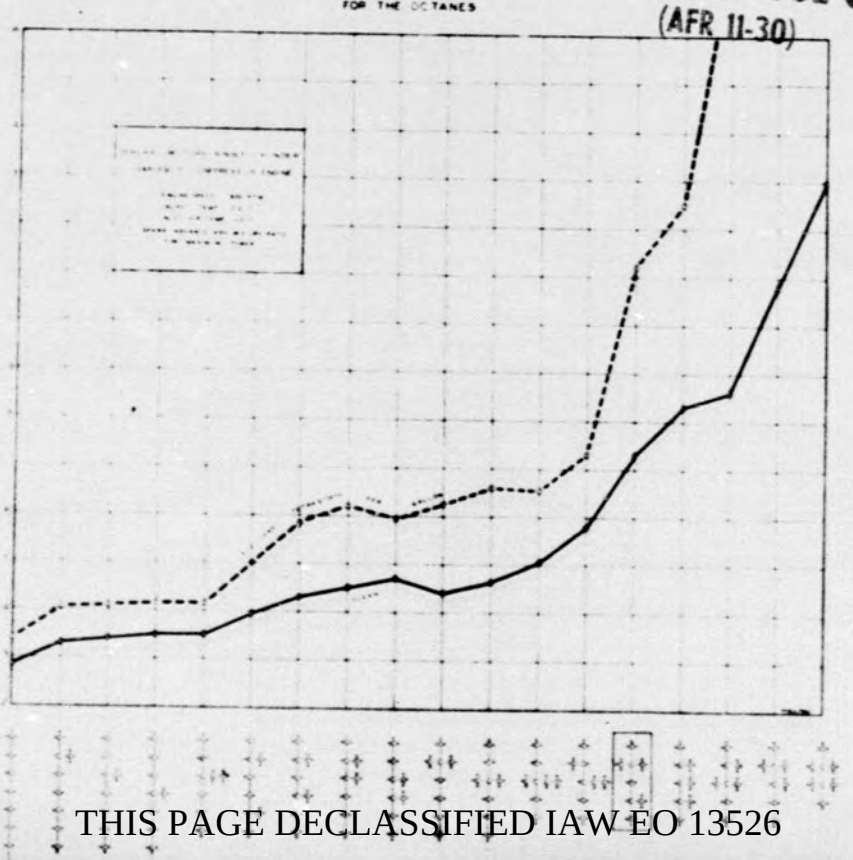

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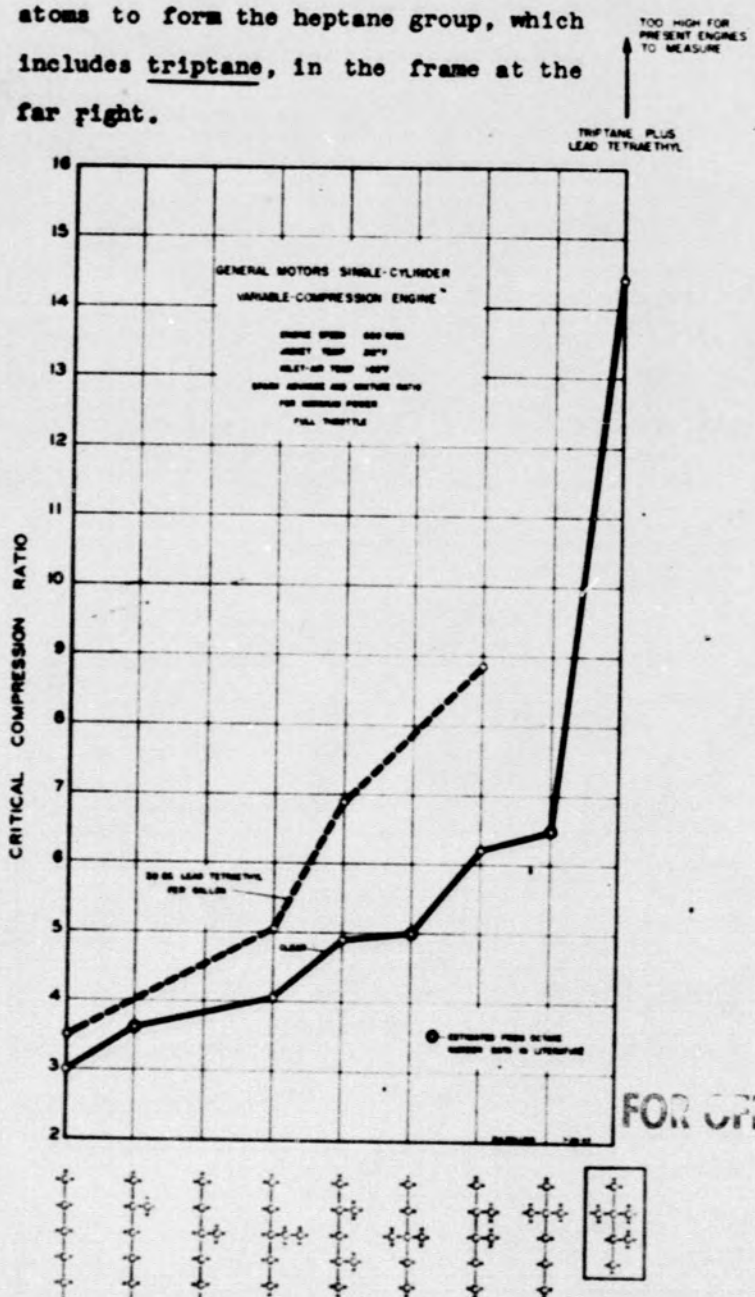
This chart shows the possible combinations of 7 carbon and 16 hydrogen atoms to form the heptane group, which includes triptane, in the frame at the far right.



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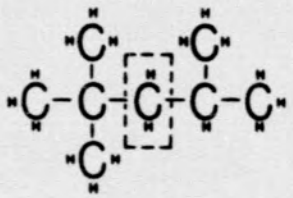
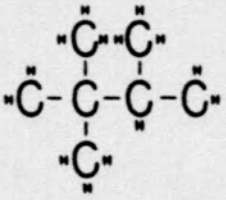
The table of iso-octane and triptane below shows two interesting examples of the effect of changes in molecular structure. The only difference is the removal from iso-octane of one carbon atom and two hydrogen atoms, marked by a box, to form triptane. This results in the great difference in the value of the compounds as fuels as shown in this table.

	Limiting Compression Ratio	
	Clear	With 3cc lead
Iso-octane 	7.3	11.3
Triptane 	14.4	Too high to measure in present laboratory equipment.

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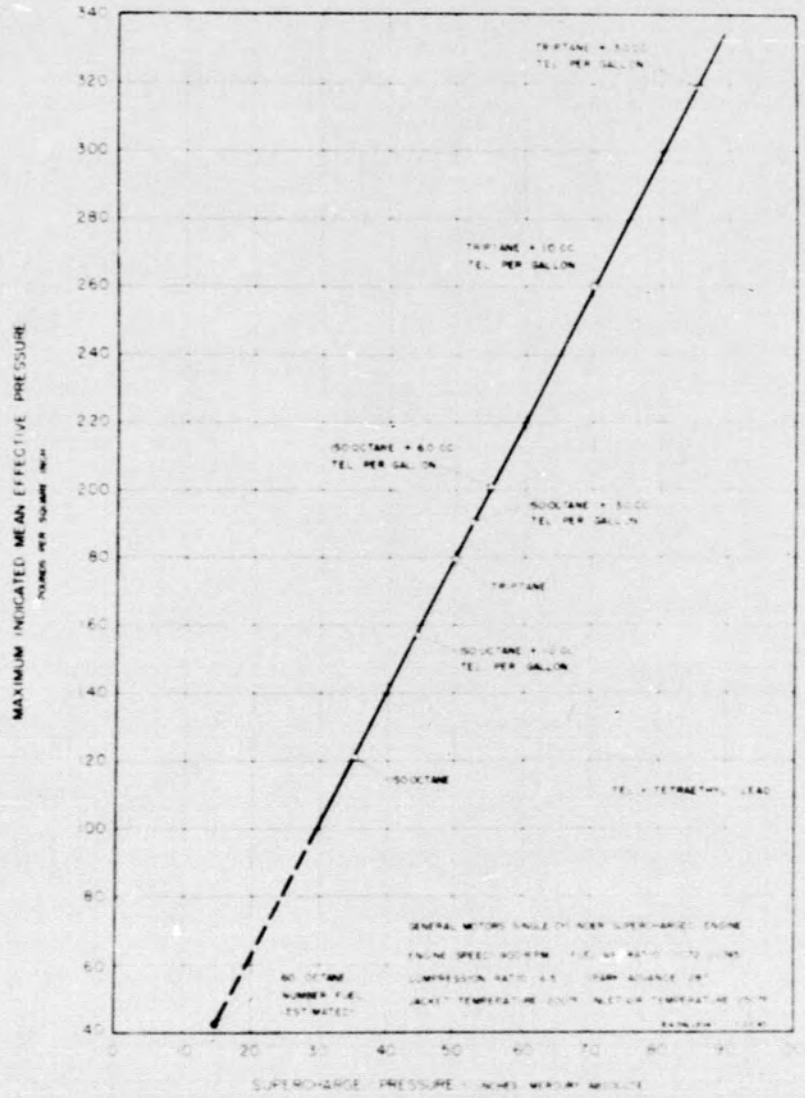
This chart shows that it is possible to get about twice as much horse power from triptane plus 3 cc of tetraethyl lead per gallon as from iso-octane, which is 100 octane clear, plus 3 cc of lead.



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1. Construction of Plant

The construction of the plant according to preliminary plans is now substantially completed at a cost of about $400,000, except for the installation of the reactor, the heart of the process, which is now undergoing final test at the Blaw-Knox Company in Pittsburgh. Present expectations are that the reactor will be received in Detroit not earlier than September 7, and cannot be expected to be ready for trial operation until after September 11.

The design basis of the plant is the small-scale laboratory experimental plant installed in the Research Laboratories, which has now been in operation for about 6 months, during which period it has undergone many important modifications, all of which have served to determine the design selected for the pilot plant.

The purpose of the pilot plant is two-fold; first, to make a quantity of triptane sufficient for preliminary full-scale engine tests and thereby to evaluate its potential application as a fuel, and, second, to evaluate the technical and commercial possibilities of the process of manufacture.

2. Operation of Plant

The plant now is scheduled to begin operating on an experimental basis September 13. It has been deemed advisable to have the final welding of the reactor lines and other vital components of the system completed so as to eliminate the flow hazard from operations which might otherwise have been started earlier, since steam and process heat are already available. The plant will be operated by the Research Laboratories Division of General Motors, and already all operators required are available.

Raw materials are scheduled for suitable delivery, due to the cooperation of the

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Island Line & Transport Company. No delay is expected in this quarter. To attain ~~various capacity~~ depends upon the accumulation of adequate inventories of semi-finished products; and this in turn depends upon the successful operation of a very new and technical chemical reaction (upon which we have had over a year's experience but on a very much smaller scale).

3. Estimated Output

The process involves batch operation of the reactor, estimated to produce an average of 40 gallons of triptane per batch. Eventually, on the basis of experience with the smaller unit, we hope to attain a maximum of 6 batches, or cycles of 6 per three-shift 24-hour day, which would enable us to produce 4,000 gallons monthly. This is considerably more than the original estimate, due to improvements resulting from continuous research with the laboratory small-scale model equipment.

4. Utilization of Output

In the present emergency we must realize that the utilization of such fuel as we may be able to produce in the early stages of operation will be allocated to research of a current nature where it might be expected to prove of value in the War effort. Such programs must of necessity be flexible at this time. However it would seem obvious that this research would go along three important lines of endeavor -

a. as a blending agent

b. as a super-fuel for take-off

c. as a super-fuel for engines subject to immediate modification for higher output or superior economy.

Evaluation in these fields will be carried out in cooperation with the Army (Wright Field), the NACA Laboratories and numerous engine manufacturers, and will of necessity embrace single-cylinder research on which there already is important background data. It is [illegible] such efforts

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through cooperative work with those best qualified.

5. Increase of Output

We assume that, even at maximum output projected, this pilot plant will prove inadequate. In the current emergency, expansion of the present pilot plant offers the quickest solution of this problem, but obviously cannot be carried beyond certain limits. Already plans have been made for acceleration of the process through the installation of a continuous reactor, the design of which is in process, and a laboratory model of which is under construction. An additional "batch" reactor would assumably double the output of the present plant, and the continuous reactor would do more than that, without other serious changes, if the present process and the design for such a reactor prove successful.

As a result of cooperative research by Sharples Chemicals, Inc. and ourselves, it now appears that a new source of trimethyl ethylene would justify such expansion.

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6. Commercial Applications

We believe the ultimate cost of the new fuel will be found to be much less than its utility value. It is to establish this point, that we need an increasing production from the plant now about to be put into operation.

We visualize this new process as a broad one of methylation, or the addition of methyl groups, cheaply obtained, to a cracked fraction of petroleum to produce high-octane paraffinic fuels not otherwise readily obtainable.

Our plans for the future, therefore, contemplate an intensive study of the possibilities for linking the production of triptane to the national airplane fuel supply in a commercially sound manner.

The fundamental raw materials are coal or natural gas, cracked petroleum, and electric energy. In our semi-commercial plant we now are using methyl chloride, tertiary amyl alcohol and lime, which is purely an expedient to produce the product

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as soon as possible and to check the new method of linking coal or natural gas and petroleum. We have under laboratory development methods for eliminating chlorine and lime as raw materials, using them for recycle make-up only.

The most advantageous location of a plant would be such as to maintain economical relationship to supply of natural gas or coal, petroleum and electric energy, therefore we are giving these matters intensive study.

Continuing Research and Development

The General Motors Research Division has long been active in the development of petroleum products, especially fuels and lubricants, because they are so highly coordinated with internal combustion engine progress. To this end they have allocated several million dollars to the study of fuels alone since long before the last war and from such research has come lead tetraethyl ("Ethyl") and more intense efforts based upon a realization that molecular structure was the governing factor of all high octane fuels.

The present Triptane development is, therefore, an offshoot of these studies and is a practical example of progress, now available for use in the current War effort.

Since it is a recognized fact that Triptane is capable of increasing internal combustion engine output beyond material and structural limitations of the current engine designs, the tempo of our research will be stepped up to embrace an intensive program of mechanical design and combustion studies in order to take greater advantage of the potential value of such super fuels.

E. G. Lovell
September 1, 1943.

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WAR DEPARTMENT
HEADQUARTERS OF THE ARMY AIR FORCES
WASHINGTON

13 September 1943

MEMORANDUM FOR: Assistant Chief of Air Staff
Material, Maintenance, and Distribution

SUBJECT: Triptane.

1. The possible value of triptane as a component of aviation gasoline has been recognized for a number of years and has been the subject of technical investigation. The quantities available have been produced from laboratory apparatus and the lack of a substantial supply prevented extensive evaluation tests.

2. On January of this year the General Motors Corporation presented a proposal to the Army Air Forces for construction of a pilot plant which would make a quantity of triptane for test purposes by a new method. In view of the critical shortage of aviation gasoline, the Under Secretary of War directed the Aviation Petroleum Branch, Army Air Forces to secure the necessary priorities for this project and to assist in expediting construction.

3. The Aviation Petroleum Branch secured an A-1 priority for the project in March and with the Chemical Branch of the War Production Board has given considerable assistance in expediting the delivery of the necessary equipment. The Aviation Petroleum Branch has also assisted in the solution of various construction problems. All the materials have been delivered and the project will be completed and in operation on September 20th. This is substantially as originally scheduled by the General Motors Corporation. Due to improvement and revisions while the construction work was in progress it is expected that the pilot plant will produce [redacted] which is almost twice the original [redacted]. Enclosure No. 1 is a report from the General Motors Corporation giving status of the project as of September 1, 1943.

4. Within a period of [redacted] days, the General Motors Corporation expect to accumulate and have available a substantial quantity of triptane for testing. It is the intention of the Aviation Petroleum Branch, to prepare with the cooperation of the General Motors Corporation, a program for testing the various possible blends and combinations in which this component might be used in aviation fuels. This will include small engine laboratory testing, full scale engine testing, and flight testing of the various blends.

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5. Concurrently with this testing program, the Aviation Petroleum Branch in cooperation with the General Motors Corporation, will study the commercial application of the pilot plant process to large scale production. This study will include the availability of existing Ordnance and refinery equipment to manufacture the necessary feed stocks as well as the availability of the required raw materials.

6. It is the intention of the Aviation Petroleum Branch to actively follow the testing program, as well as the investigation of the commercial production possibilities. Reports will be submitted periodically on the progress of the program.

H. C. LYNDON
Colonel, Air Corps.
Chief, Aviation Petroleum Branch

Incls. - 2
Rpt. fr GMC dtd 8/20/43
entitled Triptane

Ltr. to Col. Ring fr GMC
dated 9/4/43 and inclosure

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UNIVERSAL OIL PRODUCTS COMPANY
OWNER & LICENSOR DUBBS CRACKING PROCESS
CHICAGO, U.S.A.

NEW YORK
30 WEST 50TH STREET
LONDON, ENGLAND
DR. V. HENNY, REPRESENTATIVE
BUSH HOUSE, ALDWYCH
CABLE ADDRESS - ALL OFFICES
"DUBBSPRO"
BENTLEY CODE

RESEARCH AND DEVELOPMENT LABORATO[redacted]
Riverside, Illinois

September 24, 1943

10

Commanding General
Materiel Command
Wright Field
Dayton, Ohio
Attn: Dept. 57

Dear Sir:

Attached are three copies of our report entitled "Triptane." This report supplies the data which Mr. R. V. Kerley and Capt. J. Duckworth requested during the writer's visit to Wright Field on June 18, 1943. At that time a report on the UOP process for the production of triptane was presented.

This report includes the following:

1. Data on the blending properties of UOP triptane in PPF-821, two 130 grade fuels and the alkylate replacement value in a 140 grade fuel.
2. Estimated cost of Triptane Pilot Plant (capacity 1000 gal./wk.).
3. Process specifications for Pilot Plant.
4. Design specifications.
5. Estimated cost of hydrogen generating equipment.
6. Equipment weights of Pilot Plant equipment.
7. List of possible equipment suppliers.
8. Flow chart of Pilot Plant.

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It should be noted that in the case of the hydrogen generating equipment there is an optional choice which depends on the total quantity of triptane to be made. We have made inquiries indicating that sufficient hydrogen may be purchased for something less than $10,000 for the production of 10,000 gallons of triptane. However, transportation will be a problem and it may be necessary to ask for the loan of Army hydrogen trailers to offset this difficulty. If it is expected that triptane will be produced in excess of 30,000 to 40,000 gallons, the installation of hydrogen generating equipment may be desirable.

We would like to send representatives to Wright Field for discussion of the details of this data and proposal after your staff has had sufficient time for a study of this report.

Very truly yours,

UNIVERSAL OIL PRODUCTS COMPANY

J. S. Bogen

J. S. Bogen
Research and Development Laboratories

JSB/dw

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MX 367-1-18

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WAR DEPARTMENT - ARMY AIR FORCES
Office, Asst. Chief of Air Staff, Materiel, Maintenance, & Distribution

Inter-Desk Memorandum

Date 27 Sept. 1943

TO: General Ohidlaw

SUBJECT: Triptane - Attached Report

Judging from the curves, attached, this fuel seems to have considerable promise. I believe we should get in on the early testing with a B-17, B-24 and P-47, since there is a possibility of increased power for take-off and considerable possibility on range extension, which is important in all three of these planes right now. In fact, the range extension on the P-47 is of such importance that if the parties agree that there is considerable improvement in range with this fuel, we should probably put it at the head of the list of tests to be run as quickly as possible. We should also have them run down as soon as possible the reactions to our leak-proof cells to be expected from this blend.

From J. W. SESSUMS, Jr.

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SOCONY-VACUUM OIL COMPANY
INCORPORATED
GENERAL LABORATORIES
26 BROADWAY
NEW YORK

J. B. RATHER [redacted]

October 4, 1943

Commanding General
AAF Materiel Command
Wright Field
Dayton, Ohio

Attn: Mr. R. V. Kerley - Dept. 57

MX-367

Triptane for Full-Scale Aircraft Engine Tests

Dear Sir:

You will recall that at the time of the visit made by Dr. A. A. O'Kelly, Dr. C. H. Schlesman and W. S. Mount to Wright Field, we offered to let you know how much triptane we could manufacture for full-scale engine tests. At that time we had in mind the manufacture of triptane in a small pilot plant in the laboratory, the conversion of larger equipment in the laboratory to the manufacture of triptane, and possibly the conversion of some refinery equipment as three separate alternates.

The utilization of refinery equipment involves a very great loss in the production of Grade 130 aviation gasoline and we do not feel that it is practicable at this time. We are actually making triptane at the present time at the rate of about five gallons per month and expect to have enough soon for small single cylinder engine tests, and possibly enough for very brief full-scale single investigations. The capacity of this unit is therefore not of interest in your work.

As indicated in our telephone conversation on Friday, October 1st, we believe that approximately two barrels per month of triptane alkylate could be manufactured by the conversion of some existing laboratory equipment. However, a rather large expenditure and utilization of practically all our manpower on a triptane project would be taken in the production of triptane in this fashion. We have carefully considered the matter and believe that our time should be spent on improving the process rather than making triptane in quantities for full-scale engine work. We are glad that you agree with us in this matter, and will make every effort to bring the process to a more satisfactory stage of development in the near future.

We will keep you informed on the matter and will offer promptly all our engine data for your information.

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Very truly yours,

P. V. KEYSER, JR.

wSMount/t

ECS 12-30-43

cc: Mr. T. G. Thompson
Dr. C. H. Schlesman

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WAR DEPARTMENT
HEADQUARTERS OF THE ARMY AIR FORCES
WASHINGTON

20 December 1943

MEMORANDUM FOR: Assistant Chief of Air Staff
Materiel, Maintenance and Distribution.

SUBJECT: Triptane (2.2.3-trimethyl butane).

1. Reference is made to report to Assistant Chief of Air Staff, Materiel, Maintenance and Distribution dated 13 September 1943. (Inclosure No. 1).

2. Colonel D. G. Lingle, A. C., accompanied by Major H. C. Dees, A.C. of Aviation Petroleum Branch and Mr. R. V. Kerley of Materiel Command conferred with Mr. C. F. Kettering and several of his associates in the Research Division of the General Motors Corporation in Detroit, Michigan on the subject of the production and testing of triptane, at Detroit, Michigan, 2 December 1943.

3. The General Motors Corporation has solved numerous mechanical problems encountered with their pilot plant for the production of triptane. The process had been tested through intermediate stages and finished material will be available to the Army Air Forces for test purposes about 1 January 1944. Tentative arrangements were made for a conference to be held soon after 1 January 1944 to instigate an investigation of the practical possibilities of the General Motors process for large scale production of triptane.

4. The General Motors Corporation agreed to supply triptane to Army Air Forces for evaluation as a component of aviation gasoline at a price not to exceed $1.00 per gallon for a maximum quantity of 10,000 gallons. (This quantity was considered sufficient to start a test program.)

5. To date, the triptane production processes that have resulted from experimental work being done by the General Motors Corporation has been classified as a Secret Project by the Office of the Under Secretary of War. That Corporation desires that basic testing of triptane be confined to fuel test laboratories of the National Advisory Committee for Aeronautics and the military services.

6. In order to expedite delivery and tests of triptane pending preparation and negotiation of necessary procurement documents, it was suggested that the Army Air Forces issue a letter of intent to the General Motors Corporation for approximately 10,000 gallons of triptane.

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7. Recommendations:

a. That the basic testing and evaluation of triptane as a component of aviation gasoline be assigned to the National Advisory Committee for Aeronautics. Inclosure No. 2 is a suggested letter to National Advisory Committee for Aeronautics.

b. That a letter of intent be issued to General Motors Corporation authorizing the supply of a maximum of 10,000 gallons of triptane to Army Air Forces with the understanding that a contract will be negotiated promptly. Suggested letter of intent to General Motors Corporation attached. (Inclosure No. 3).

c. That the test programs be coordinated with the AAF Materiel Command and necessary arrangements made by the Materiel Command to supply such flight test equipment that may be considered necessary for the tests and not available at the National Advisory Committee for Aeronautics laboratories.

/s/ D. C. Lingle

D. C. LINGLE
Colonel, Air Corps
Chief, Aviation Petroleum Branch

Incls - 3
Incl No. 1 - rpt to AC/AS, MM&D
Incl No. 2 - ltr to NACA
Incl No. 3 - ltr to GMC

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cc: Col. F.P.Shaw,Judge Advocate,Wright Field.

AFDMA-5A
EPS:hk

30 December 1943

Procurement Branch Memorandum No. 43-48-18

Subject: Contract with General Motors Corporation for Experimental Production of Triptane.

To: Commanding General, Materiel Command
Wright Field, Dayton, Ohio
Attention: Procurement Division

1. Forwarded herewith are the following documents:

a. Copy of memorandum dated 20 December 1943 from the Aviation Petroleum Branch, Air Services Division, AC/AS, M.M.& D. to the Assistant Chief of Air Staff, M.M.& D.

b. Copy of letter dated 30 December '43to the National Advisory Committee for Aeronautics from the Assistant Chief of Air Staff, M.M.& D.

c. Copy of report dated 13 September 1943 from the Aviation Petroleum Branch, Air Services Division, Office, AC/AS, M.M.& D. to the Assistant Chief of Air Staff, M.M.& D.

d. Copy of letter dated 30 Dec. from Assistant Chief of Air Staff, M.M.& D. to Mr. Charles F. Kettering, General Motors Corporation.

2. It is requested that appropriate action be taken to accomplish letter of intent to General Motors Corporation, and formal contract, in conformity with the letter to Mr. Kettering, reference to which is made in preceding paragraph.

3. The Materiel Command will cooperate with the National Advisory Committee for Aeronautics in the latter's program for the evaluation of triptane as a component of aviation fuel and will supply such flight test equipment as may be required by the National Advisory Committee for Aeronautics.

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By command of General ARNOLD:

B. E. MEYERS
Brig.General, U.S.Army
Deputy Asst.Chief of Air Staff
Materiel,Maintenance & Distribution

Incls:
1. Cy.memo.20 Dec.'43
2. Cy.ltr.to Natl.Advisory Committee
3. Cy. repott 13 Sept. 43
4. Cy. ltr. to Mr. Kettering, GMC

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30 DEC 1943

Mr. Charles F. Kettering
Research Laboratory Division
General Motors Corporation
P. O. Box 188
North End Station
Detroit 2, Michigan

Dear Sir:

The Army Air Forces desires to procure quantity of triptane (2,2,3-trimethyl butane) for evaluation as a component in aviation gasoline. It is understood that the General Motors Corporation is willing to supply approximately 10,000 (ten thousand) gallons of this material produced from its pilot plant at Detroit, Michigan.

The Materiel Command, Army Air Forces, Wright Field, Dayton, Ohio, has been directed to prepare a letter of intent authorizing you to supply a maximum of 10,000 gallons of triptane for delivery as specified by the Materiel Command, at a cost not to exceed $1.00 per gallon. The Materiel Command, through the Chief of the Power Plant Laboratory at Wright Field, will furnish you specification requirements of the material to be furnished. Drum containers will be furnished by the Government for storage and shipment of not to exceed 10,000 gallons. It is to be expected that the Materiel Command will communicate with you at an early date.

Very truly yours,

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J. W. [illegible],
Colonel, Air Corps,
Executive, Office,
Asst. [illegible]

1647640

OFFICE SYMBOL	1	2 AEDMA-5	3 AFDMA-1	4 AFMMD	5	6
SIGNATURE OF RESPONSIBLE OFFICER	HQ AAF					
INTERNAL OFFICE COORDINATION						

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30 DEC 1943

National Advisory Committee for Aeronautics
1500 New Hampshire Avenue, Dupont Circle
Washington, D. C.

Attention: Dr. G. W. Lewis.

Gentlemen:

The Army Air Forces has given assistance to the General Motors Corporation in the construction of a pilot plant for the production of triptane. The purpose of the pilot plant is two fold. (1) to provide sufficient supply of triptane for testing and evaluation as a component of aviation gasoline and (2) to provide means for investigating the possibilities of the General Motors Corporation process for commercial production of triptane.

It is requested that the National Advisory Committee for Aeronautics undertake a comprehensive program for the evaluation of triptane as a component of aviation fuel. The program should consist of laboratory and flight tests as considered desirable to facilitate support and supplement the evaluation. It is suggested that the program include evaluation over a wide range of aircraft engine operation conditions.

It is desired to obtain information that will serve as an adequate basis for decisions on the efforts and materials which should be expended toward large scale production of the material. The primary objective of the Army Air Forces is the determination of the practical possibilities of triptane as a component of an improved grade of aircraft engine fuel. It is believed that one base fuel should be comparable to estimated composition of 130 Grade in 1944 and that triptane should be evaluated in comparison with alkylate and toluene along with any other comparison deemed advisable.

The triptane will be supplied by the Army Air Forces from General Motors production.

It is expected that initial supply of triptane can be made available to National Advisory Committee after 1 January 1944.

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Desired test programs will be furnished by the Power Plant Laboratory Material Command, Wright Field, Dayton, Ohio and the distribution of test reports will be specified by the Commanding General, Material Command.

Yours very truly,

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ADDRESS REPLY TO
COMMANDING GENERAL, ARMY AIR FORCE,
WASHINGTON, D. C.

[redacted]

WAR DEPARTMENT
HEADQUARTERS OF THE ARMY AIR FORCES
WASHINGTON, D. C. (25)

AFDMA-2E
1 January 1944

SUBJECT: Test Program of Triptane (2-2-3 Trimethyl Butane).

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TO: Commanding General, AAF Materiel Command
Wright Field, Dayton, Ohio

Attention: Chief, Power Plant Laboratory. (Thru: Tech. Exec.)

Reference Inclosure: Copy of letter dated 30 December 1943 from the Office, Deputy Assistant Chief of Air Staff, MM&D, to Commanding General, Materiel Command, Attn: Production Division, together with inclosures as listed, subject, "Contract with General Motors Corporation for Experimental Production of Triptane."

1. Reference is made to a communication dated 30 September 1943, from this office, subject, "Tests of Triptane Fuel", together with inclosures thereto, in which it was requested that this office be furnished with comments and recommendations relative to action contemplated by the Materiel Command to expeditiously conduct tests as outlined. No reply to the above letter has been received to date; however, as understood by this office, the reason being that it is only recently that suitable negotiations have been undertaken with Mr. C. F. Kettering of General Motors to obtain a test quantity of the reference fuel.

2. In connection with the above, attention is invited to reference inclosure noted above, relating to the subject matter, which outlines action currently being taken by this Headquarters.

3. It is requested that direct liaison be established between your office and the National Advisory Committee for Aeronautics, in order that all technical aspects covered by the subject program will be fully coordinated between the Army Air Forces and the N.A.C.A., and to insure that the program will be conducted in the most expeditious manner possible.

4. Periodic reports of various test programs undertaken by the N.A.C.A. of the subject material should be obtained and forwarded to this office in suitable form, together with your comments and recommendations.

5. It is requested that this office be advised of action taken.

By command of General ARNOLD:

for M. C. Dawley, Col. A.C.
R. C. WILSON
Colonel, Air Corps
Chief, Devel. Engr. Br., Materiel Div.
Office, Asst. Chief of Air Staff
Materiel, Maintenance & Distribution.

FOR VICTORY BUY UNITED STATES WAR BONDS AND STAMPS

Incl. —
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PP-3

CONFERENCE ON TRIPTANE

4 January 1944

ATTENDANCE:

Army Air Forces

Colonel D. G. Lingle, Aviation Petroleum Branch
Major H. C. Dees, Aviation Petroleum Branch.

Petroleum Administration for War.

Mr. Robert Craigin
Mr. Malvin Mandelbaum
Dr. Howard P. Hetzner
Dr. Whitney Weinrich

War Production Board

Dr. W. L. Faith, Office of Production and Research Development.

DISCUSSION:

1. Representatives of PAW and WPB briefly summarized the findings of the group that visited theGeneral Motors Triptane Power Plant at Detroit, Michigan. It was the consensus that the process of General Motors should be investigated to determine its application to large scale production of triptane. Colonel D. G. Lingle advised that he favored the formation of an informal committee composed of representatives of PAW, WPB, and Army Air Forces, for the purpose of investigating the potential of the General Motors process. He further advised that the information on the process should be confined to the above listed individuals and representatives of General Motors, except as specifically approved by the Army Air Forces.

CONCLUSIONS:

1. That the General Motors process warrants a thorough investigation of its potential for large scale production of triptane.

2. That an informal committee composed of representatives of the Army Air Forces, WPB, and PAW be formed immediately to institute the production investigation. The committee was named as follows:

Dr. Mandelbaum	- PAW	Dr. Hetzner	- PAW
Dr. Weinrich	- PAW	Dr. Faith	- WPB
Major H. C. Dees	- AAF		

3. That a letter would be sent to General Motors advising of the above and suggesting that a representative or representatives of that corporation meet with the informal committee at an early date for organization of the production investigation work and for initiating action.

Incl. 4 added COPY

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JEROME C. HUNSAKER, SC. D., Chairman
LYMAN J. BRIGGS, PH. D., Vice Chairman
CHARLES D. WALCOTT, SC. D.
GEN. H. H. ARNOLD, U. S. A.
HON. WILLIAM A. M. BURDEN
VANNEVAR BUSH, SC. D.
WILLIAM F. DURAND, PH. D.
LIEUT. GEN. OLIVER P. ECHOLS, U. S. A.
REAR ADMIRAL JOHN S. MCCAIN, U. S. N.
GEORGE J. MEAD, SC. D.
REAR ADMIRAL E. M. PACE U. S. N.
FRANCIS W. REICHELDERFER, SC. D.
EDWARD WARNER, SC. D.
ORVILLE WRIGHT, SC. D.
THEODORE P. WRIGHT, SC. D.

LANGLEY MEMORIAL AERONAUTICAL LABORATORY
LANGLEY FIELD, HAMPTON, VA.

AMES AERONAUTICAL LABORATORY
MOFFETT FIELD, CALIF.

AIRCRAFT ENGINE RESEARCH LABORATORY
CLEVELAND AIRPORT, CLEVELAND, OHIO

NATIONAL ADVISORY COMMITTEE
FOR AERONAUTICS
1500 NEW HAMPSHIRE AVE., DUPONT CIRCLE
WASHINGTON 25, D. C.

TELEPHONES: EXECUTIVE 3515, 3516, 3517

January 4, 1944.

[redacted]

Headquarters of the Army Air Forces,
War Department,
Washington, D. C.

Attention: Colonel J. W. Sessums, AC/AS. MM&D

Gentlemen:

The Army Air Forces letter of December 30, 1943 has been received requesting that the Committee undertake a comprehensive program in the laboratory and in flight for the evaluation of triptane as a component of aviation fuel.

The Committee will be pleased to undertake such an investigation and our Aircraft Engine Research Laboratory at Cleveland, Ohio, has been instructed to communicate with the Power Plants Laboratory, Materiel Command, Wright Field, Dayton, Ohio, in connection with the test program and other arrangements for this investigation.

The Committee understands that the primary objective of the Army Air Forces in this investigation is the determination of the practical possibilities of triptane as a component of an improved grade of aircraft engine fuel. The Committee will accordingly keep this objective in mind throughout the investigation.

Very truly yours,

NATIONAL ADVISORY COMMITTEE
FOR AERONAUTICS

G. W. Lewis
Director of
Aeronautical Research

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FOR VICTORY
BUY
UNITED STATES
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CONFIDENTIAL

AFMC-104-WF-7-8-42-75M

ORIGINAL

RVK:llhb:57

No 381767

Authority for Purchase

VENDOR

CONTRACT No. W33-038 ac-1881

PURCHASE ORDER No. (4759

DELIVERY VIA TERMS METHOD PROPOSAL

THE ABOVE SPACE TO BE USED BY THE PURCHASE BRANCH ONLY

Item	Quantity	Unit	Estimated Unit Price	DESCRIPTION OF MATERIAL OR SERVICES TO BE PURCHASED.	Unit Price	Total Price
1	10,000	gal.		Triptane, (2,2,3-trimethylbutane) meeting the Specification requirements of Exhibit A, attached. Cost quotation shall be on the basis of supply in Government furnished drums, (capacity of approximately 50 gallons each), f.o.b. refinery.		

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Central Unit Legal Branch 6/2/44

Controlled materials are not involved.

MX-367

NEGOTIATIONS COMPLETED Dean Sweeney Capt AC

No rating

Not on List

Date 1/14/44

Signed

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Total Estimated Cost $10,000.00 CLASSIFICATION CL-06-A Total Actual Cost

B—FUNDS EXPEND. ORDER No. / MISCL. CHARGE No.	Project No.	Item No.	A—FUNDS Project No.	Item No.	C—FUNDS Project No.	Class No.	Item No.
551-236 (06-A)	611-2	551-1					

Increase of Funds to Actual Cost Approved

Section Chief

MATERIAL TO BE OBLIGATED FOR Power Plant Laboratory WANTED NOT LATER THAN 30 June 1944 (Date)

DELIVER TO Supply Officer, Wright Field, Dayton, Ohio

Accounting Group

Procurement Data Number of Sets DATE FURNISHED

Budget Officer

Remarks on the following matter marked with "X" appear in the space below:

1. Recommended Sources of Supply X 2. Government furnished material X 3. Tools, patterns, etc., loaned by Government
4. Should Serial Number be assigned 5. Point of Inspection X 6. Increase Existing Orders 7. General Remarks: X

1. General Motors Corporation, Research Laboratories, Detroit, Mich., Att. Mr. T.A. Boyd.
2. Government furnished drums - 200 drums (50-55 gallon capacity). These shall be new (unused) drums.
5. Materiel Command, Wright Field, Dayton, Ohio.
7. The following information is furnished in accordance with MDOM 40-9:

a. This is a pure chemical compound which will be used by the Power Plant Laboratory and by other laboratories designated by the Materiel Command, to determine its value as a component in aircraft engine fuel of high Performance Number.

b. This material is required to determine the military economics of this chemical compound as an ingredient in aircraft engine fuels having a Performance Number ratings of 130 or higher. This is the minimum quantity required for the initial test program and is not necessarily the total amount required for complete evaluation of the material. (OVER

11/11/44 70-B

Proc. Auth. No. AC 4942-W-2-1005 P 611-08 A 212 #40705

Cy. and/or Req. No.

Proc. Auth. No. P A

Upon due inquiry made it was found that the articles enumerated hereon could not be procured from any other branch of the Government without transfer of funds, or the immediate need of these supplies or the remoteness of this station from point of supply precludes their purchase from any other branch of Government.

Date 6 JAN 1944

Initiated by R. V. KERLEY

Signature and Title J. GILLESPIE, Col., A.C. Power Plant Laboratory

Signature and Title P.S. CARROLL, Lt. Colonel Engr. Division

Coordinated by Production Engineering Div.

Coordinated by

Approved—Accounting Officer By

H. J. KIESER, Lt. Col.

JAN 12 1944

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e. Previous aircraft engine tests of a very [illegible] on this material with extremely promising results, [illegible] additional quantities of this material previously. [illegible] was procured from the Ethyl Corporation on Purchase [illegible] of $35.00 per gallon.

d. It is expected that the procurement of this [illegible] permit evaluation of this material as an [illegible] and will indicate whether production facilities [illegible] facture the material in large quantities.

NOTE: Procurement Branch Memo. No. [illegible], Wright Field, dated 30 December 1943, subject: Contract with [illegible] Experimental Production of Triptane", to the [illegible] Command, Attention Procurement Division, [illegible] this material. This Memo is in the [illegible] (Mr. A. E. Beck.)

RECEIVED
PROCUREMENT DIVISION
1944 JUN 12 [illegible] 03

RECORDS UNIT
GENERAL PROCUREMENT BRANCH

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Address reply and ENVELOPE to.

Commanding General,
AAF Materiel Command,
Engineering Division,
Reference: JD:lhb:57.
Wright Field, Dayton, Ohio.

15 JAN 1944

COM. GEN.
TECH. EXC.
ADM. EXC.
C. O.
BUD. OFF.
EXP. ENG.
CONTRACT
INSP.
PROD. DIV.
PROD. ENG.
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I. P. S.
A. S. C.
TECH. DATA
CIV. PERS.
OTHERS

Universal Oil Products Company,
Research and Development Laboratories,
Riverside, Illinois.

Gentlemen:

This letter already in files with 1st Ind. to M.M.D. dated 1-20-44, subject "Tests of Triptane Fuel."

This is in reference to your letter dated 7 September 1943, relative to the production of triptane.

The general subject of the availability and training of triptane has been discussed verbally with representatives of the Commanding General, Army Air Forces, AC/AS-M.M. A. D., Washington, the National Advisory Committee for Aeronautics, the Aviation Petroleum Branch, and Universal Oil Products Company.

The Materiel Command is forwarding a copy of your proposal and letter dated 7 September 1943, to the Commanding General, AC/AS-M. M. A D., Washington, D.C. In transmitting this information the Materiel Command has recommended that the Army Air Forces give assistance to Universal Oil Products Company for the construction of a pilot plant for the production of triptane. It was recommended that such assistance include obtaining necessary priorities for steel, parts, electrical equipment, etc., but without financial assistance.

If authority to proceed with the construction of a triptane pilot plant is given, it is recommended that requests for priorities be forwarded to the Materiel Command for transmittal to the proper organization.

Very truly yours,

For

E. C. [illegible],
Brig. General, U. S. A.,
Chief, Engineering Division.

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cc: Midcentral Proc. Distr.
[redacted]
Adv. Officer.

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Tests of Triptane Fuel.

1st Ind.

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PP-2-4/2 · 7

[redacted]

1st Ind. to

Commanding General, Army Air Forces, Washington 25, D. C.
Tests of Triptane Fuel.

20 JAN 1944

Universal Oil Products Company process involves the synthesis of triptane from petroleum products, whereas General Motors Corporation process involves production of triptane from by-products of chemical industries. Further more, it is believed that active support to more than one commercial organization for production of triptane will encourage further competitive development and will be consistent with normal practice of the Army Air Forces in encouraging the petroleum industry generally in the development and production of new products.

5. It is recommended that the responsibility for the evaluation of production processes of triptane should be given to the Office of Petroleum Administrator for War. It is further recommended that a pooling of technical information regarding synthesis of triptane should be accomplished by the Office of Petroleum Administrator for War to determine whether any process or combination of processes is worthy of commercial development.

6. A sufficient amount of triptane will be given to applicable organizations to determine the effect of this material on synthetic rubber parts.

7. A copy of the Universal Oil Products Company's proposal and a copy of reply to their proposal letter dated 24 September 1943, are enclosed.

For the Commanding General:

F. O. CARROLL,
Brig. General, U.S.A.,
Chief, Engineering Division.

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4 Incls.
2 Incls. added
Incl .3 - Ltr. fr. U.O.P.
dated 24 Sept.43 w/proposal
Incl. 4 - R.C. ltr. dated
to U.O.P. 19 JAN 1944 Already in files

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Additional Source for the Supply of Triptane.

Aviation Petroleum Branch
Attn: Colonel D. G. Single
ACAS/R&D, Material Division

25 January 1944

1
Lt Col D D Gasser/ers/3300

1. Attention is invited to an attached letter from this office dated 30 September 1943, to the Commanding General, AAF Material Command, Wright Field, Dayton, Ohio, Attention: Power Plant Laboratory, subject, "Tests of Triptane Fuel", together with inclosures and 1st Indorsement thereto.

2. In connection with the above reference is also made to a memorandum from your office dated 20 December 1943, subject, "Triptane (2-2-3 - Trimethyl Butane)" together with inclosures, to the Assistant Chief of Air Staff, Material, Maintenance and Distribution. The referenced inclosures to above mentioned memorandum dated 20 December were letters to the National Advisory Committee for Aeronautics and General Motors Corporation, activating the present Triptane test program. As a result of the above, the Procurement Division, Material Command, was instructed to purchase a quantity of Triptane and the Power Plant Laboratory, Material Command, was instructed to give fullest cooperation to the test program.

3. A review of the contents of the 1st Indorsement of attached correspondence, as well as substantiating data, indicates that it might be advantageous to give assistance to the Universal Oil Products Company in obtaining necessary priorities as outlined, since the availability of still another source of Triptane will tend to accelerate the improvement of present fuel quality.

4. In view of the above, it is requested that your office carefully review recommendations contained in the 1st Indorsement of the attached correspondence and that your views on same be correlated with the Petroleum Administration for War. Following the above action, it is requested that you furnish this office with your comments and recommendations.

Incl.
Ltr to WP dtd
9/30/43 w/incls.

B. M. CHIDLAW
Brigadier General, U.S.A.
Chief, Material Division.

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ddress reply and ENVELOPE to: [redacted]

ommanding General
AF Materiel Command
ngineering Division
eference: JD:JDS:57
right Field, Dayton, Ohio

31 JAN 1944

COM. GEN.
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ADM. EXC.
C. O.
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EXP. ENG.
CONTRACT
INSP.
PROD. DIV.
PROD. ENG.
PROD. CONT.
I. P. S.
A. S. C.
TECH. DATA
CIV. PERS.
OTHERS

Test Program of Triptane (2-2-3 Trimethyl Butane).

Commanding General,
Army Air Forces,
Washington 25, D. C.

Att: Asst. C/AS, WW&D, Development
Engineering Branch.

1. This is in reply to your letter dated 1 January 1944 on the above subject.

2. Reference is made to 1st Indorsement to the Commanding General, Army Air Forces, Washington 25, D.C. dated 20 January 1944 on the same subject. This indorsement listed the various conferences to date on the general subject of triptane tests and, further, stated that Authority for Purchase of 10,000 gallons of this material had been initiated.

3. Subsequent to forwarding the reference 1st Indorsement a conference has been scheduled at Wright Field, Dayton, Ohio between representatives of N.A.C.A., Navy Bureau of Aeronautics, General Motors Research and Materiel Command during the week of 24 January 1944 for the purpose of outlining a special test program. Your office will be informed of the results of this conference.

For the Commanding General:

F. O. CARROLL,
Brig. General, U.S.A.,
Chief, Engineering Division.

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C-190-WP-5-20-42-2 MH. CENTRAL FILES

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FILE No. 308:5 January 31, 1944.

H. P. Hetsner GM Triptane Process

Robert B. Cragin

INTRODUCTION AND SUMMARY

On January 28, Dr. Faith of OPRD, Dr. Mandelbaum and the writer visited the laboratories of General Motors Corporation for discussion of the GM triptane pilot plant at Redford, Michigan, a visit to the central research laboratories in Detroit, where exploratory triptane investigations were conducted, and discussion of process details and related questions with the GM technologists. General Motors was represented by Messrs. Kettering, Richards, Lovell, Boyd and Campbell. Colonel Lingle, who had arranged the conference, was unable to attend due to transportation difficulties.

The conference resulted in at least one important conclusion. With available equipment, utilizing the process developed by them, General Motors Corporation is a position to manufacture about 3 B/D of 98% triptane. This quantity and quality of triptane should be entirely adequate for the extensive engine testing necessary to establish the potential value of triptane as an ingredient for high quality aviation fuels. Although GM has been primarily interested in this phase of the triptane question, it was the opinion of those present that the commercial possibilities of their process are quite promising. It would appear, therefore, that thorough investigation of the process from this point of view is warranted in anticipation of the possibility that large scale manufacture of triptane will ultimately be desired.

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Details of the GM process.

Triptane is produced in the General Motors process through the following series ofconversions:

(1) t-Amyl alcohol ⟶ trimethylethylene / water.
(2) Trimethylethylene + methyl chloride + calcium oxide ⟶ triptane + calcium chloride + calcium hydroxide.
(3) Triptane - hydrogen ⟶ triptane.

t-Amyl alcohol, a product of the Sharples Solvent Corporation, is dehydrated over alumina at approximately 450° F. to produce a mixture of methylbutylenes consisting of about 80% trimethylethylene (2-methyl-2-butene), 18% 3-methyl-1-butene. The mixed olefins are then contacted in a batch reactor with an equimolal quantity of methyl chloride in the presence of powdered lime at approximately 500° F. and 1000 psi. Under these reaction conditions about 50% of the mixed methylbutenes react to form higher alkylated olefins. The latter consist of about 50% dimethylbutenes, 33% triptene and 16% trimethylpentenes.

The crude reaction product is first fractionated to separate small amounts of unreacted methyl chloride and of methyl ether which is formed as a by product. Unreacted methylbutenes are segregated for recycling and the dimethylbutenes are separated and stored. These, through further reaction with methyl chloride, are subsequently converted to triptene. The triptene-isooctene fraction is hydrogenated in a batch reactor in the liquid phase using UOP catalyst and rerun in a 40-plate column to give a nearly pure triptane fraction and a bottoms product consisting of isooctanes and a small amount of isononanes. The principal byproducts of the process are 2,3-dimethylbutane, 2,2,3-trimethylpentane and 2,3,4-trimethylpentane, all of which are superior to alkylate as fuel ingredients.

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The dimethylbutene fraction referred to above consists of a mixture of approximately 70% of 2,3-dimethyl-2-butene, BP 73° C., and 30% of 2,3-dimethyl-1-butene, BP 55.8° C. Since the latter alkylates very slowly to triptane by further reaction with methyl chloride, the two olefins are separated by fractionation and the 2,3-dimethyl-1-butene is isomerized over a supported aluminum sulfate catalyst to 2,3-dimethyl-2-butene. The latter reacts smoothly with 2,3-dimethyl-2-butene produced in the primary reaction and by isomerization is stored until a sufficient quantity has been accumulated to furnish a separate recycled along with trimethylethylene, but segregated alkylation of C_5 and C_6 olefin fractions probably results in a higher overall yield of triptene.

PILOT PLANTS.

The basic features of the GM process were developed in a small scale pilot plant in the Detroit laboratory. About a year ago it was decided that the process could be applied, irrespective of its ultimate commercial possibilities, for production of sufficient quantities of triptane for extensive engine testing. Consequently, the Redford pilot plant was designed on the basis of the then available data and construction was carried on as rapidly as possible. Actual construction was started in March 1943. The plant was completed about January 1, 1944. During the month of January, 17 runs have been completed.

Under the present operating conditions, capacity of the Redford unit is approximately 3 barrels of 98% triptane per day. This quantity corresponds to 3 daily charges of the batch reactor. It is Mr. Lovell's conviction that the capacity of the plant would be at least double this figure if ideal operating conditions were realized.

GM is fully aware that a continuous reactor system would be preferable to the present batch design from a process standpoint. The choice of the batch reactor for the large pilot plant was necessary because experience with continuous reactor types was lacking, because it was desirable to freeze the design in the interest of rapid completion of the plant, and because GM was primarily interested in obtaining the product rather than in developing a process. There is no reason to suppose, however, that a successful continuous operation cannot be applied in this process. In the case of the hydrogenation step, it was recognized that hydrogenation could be conveniently carried out in a continuous system, but a batch unit was installed simply because a suitable reactor of this type was available.

GENERAL CONSIDERATIONS.

The interest of General Motors in this development has been somewhat different than would be expected in a petroleum company. As engine manufacturers they are primarily concerned with investigation of the potentialities which may be achieved in engine performance through utilization of superior quality fuels. In developing the triptane process they have therefore emphasized the necessity for procuring adequate quantities of triptene for experimental engine testing. They have regarded their process primarily as an expedient for procuring the pure material and have not attempted to evaluate its potentialities as a process for large scale manufacture of triptene. Consequently, although a test program is being worked out for Wright Field in cooperation with NACA, no serious consideration has as yet been given to economic evaluation of the process.

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There is no doubt that the General Motors pilot plant will be able to furnish sufficient material to establish the value of triptane as an aviation fuel component. It was generally agreed, however, that its use in large quantities probably will not be justified in 130 grade fuels, but at higher quality levels triptane might become a very desirable material. Assuming, therefore, that extensive engine testing will confirm preliminary data which indicate triptane to be of superior quality, and that production of a higher quality aviation fuels will ultimately be desired, the economics of possible processes for triptane manufacture becomes important.

It is our opinion that the GM process shows potentialities for large scale manufacture of triptane. The primary questions which would require investigation are:

(1) Availability of trimethylethylene (or tetramethylethylene, which was indicated to be a preferred charge) from petroleum sources, and their separation from undesirable contaminants or diluents.
(2) Cost and availability of methyl chloride.
(3) Possibilities of conversion from batch type to continuous operation.

It is possible that further investigation of the GM process will indicate possible alternative raw materials to replace the relatively expensive methyl chloride. However, the primary requirement for trimethyl-or tetramethylethylene will not be affected by such variations in the process, and the feasibility of triptane production by this method will ultimately depend on the availability of these raw materials from petroleum sources. Because of the lack of adequate data at the present time, it is not possible to estimate accurately the quantities of the raw materials required for a given production of triptane by the GM process. However, preliminary yield figures are available which will be used as the basis of estimates to be prepared in cooperation with OPRD and the Army Air Forces.

Two courses of action are clearly indicated for the Refining Division in following developments resulting from the GM work. First, with respect to triptane evaluation, the Aviation Section should keep in touch with the program which has been outlined by GM in cooperation with NACA. Second, as the next step toward evaluation of the commercial possibilities of the GM process, an early meeting will be held with representatives of OPRD and the Army Air Forces to decide upon a further program.

The General Motors people were entirely willing to disclose all of the details of their process, and were most cordial in receiving representatives of interested Government agencies. It was emphasized that they were not themselves interested in the commercial possibilities of their process, but will continue to explore the basic variables and will be happy to cooperate with Government and the petroleum companies in a program for exploring the commercial possibilities. It was pointed out that improved operating conditions are expected with further operation of the Redford pilot plant and that accurate material balances for the process will then be available. The group was cordially invited to visit Detroit again when this information has been developed.

H. P. Hetzner.

Approved:
M.R. Mandelbaum

cc: E. D. Cumming
Bruce K. Brown
W. M. Holaday
M. R. Mandelbaum
Regf. Files

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Extract from a Memorandum 31 Jan. 1944, from W.L. Faith, Office of Production and Research, WPB, Wash. to Dr. D.B. Keyes, WPB, Wash. Subject: Visit to General Motors Triptane Pilot Plant

"General Motors has tested triptane in various ways and reports that the use of the material as a fuel has several great advantages. The chief ones appear to be higher lC and 3C ratings than other known fuels, low temperature sensitivity, and exceptional lead susceptibility. It is worthy of note that the by-product hexanes and octanes also have higher ratings than iso-octane. For this reason, the entire reaction product may be hydrogenated to produce a superior fuel.

It does not appear advisable to consider the use of triptane in small amounts as an additive to other fuels. Its chief value is expected to be as a major constituent of a fuel."

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PETROLEUM ADMINISTRATION FOR WAR

WASHINGTON

February 5, 1944

CONFIDENTIAL

FILE NO. 308:5.

Colonel D. G. Lingle,
Aviation Petroleum Branch
War Department,
4511 Munitions Building
Washington, D. C.

Dear Colonel Lingle:

Reference is made to your letter of February 3 regarding a request by the Universal Oil Products Company for priorities assistance in the construction of a triptane plant.

As agreed in recent discussions with representatives of your office, the existing pilot plant of the General Motors Corporation appears capable of meeting present requirements for experimental quantities of triptane. We see no need for additional pilot plants to meet this demand.

Should the experimental triptane program indicate that large-scale production will ultimately be desired, further evaluation of the UOP process, as well as others, may be necessary. At such time it probably will be necessary to consider the advisability of installing further pilot plants to establish the feasibility of large-scale triptane production.

We are returning herewith copy of General Carroll's letter and the UOP and General Motors memoranda which were enclosed with your letter of February 3.

Sincerely yours,

ROBERT B. CRAGIN,
Assistant Director of Refining

Enclosure:

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Added inclosure 1

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Routing & Record Sheet

SUBJECT: Additional Source for the Supply of Triptane

TO: AC/AS, MM&D, Materiel Division DATE 10 February 1944

FROM: AC/AS, MM&D, Air Services Division COMMENT NO. 2
AFDBS-SC HCD/ab/79748

1. Reference paragraph 3, Comment No. 1, routing and record sheet, and paragraph 4, first indorsement to previous communication, support of a triptane pilot plant for the Universal Oil Products Company is not recommended for the following reasons:

a. A second pilot plant is not believed necessary to supply quantities of triptane needed for testing, as the General Motors Plant is already completed and starting operations.

b. The Army Air Forces support is not believed warranted in the construction of a pilot plant for testing the commercial or large scale manufacturing potential of the Universal Oil Products process as it requires iso-octane as charging stock. It does not appear reasonable to assume that a process which requires such a high quality charging stock for the production of triptane would be advantageous in large scale manufacture. (Supplies of the Petroleum fractions trimethylethylene and tetra-methylethylene as charging stocks for General Motors process are potentially available and will be investigated).

2. For information and record Inclosure No. 1 is a letter from the Petroleum Administration for War to the Aviation Petroleum Branch, dated 5 February 1944 presenting opinions on the construction of additional pilot plants. Inclosure No. 2 is a copy of a memorandum from Dr. H. P. Metzner to Mr. R. B. Cragin, both of PAW, dated 31 January 1944; subject: General Motors Triptane Process. Inclosure No. 3 is a copy of report from Dr. W. L. Faith to Dr. D. B. Keyes, both of WPB, dated January 31, 1944, subject: Visit to General Motors Triptane Pilot Plant.

3. Reference paragraph 3, first indorsement, it is noted that a process for production of triptane by the Socony Vacuum Oil Company is known to the AAF Materiel Command. It is requested that full information on the process of the Socony Vacuum Oil Company, as known by the AAF Materiel Command, be supplied to the Aviation Petroleum Branch, Army Air Forces.

D. G. LINGLE
Colonel, Air Corps
Chief, Aviation Petroleum Branch

4 Incls - added
1 cy ltr fr PAW - 2/5/44
1 cy memo fr Dr. Metzner - 1/31/44
1 cy rpt fr Dr. Faith - 1/31/44
1 cy rpt on conference - triptane - 1/4/44
Incl - m/c
ltr to WF dtd 9/30/43 with 1st Ind, ltr fr APD, cy Inter-Desk Memo
Incls - withdrawn
Incls to ltr to AC/AS, 9/13/43 from APB
U.O.P. rpt and ltr 9/24/43
Cy of ltr to U.O.P. from AAF Materiel Command, 1/19/44

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ARMY AIR FORCES
MATERIEL [redacted] Command

RVK:lhb:87

MEMORANDUM REPORT ON

Date 21 February 1944

SUBJECT: Conference on National Advisory Committee for Aeronautics' Test Program to Investigate 150 Grade Fuels.

[redacted] Power Plant Laboratory.

Contract No. .....
Expenditure Order No. .....
Purchase Order No. .....

SERIAL No. [redacted]

A. Purpose.

1. To report conference held at the Materiel Command on 27 and 28 January 1944, between representatives of the National Advisory Committee for Aeronautics, the Bureau of Aeronautics, General Motors Corporation and the Materiel Command, for the purpose of outlining a test program for comparative tests on triptane to determine its suitability as a component in aircraft engine fuels. Authorization for this work is given in a letter dated 1 January 1944 from the Assistant Chief of Air Staff, Materiel, Maintenance and Distribution to the Commanding General, AAF Materiel Command.

B. Factual Data.

1. This conference was attended by Colonel E. R. Page, Materiel Command Liaison Officer at N.A.C.A. Aircraft Engine Research Laboratory, Cleveland, Ohio, Mr. A. H. Rothrock of the Cleveland N.A.C.A., AERL, Lt. Commander G. C. Lamb of the Bureau of Aeronautics, Washington, D.C., Mr. T. A. Boyd of Research Laboratory Division, General Motors Corporation, Detroit, Michigan, and Captain John Duckworth and Mr. R. V. Kerley of Power Plant Laboratory, Engineering Division, Materiel Command, Wright Field.

2. General agreement was obtained that the National Advisory Committee for Aeronautics would follow the general program outlined in Appendix I, which involves comparative knock ratings in 3-C and 1-C engines, Cooperative Universal engines, multi-cylinder aircraft engines and possibly in flight tests to compare the combustion characteristics of triptane, toluene, cumene, 2,3 dimethylbutane, hot acid octanes, methyltertiarybutyl ether and xylidine in various fuel blends.

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AAFMC-266-WF-7-7-43-20M

ENG-87-531-255.
21 February 1944.

[redacted]

3. National Advisory Committee for Aeronautics will procure the special fuels required for this test with the exception of xylidine, 2,5 dimethylbutane, triptane, methyltertiarybutyl ether and 2-pass Hendry aviation gasoline which will be supplied by the Material Command.

4. Reports prepared by N.A.C.A. dealing with this test program and with the results of tests will be distributed to the Bureau of Aeronautics, 4 copies to the Material Command, Wright Field, (3 of which will be forwarded to AC/AS-M.M. & D. by Wright Field), and 2 copies direct to Mr. T. A. Boyd of General Motors Corporation.

5. A B-24J airplane will be requested for flight detonation tests provided torque meters can be made available. If no torque meters can be made available for this airplane, a B-17 airplane will be requested. It is understood that either of these aircraft might require higher compression ratio pistons in order to permit detonation limits to be obtained on the fuels selected for test.

C. Conclusions.

1. The program outlined should permit conclusive data to be obtained and should indicate the relative advantages of the various high octane fuel components for the preparation of satisfactory rich and lean rating fuels. It should also indicate the military value of these fuels for long range patrol or bombardment operation.

D. Recommendations.

1. The program outlined should be carried out as expeditiously as is possible.

MX-567

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Concurrence:

Prepared by R. V. KERLEY
(Name)

Approved by J. M. GILLESPIE, Col., A.C.
Chief, Power Plant Lab.

Distribution:
Power Plant Lab.
AC/AS-M.M. & D - (3)
Bureau of Aeronautics
Mr. T. A. Boyd, General Motors Corp. (2)

Approved by F. O. CARROLL, Brig.General, USA
Chief, Engineering Division.

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MMG-87-551-255.
21 February 1944.

APPENDIX I

[redacted]

1. The following general schedule was outlined for tests to be conducted in at least one Cooperative Universal engine and in the 1-C and 3-C test engines:

a. Determine ratings for 0 - 10 - 30 - and 60% triptane by volume in alkylate blend agent.

b. Determine ratings for 0 - 10 - 30 - and 60% triptane by volume in 7% octane base stock.

c. Determine ratings for 0 - 10 - 30 a and 60% triptane by volume in catalytic cracked aviation base stock.

d. Determine ratings for toluene to parallel a, b and c above.

e. Determine ratings for cumene to parallel a, b and c above, except that 5 - 15 and 25% cumene blends will be used.

f. Determine ratings for 2,3 dimethylbutane to parallel a, b and c above.

g. Determine ratings for hot acid octane to parallel a, b and c above.

h. Determine ratings on methyltertiarybutyl ether to parallel a, b and c above.

i. Determine ratings on xylidine to parallel a, b and c above, except that 1 - 3 and 5% by volume xylidine will be used.

Each of the above fuels will be rated with 4.0 and 6.0 ml. TEL per U. S. gallon. Certain short cuts will be obvious to the project engineer after completing a portion of this test and Mr. Rothrock estimated that it would take approximately one month for each engine condition.

2. It was agreed that an R-2800 single cylinder engine would be used for these tests and that cross checks would be made on a V-1710 single cylinder to indicate the comparative performance.

3. Tests will be conducted in the R-2800 single cylinder engine at 2600 r.p.m. and with the inlet mixture temperatures of 100° F., 200° F. and 275° F., and at 2000 r.p.m. at 100° F. and 200° F. Immediate priority will be given to 2600 r.p.m., 275° F., and 2000 r.p.m. at 200° F. and these tests will be completed before proceeding with other test conditions.

4. Fuel 28-2 will be run as a day to day check on the engine condition. The purpose of the above testing is to determine how a 150 performance number fuel can be produced and how well the 150 performance number can be maintained over a variety of test conditions. From the blending data obtained several 150 performance number fuels will be blended and rated under the conditions outlined. Following this the blending formula which indicates the greatest temperature sensitivity and

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NRC-87-831-255.
21 February 1944.

APPENDIX I

this blending formula which indicates the least temperature sensitivity will be used to prepare a number of 150 performance number fuels. Two controlled lean mixture rating fuels will be prepared from the same blend agents and the four fuels selected will be used for multi-cylinder engine ratings. This does not necessarily limit the multi-cylinder engine tests to four fuels but is an indication of priority to be given.

5. It was considered desirable that a Cooperative Universal engine be operated to determine the advantages of 150 performance number and higher rating fuels and it was agreed that spark advance studies would be made on an R-2800 single cylinder engine and that these tests would be followed by tests on the same cylinder to determine the effect of the same fuels with changes in compression ratio. The fuels used in this study will be 28-R plus various percentages of triptane and containing 4.0 ml. TEL per U. S. gallon, and alkylate plus various percentages of triptane and containing 4.0 ml. TEL per U. S. gallon.

6. A tentative evaluation of engine limitations to determine whether the engine selected for these tests can satisfactorily show the detonation limits of the fuels will be conducted as soon as a multi-cylinder aircraft engine is made available to N. A. C. A. The fuels used for this evaluation will be 28-R, 28-R plus xylidine plus tetraethyl lead to give a final concentration of 3% xylidine and 6.0 ml. TEL per U. S. gallon, and 28-R plus triptane and tetraethyl lead to give a maximum concentration of 6.0 ml. TEL per U. S. gallon.

7. It was agreed that the following distribution of reports would be made:

a. Bureau of Aeronautics.
b. Four copies to Materiel Command, Wright Field, three of which will be forwarded to AC/AS-M. M. & D. by Wright Field.
c. Mr. T. A. Boyd, General Motors Corporation, 2 copies direct.

8. During the continuation of this conference on 28 January 1944, at which Mr. T. A. Boyd was not present, it was agreed that an R-1820-94 engine would be used for this testing if it could be made available by the Bureau of Aeronautics. It was recognized that no torque nose at present is available for an R-1830 type engine. In the event an R-1830 engine cannot be made available for these tests, it was agreed that the Army Air Forces would substitute an R-1830 type engine and that the spark advance would be changed manually from the standard 25° advance to that specified for the R-1830-94 engine, which is 32° to 37° for cruising. It is understood that Pratt and Whitney could supply 7.4:1 and 8:1 compression ratio pistons if 6.7:1 is found to be too low for comparative tests.

9. Lt. Commander Lamb stated the Bureau of Aeronautics will make these pistons available for these tests if they are required. The carburetor air temperature for take-off speed tests was specified as 125° F. maximum. It was agreed that the high blower ratio could be used at take-off speed if necessary. The N.A.C.A. will procure all fuels required with the exception of xylidine, 2,3 dimethylbutane, 2,2,3 trimethylbutane (triptane), methyltertiarybutyl ether and 8-pass Houdry aviation gasoline, which will be supplied by Wright Field

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unless the 2-pass Moudry now at Wright Field is considered unsuitable by N.A.C.A. after contacting the Office of Petroleum Administrator for War.

10. It was agreed that it would be desirable to assign a B-24J airplane to N.A.C.A. for flight detonation tests and to supply higher compression ratio pistons to permit a complete study of the effect of increased spark advance versus increased compression ratio to permit increasing the range of bombardment and patrol aircraft. In the event it is found that no torque meters can be made available for a B-24J airplane, consideration will be given to the use of a B-17 airplane for this purpose.

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Dr. Graham Edgar — New York

Dr. George Calingaert — Detroit

Memorandum: History of Triptane — March 24, 1944

30

I am attaching hereto a copy of a memorandum on the History of Triptane, as compiled from the information in our files and records.

/s/ GC
George Calingaert
Director of Chemical Research
/s/ by DRG

DRG
att.

cc: Mr. S. D. Heron
Mr. T. A. Boyd

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March 22, 1944

MEMORANDUM

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THE HISTORY OF TRIPTANE

Up to 1920, only eight of the nine possible isomeric heptanes were known. Professor Georges Chavanne at the University of Brussels undertook to prepare the last one for which he used the name trimethylisopropylmethane and which, under the Geneva convention, is known as 2,2,3-trimethylbutane. An account of this work, published by Georges Chavanne and B. Lejeune in Bull. Soc. Chim. Belg., 31, 98 (1922), describes the preparation of 25 g. of the hydrocarbon by what seems now a rather cumbersome method, and gives the boiling point, melting point, density and other common physical properties.

In 1927, after the discovery by the Yonkers Laboratory of the remarkable non-detonating characteristics of 2,2,4-trimethylpentane, that laboratory undertook the preparation of about 250 g. of each of the nine isomeric heptanes in order to determine their behavior in the engine. The heptanes were chosen because, in addition to boiling in a range which made them easy to handle during preparation as well as in the engine, they constituted a group wide enough to be expected to cover quite a range of engine behavior and at the same time, not so overwhelmingly large that the amount of preparative work would seem prohibitive.

At that same time, the Research Division of General Motors had underway a systematic investigation of the engine behavior of a large number of compounds in Mr. Boyd's laboratory. In order to derive the maximum possible amount of information from the precious samples of heptanes, Dr. Edgar asked Mr. Boyd if he would be willing to run the engine tests on these heptanes in his own engine and under the conditions which he had standardized. Mr. Boyd readily agreed and the aniline equivalents of 1 M solutions of the heptanes in gasoline were obtained and published (Ind. Eng. Chem. 23, 26 (1931)). The compounds were later remade in Mr. Boyd's laboratory and critical compression ratios on the straight hydrocarbons were obtained (Ind. Eng. Chem., 26, 1105, (1934)). As shown in this latter publication, one hydrocarbon, 2,2,3-trimethylbutane, stands out above all others, permitting the use of a compression ratio of 13:1 as against 12:1 for 2,2,3-trimethylpentane, 7.7:1 for 2,2,4-trimethylpentane, and less for others.

When these data were published in 1934 (after Mr. S.D. Heron had joined the research staff of the Corporation, and after the interest in fuels of about 100 octane number had become quite active), Dr. Edgar suggested the use of several of the hydrocarbons tested by Mr. Boyd as a possible means of extending the octane scale. Mr. Heron and the writer discussed this need for a standard of engine performance above 100 octane number and serious consideration was given to the use of 2,2,3-trimethylbutane. It was suggested that if a quantity of at least 750 cc. of this hydrocarbon could be made available, it could be tested in the more modern engine to ascertain its potential value as a reference fuel. This quantity was prepared and a memorandum was prepared in draft form by the writer, stressing the potential usefulness of trimethylbutane as a standard fuel above octane (December 19, 1934).

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It was remembered at that time that, in the earlier days of the establishment of the octane scale, Dr. F.C. Whitmore, when visiting the Laboratory in Yonkers, had suggested to Dr. Edgar that special names be coined for the heptane and the branched octane used and suggested two names now forgotten which were to be reminiscent of the origin of these materials. The suggestion was not followed, a fact which was regretted later when confusion began to arise from the use of the names octane or isooctane. To avoid the recurrence of such a situation, it was deemed advisable to give the new reference hydrocarbon a distinctive name before it came into actual use. This seemed all the more imperative since there might otherwise be a tendency to call it heptane or isoheptane, which would have made the confusion even worse. For this reason, the writer decided on a name which is simply a contraction of the full name, the obvious change in consonant being made to make the name more euphonious, thus: 2,2,3-trimethylbutane; trimethylbutane; tributane; trib-tane; triptane.

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For several years, however, the name was spelled (AFR 11-30) two ways: triptane, and tryptane. (At a somewhat later date and probably too late to be effective, the further thought occurred that it might have been a nice tribute to the real father of the compound to name it after him. As it happens, his name has practically the same ending as that of a paraffin hydrocarbon so that the compound might very aptly have been christened "Chavane".)

The engine test of the 750-cc. sample was delayed by other work and before it was undertaken, an additional amount was prepared, bringing the total amount to about 1500 cc. (February 6, 1935) The compound was finally tested in our Engineering Laboratory by the Army Air Corps Method-3566 and the CFR Motor Method, in February, 1935. These tests indicated that, while it was definitely in the same range as 2,2,4-trimethylpentane, it did not seem to be anything like as much better as suggested by the published General Motors data. A sample of this triptane was then submitted to Mr. Boyd for comparison with his previous data, and in his engine and under his conditions, gave results approximating closely those given in his early publications.

In 1935, an additional 2 gal. of triptane was prepared by the Chemical Research Laboratory (LTD 38-48), and tested in a supercharged engine. Supercharged tests were chosen because such tests at Lycoming had shown up fallacies of unsupercharged tests of the lead response of 2,2,4-trimethylpentane. The tests showed triptane clear to be equal to isooctane plus 6 cc. or more of lead and to respond positively to tetraethyllead additions (AR-28); these results further added to the interest in triptane as a possible medium for the extension of the octane scale.

It was appreciated, however, that, promising though it was, the material could not be used as a standard very well unless it could be made available commercially at a reasonable price, such as, off hand, not less than 100 gals. at not more than $ 100/gal. Work was undertaken at the Chemical Research Laboratory to develop a satisfactory method of preparation. The original elaborate method of Chavanne had been discarded for the simpler condensation of acetone with tertiary butylmagnesium chloride. This yields an alcohol which, by successive dehydration and hydrogenation, gives triptane. After a rather thorough investigation, the method finally adopted in 1939 was the direct condensation somewhat below room temperature of isopropylmagnesium chloride with tertiary butyl chloride, giving a yield of about 40% triptane. In August, 1939, the Army announced that it was interested in obtaining 100 gal. of triptane and we, therefore, scrutinized our

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methods of synthesis for possible semi-plant scale preparation. Several runs were made in our pilot plant, but it was finally decided to find a commercial producer who would make the material; the Dow Chemical Company, who had done a little work on triptane for us earlier, agreed to undertake this preparation in March, 1939. Development was slow and it was not until September 13, 1940 that shipments were received. Dow had agreed to make 200 gallons of triptane at an estimated cost of $ 30. per gallon. They finally shipped to Ethyl a total of 325 gallons.

Following the restricted distribution of the supercharged data (AR-28) requests for the material were received at the Laboratory and triptane has been shipped out to interested laboratories ever since, at a price of $ 35. a gallon, representing initial cost, plus packaging, etc.

As the interest in triptane increased, it seemed probable that several organizations, particularly in the oil industry, would be interested in the development of a process whereby triptane could be made at a price sufficiently low to consider it as a constituent of aviation fuels. This probably meant $ 0.50, or at the most, $ 1.00 per gallon. The three methods actually used up to that time to make triptane involved the use of organo-metallic compounds. Other similar methods were known which might be expected to work, but there was no reasonable expectation that they would lead to a process which could be used commercially to make triptane at anything like $ 1.00 a gallon.

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The following three events in the history of triptane took place in the next period.

(a) Dr. Birch of the Anglo-Iranian Oil Company disclosed his alkylation process whereby paraffins are made by the direct addition of olefins to paraffins (J. Inst. Pet. Tech., 24 303 (1938)).

(b) The Ethyl Corporation undertook an investigation of the Birch process in the first half of 1939 with the specific aim of making triptane. The first results were not promising and the investigation was not pushed further.

(c) Dr. F. D. Rossini of the National Bureau of Standards reported on the thermodynamic properties of the isomeric heptanes, including the expected concentration at equilibrium of a mixture of the nine heptanes (Rossini, Prosen, Pitzer, J. Research N.B.S., 27 529 (1941)). According to his data and calculations, triptane would be only a minor constituent of the equilibrium mixture at temperatures above 100° C. It would become significant at room temperature and still greater at lower temperatures.

At a somewhat later date, and it is believed after the engine data on triptane (AR-26) had received rather wide though unpublished circulation, Dr. G. Egloff of Universal Oil Products Company gave a press release to the effect that U.O.P. engineers had perfected and made available a new super fuel called triptane.

Shortly after Pearl Harbor, the writer called the attention of NACA to the fact that if triptane could be made available for the use of the armed forces, this would result in giving us considerable advantage over the enemy, and suggested that a conference be called of all interested parties to ascertain, first, how much was known about making triptane commercially and second, what steps, if

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any, might be taken to coordinate the existing knowledge and to perfect a commercial process. NACA considered the suggestion worthwhile and requested that such a conference be held under the auspices of the API Hydrocarbon Research Project at Ohio State University. The Chairman of the Project appointed the writer as chairman of the conference, which was held in Columbus on March 3, 1942. The oil industry was very well represented, in addition to Wright Field, General Motors, Ethyl, and PAW. After some discussion, as the minutes indicate, all present agreed to disclose what information they had on triptane. The information showed that many research organizations had worked hard in the field. Some of the more obvious possible processes had been tried out by practically everybody and some of the laboratories had also tried out some more ingenius or less obvious methods. Negative results were freely reported by many and according to the minutes, only Dr. Egloff said that UOP thought at one time that they had a trace of triptane in one cut. It was agreed that all parties would send their information to Dr. Carey Wagner of PAW who would then correlate the information and take whatever steps might be justified. On March 6, 1942, a detailed questionnaire was circulated for the purpose of prompting the submission of this information, and a report summarizing the results of the questionnaire was issued by PAW on April 16, 1942. It was evident that no process had as yet been developed to the point of showing promise for the production of relatively large quantities of triptane at reasonable cost.

Around March, 1943, Mr. Kettering was reported to have stated that he now had a pilot plant in operation to make triptane and that the material would ultimately be available at $ 0.25 a gallon.

Several articles have appeared in non-technical magazines in the last year or so, all the way from Colliers to Fortune.

In August, 1943, Dr. Egloff, according to the news letters, made a statement at a meeting in San Francisco to the effect that UOP had a pilot plant in operation making triptane.

In the UOP Survey of Foreign Petroleum Literature, dated September 17, 1943, a new hydrocarbon synthesis was described which had not been covered by either Beilstein or Chemical Abstracts (probably because it was only an informal report, in Berichte, of a meeting of the Russian Chemical Society of January 17, 1878 and because there were no very clear-cut data on pure compounds). The method involves the reaction of trimethylethylene with methyl iodide for 7-8 hours at 220-230° in the presence of lead oxide. A mixture of hexenes and heptenes was obtained; the heptene cut, on hydration, yielded pentamethylethanol hydrate, indicating that one of the heptenes produced was triptene.

/s/ GC
George Calingaert
March 22, 1944

C,DRG

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RESEARCH LABORATORIES DIVISION

GENERAL MOTORS CORPORATION

POST OFFICE BOX 188, NORTH END STATION

DETROIT, MICHIGAN

April 4, 1944

1771

Commanding General
AAF Materiel Command
Wright Field
Dayton, Ohio

Attention: Lt. Dean Sweeny, Contracting Officer

Subject: Contract W 33-038 ac-1881 (11759)

Reference: DS:alr:82-E

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Dear Sir:

1. This is in reply to your inquiries relating to the subject contract--letter dated February 15th and telegram dated February 23, 1944.

2. We would be agreeable to deliver to the Government, at no charge, according to your instructions, 10,000 gallons of Triptane (2, 2, 3 Trimethyl butane).

3. The Research Laboratories Division, General Motors Corporation, shall have access to such information as may be forthcoming from any evaluation tests of this fuel resulting from the cooperative test and development program mutually agreed upon by P.A.W., AAF (APB), WPB, N.A.C.A., and ourselves.

4. This material is to be produced in our laboratory pilot plant as a reference fuel for experimental use and is to be of the highest degree of purity possible. It is therefore not to be regarded at the present time as a commercial product and is not available for sale on a commercial basis.

5. Purity shall be not less than 97 mol per cent pure 2, 2, 3 Trimethyl butane and shall be in accordance with specifications given below:

Refractive Index $\frac{20}{D}$	max.	= 1.3898
	min.	= 1.3893
Density $\frac{20}{4}$	max.	= 0.6916
	min.	= 0.6897

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To- AAF Materiel Command April 4, 1944

Freezing point, °C., max. = -25.0
min. = -31.0

Distillation Range:- The distillation range shall not exceed 2.0°C. and must include the boiling point of 80.88°C.

Unsaturation: Unsaturation shall be determined by bromine number in accordance with the method of A. W. Francis as described in Industrial and Engineering Chemistry, Vol. 18, 1926, pp. 821, 822 and 1095:

"Estimation of the Unsaturated Content of Petroleum Products."

The amount of bromine absorbed shall be not greater than 16 mgm per gram of fuel.

6. Delivery shall be made in barrels furnished by the Government and F.O.B. our plant, Redford, Michigan.

7. In view of the nature of this transaction, we suggest that, if the foregoing is agreeable to the Army Air Forces Materiel Command, two copies of this letter be approved by the Contracting Officer and returned to us for our records, thereby constituting this letter the sole agreement of the parties regarding this transaction. Accordingly, we are returning unsigned all copies of Letter Contract No. W 33-038 ac-1881.

Very truly yours,

GENERAL MOTORS CORPORATION
Research Laboratories Division

By _____
O. E. Hunt Executive Vice President

4-5-44
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Additional Source for the Supply of Triptane

IN TURN: (1) Air Services Division (Brig. Gen. L. P. Whitten) 24 April 1944
(2) Aviation Petroleum Branch (Col. D. G. Lingle)
AGAS/WOAD, Material Division

3

Lt Col C D Gasser/ers/3530

1. Reference paragraph 3 of Comment 2 above, Material Command has advised that no knowledge of the specific method of the manufacture of triptane by the Socony Vacuum Oil Company is presently available. A request is being submitted to the Socony Vacuum Oil Company for this information, which will be furnished your office at the earliest possible date.

4 Incls. - n/c
W/d - Ltr to WF dtd 9/30/42, & 1st ind dtd 9/27/43.

R. C. WILSON
Colonel, Air Corps
Chief, Development Engr. Br.

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INTER-OFFICE MEMORANDUM

ARMY AIR FORCES
MATERIEL CENTER Command
Office of The Commanding General

JD:lhb:57

Wright Field, Dayton, Ohio
Date 19 May 1944

TO: Chief, Procurement Division, Wright Field.
Att: Lt. Dean Sweeney.

SUBJECT: AFP No. 381767 - Triptane.

1. This is in reference to telephone conversations between Lt. Dean Sweeney of your Division, Captain D. F. Matson of Engineering Division and Captain John Duckworth of the Power Plant Laboratory, regarding the above subject.

2. The complete file, including previous Inter-Office Memorandum JD:lhb:57, dated 21 April 1944, is returned herewith. As pointed out in the referenced Inter-Office Memorandum, it is recommended that Mr. T. A. Boyd of General Motors Corporation receive two copies of all test results and data directly from the National Advisory Committee for Aeronautics. This agreement is reported in M.R. ENG-57-531-255, dated 21 February 1944.

3. It is recommended that the subject material be procured from General Motors Corporation rather than accepting it as a gift. It is believed that this recommendation is in line with the stated policy that no gratuities be accepted by the Government.

4. The subject Authority for Purchase set up funds for procuring 10,000 gallons of this material at a nominal estimate of $1.00 per gallon. It is understood that General Motors Corporation has, to date, refused to quote a price. It is believed, however, that this represents a fair price for this material.

5. It is further recommended that the Government, in releasing reports to General Motors Corporation on data and test results, reserves the right to release the same or summary reports to any other reputable engine or fuel manufacturer. It is pointed out that 2, 2, 3 trimethylbutane, known as triptane, is a hydrocarbon and that the use of this material in any test work would not, in any way, tend to reveal the manufacturing process by which General Motors Corporation produces triptane. For this reason it is believed that General Motors Corp. should not object to the release of this information to other engine or fuel manufacturers.

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D F Matson
DONALD F. MATSON
Captain, A.C.

F. O. CARROLL,
Brig. General, U. S. A.,
Chief, Engineering Division.

Signature

1 Incl.:
AFP 381767 File

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1920-1922 Prof Georges Chavanne, Univ of Brussels prepared appx 25 grams

1927 Ethyl Corp started prep of 250 g each of Sept. Small amounts were on field by Gantt Lea. Dr Kratz Eng and Mr T A Boyd collaborate results [illegible]

1934 Further work by Ethyl on byproducts & apparently fund.

7&16 1935 Prepared appx 1500 ml Ethyl Corp.

Tests at N.C. on 28 Feb and 17 March 1941

Many tested [illegible] Camegant at Ohio State Univ on March 3 1942 to discuss repro & conclude results were presented CAPI Bur Aeronautics Research Committee

Several samples org have methods [illegible] Anal in order of 331 test

1935 Additional 22gal prepared by Ethyl and final separation gel Knock Lab conducted

Term hydrid was coined by [illegible] Camegant who now regrets the original discovery did not receive the honor by giving name associated with name Chavanne.

August 1939 AAF arranged with Ethyl Corp to procure 125 gallons

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Sept. 1940 Dow Chem Co in collaboration with Ethyl Corp started shipments on batch of 325 gallons of which Wright Field received 125 gallons

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21 Feb 1941 Wright Field tests on 1 blend w. Leuna - in aircraft engine

19 March 1941 Wright Field tests on pure Leuna in aircraft engine.

3 March 1942 API Pure Hydrocarbon Res Committee ~~Dr~~ Dr Calingaert Chairman held meeting at which methods for light oil were discussed and Wright Field granted engine test date

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In several meetings between rep of Power Plant Lab and Generals Motors research staff it was mutually agreed that finding a research method to produce Leuna would be of a major contribution to the chemical and petroleum industries too - Leuna as such might never be used as an aircraft engine fuel. That is perhaps understandable as it left the Gen Mot Res staff finally resulted in a definite proposal by General Motors to construct pilot plant facilities for producing adequate quantities of Leuna for

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complete evaluation as an aircraft engine fuel and to determine the applicability of this method to large scale production. Wright Field obtained the support of the Aviation Petroleum Branch and with the aid of the ~~inventor~~ the originator and with the interest of high Govt officials in this project priorities were established and the pilot plant was constructed by General Motors.

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It may now be stated that operation of this pilot plant has resulted in ample quantities of high octane being made available for many important test programs.

It should also be noted that the interest of many ~~three~~ petroleum companies due to the active support of Wright Field and has been kept alive and ~~the~~ several processes are now available for commercial production although the economics of commercial procedures have not been completely analyzed. Regardless of statements to the contrary no large scale manufacture has been started and no hydrogen is at present available or planned in military or commercial aircraft engine fuels.

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symbol to inspire the continued improvement in all products used in aircraft. It is still a ~~goal~~ goal to test the ingenuity of ~~the~~ private ~~technologists~~ and it establishes a goal for the engine manufacturers - that a developing engine what will change maximum ~~to~~ fuels ~~effectively~~. Like other goals it will be abandoned when it has served its purpose for by then the industry will have even higher goals set up and the engine manufacturers will be clamoring for better material to permit even better engines

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INTER-OFFICE MEMORANDUM

ARMY AIR FORCES
MATERIEL CENTER
Office of The Commanding General

CONFIDENTIAL

A. E. Millard
alr:62-9 2-5107

Wright Field, Dayton, Ohio

Date 31 May 1944

TO: Chief, Legal Branch
Attn: Attorney's Unit
Major Knight

J Ratcliffe capt AC

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(AFR 11-30)

SUBJECT: Contract W 33-038 ac 1881 (11759)
General Motors Corporation

1. Returned herewith is unsigned letter contract W 33-038 ac 1881, General Motors Corporation, and all correspondence pertaining thereto, and, in addition, I.O.M. dated 19 May from Engineering Division.

2. It is recommended that a formal contract now be issued to General Motors Corporation, General Motors Building, 3044 West Grand Boulevard, Detroit 2, Michigan, in accordance with the First War Powers Act, as follows:

Item 1 - 10,000 gallons Triptane, (2,2,3 - trimethylbutane)
This material shall be not less than 97 mol. per cent pure 2,2,3 - Trimethylbutane and the finished material shall meet the following specifications:

Refractive Index $\frac{20}{D}$, max. = 1.3898
min. = 1.3893

Density $\frac{20}{4}$ max. = 0.6916
min. = 0.6897

Freezing point, °C., max. = -25.0
min. = -31.0

Distillation Range:- The distillation range shall not exceed 2.0°C. and must include the boiling point of 80.88°C.

Unsaturation: Unsaturation shall be determined by bromine number in accordance with the method of A.W.Francis as described in Industrial and Engineering Chemistry, Vol. 18, 1926, pp. 821, 822 and 1095:

"Estimation of the Unsaturated Content of Petroleum Products".

The amount of bromine absorbed shall be not greater than 16 mgm per gram of fuel.

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Signature

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Chief, Legal [illegible]nch
Attn: Attorney [illegible] Unit
Major Knight

CONFIDENTIAL

5/31/44

PRICE - $1.00 for all material in Item 1.

NOTE - Delivery in Government-owned 50-55 gallon steel containers. Delivery to be completed by August 30, 1944.

3. This procurement was not submitted to Cost Analysis Branch, since the amount involved is less than $25,000.00.

4. Award, made in accordance with the First War Powers Act, is in the best interests of the Government for the following reasons:

(a) Material urgently needed for the War Program.
(b) Contractor has necessary material available.
(c) A.F.P. initiated by Power Plant Laboratory.
(d) Price is considered fair and reasonable, inasmuch as above product is experimental, actual costs are not known and contractor has quoted by telephone price of $1.00 since Government is unable to accept product gratuitously as mentioned in Paragraph 2, contractor's letter of 4 April.

Dean Swaney
1st Lt AC

for D. C. SWATLAND
Colonel, Air Corps
Chief, Procurement Division

Incl.

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Address reply and ENVELOPE to

Commanding General,
AAF Material Command,
Engineering Division.
Reference: JD:lhb:57.
Wright Field, Dayton, Ohio.

Test Program of Triptane -
2,2,3 Trimethyl Butane.

Commanding General,
Army Air Forces,
Washington 25, D. C.

Att: AC/AS-4,M. & D. - Lt. Col. C. B. Gasser.

1. This is in further reference to your letter dated 1 January 1944 on the above subject and the inclosures therewith.

2. A question exists regarding the possibility of conducting tests on triptane in laboratories other than the National Advisory Committee for Aeronautics or Government laboratories, specifically, by Phillips Petroleum Company, now under contract with the Material Command to conduct flight detonation tests.

3. The following is quoted from paragraph 6 of Inclosure 1, (Memo dated 20 December 1943) to inclosure referenced in your letter dated 1 January 1944, mentioned above:

> "To date, the triptane production processes that have resulted from experimental work being done by the General Motors Corporation has been classified as a Secret Project by the Office of the Under Secretary of War. That Corporation desires that basic testing of triptane be confined to fuel test laboratories of the National Advisory Committee for Aeronautics and the Military Services."

Also quoted below is last paragraph of inclosure 2 to referenced inclosure of your letter dated 1 January 1944:

> "Desired test programs will be furnished by the Power Plant Laboratory, Material Command, Wright Field, Dayton, Ohio and the distribution of test reports will be specified by the Commanding General, Material Command."

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Subject: Test Program of Triptane,
Attn: Lt. Col. C. D. Cassaw.
"Test Program of Triptane - 2,2,3 Trimethyl Butane.

4. It is believed that these two quoted paragraphs [illegible] Project/ers/3380 contradictory, inasmuch as the first paragraph states that General Motors Corporation desires that the basic tests of triptane be confined to N.A.C.A. laboratories and the Military Services, while the latter paragraph states that test program and test reports will be specified by the Material Command. It is the opinion of the Material Command that since the product being tested is a basic hydrocarbon compound, and since no reference is made to the process by which it is produced, any tests desired by the Material Command should be conducted without regard to the process or supplier of the material.

5. It is suggested that in clarification of instructions, Material Command be given specific permission to distribute either the material or test reports to any organization as may be considered desirable in normal handling of fuel evaluation programs. Information on triptane is classified as Confidential, under Project MX-387.

For the Commanding General:

H. A. BOBERT,
Colonel, Air Corps,
Acting Chief,
Engineering Division.

1st Ind. AFDMA-2B

Hq Army Air Forces, Washington [illegible] C. 12 June 1944

To: Commanding General, AAF Material Command, Wright Field, Dayton, Ohio.
Attention: Chief, Engineering Division.

1. Reference basic communication, the triptane test program as originally established should be continued by the N.A.C.A. with full cooperation and assistance being furnished by the Material Command. However, such additional tests as considered essential should also be undertaken by other activities under the direct supervision of the Material Command. In connection, therewith, care should be exercised as to activities selected to undertake tests, as well as to insuring the safeguarding of dissemination of data resulting therefrom, consurrent with present practice.

By Command of General ARNOLD:

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H. C. WILSON
Colonel, Air Corps
Chief, Devel. Engr. Br., Mat'l Div.
Office, Asst. Chief of Air Staff
Material, Maintenance & Distribution

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April 24, 45

Capt L. Sweeny

RESEARCH LABORATORIES DIVISION
GENERAL MOTORS CORPORATION
POST OFFICE BOX 188, NORTH END STATION
DETROIT, MICHIGAN

June 8, 1944

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Commanding General
AAF Materiel Command
Wright Field
Dayton, Ohio

[redacted]

Attention: Lt. Dean Sweeny, Contracting Officer

Subject: Contract W 33-038 ac-1881 (11759)

References (A) DS:alr:82-E

(B) Ltr. dated 4 April 1944 from General Motors Corp. to AAF.

Dear Sir:

We have been at a loss to understand the difficulties in regard to the contractual relationships concerning the subject contract. It occurs to us now that there has been a misinterpretation of our letter proposal, Reference (B), Paragraph 3, which reads:

> "3. The Research Laboratories Division, General Motors Corporation, shall have access to such information as may be forthcoming from any evaluation tests of this fuel resulting from the cooperative test and development program mutually agreed upon by P.A.W., AAF (APB), WPB, N.A.C.A., and ourselves."

Ever since this program was initiated some two years ago, it nas always been our idea that any information obtained through engine or other test programs conducted by governmental agencies should be distributed in accordance with the desires of the governmental agency. The above referred-to paragraph indicates that we would also like to have access to the test results on triptane in addition to whoever else the Government feels should have access to it. In other words, we have no desire to restrict in any way the distribution of the information on tests of triptane, but only request that we be included in the distribution of such information.

The one restriction with respect to triptane is that the process by which we manufacture triptane is subject to Secrecy Orders

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To- Commanding General June 8, 1944

issued by the United States Patent Office.

I hope this will clarify the interpretation of this point.

Very truly yours,

T. O. Richards

T. O. Richards
Laboratory Control

TOR:EB

CC: Lt. Col. H. U. Smith, Power Plant Lab.
Messrs. H. M. Hogan, Legal Dept.
L. M. Spencer, Patent Section
H. Z. Wellinger, War Staff

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Clearance of Mr. W. J. Sweeney, Standard Oil Development Co., to receive Aviation Gasoline Technical Information.

Capt. John Duckworth
1hb:87: Ext. 3-0227.

1st Ind. 6 JUN 1944

Hq., Materiel Command, Wright Field, Dayton, Ohio.

To: Commanding General, Army Air Forces, Washington 25, D. C.
Att: AC/AS-4, M. & D., Dev. Engr. Branch.

1. The Materiel Command concurs, in general, with paragraph 2 of the basic communication, and in addition, further comments and recommendations are offered, regarding the release of test reports and technical information on the subject of triptane.

2. The National Advisory Committee for Aeronautics has distributed a number of preliminary test reports to the Materiel Command, the Bureau of Aeronautics and to General Motors Corporation, in accordance with the original agreement. Three copies of the reports received by the Materiel Command have been forwarded to your office for further distribution. It is the opinion of the Materiel Command that since these test reports as submitted by N.A.C.A. do not in anyway disclose information relative to the manufacturing process of triptane, wider distribution should be given these test results for the common benefit, particularly permitting discussion by certain qualified groups. It is also believed that in making distribution of these reports, considerable care must be exercised in controlling this distribution so that only reputable organizations will receive this information.

3. It is therefore recommended that: (a) members of the N.A.C.A. Subcommittee on Fuels and Lubricants receive copies of all preliminary reports on this particular subject, contingent upon the release of these reports by the Materiel Command and release through the Materiel Command; (b) final, approved Memorandum Reports be issued to members of the N.A.C.A. Subcommittee on Fuels and Lubricants and other organizations entitled to receive these reports directly from N.A.C.A.; and (c) representatives of reputable oil companies and engine manufacturers be permitted to discuss this general subject informally with members of the N.A.C.A., the Bureau of Aeronautics or the Army Air Forces, provided direction of the test program is retained by the above mentioned three activities.

4. The above recommendations, if approved and carried out, will permit desirable discussions and comments for evaluation of the test program. If these recommendations are in accordance with your wishes, it is requested that the Materiel Command be advised so that necessary steps may be taken to effect proper distribution of preliminary data, etc.

For the Commanding General:

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MX-387

F. O. CARROLL,
Brig. General, U. S. A.,
Chief, Engineering Division.

COM. GEN.
TECH. EXC.
ADM. EXC.
C. O.
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Contract No. W 33-038 ac-
AMC 613

CONTRACT

(SUPPLIES)

[redacted]

ANMB Preference _____

Order No. MX 347

WAR DEPARTMENT

[redacted]

GENERAL MOTORS CORPORATION

(Contractor)

Research Laboratories Division

Contract for Furnishing and Delivery of Triptane Amount, $ 3,400

Place, Army Air Forces, Materiel Command, Wright Field, Dayton, Ohio.

The Finance Officer, U. S. Army, Jefferson and Monumental Avenues, Detroit, Michigan, is designated as the officer to make payments in accordance with this contract. The supplies and services to be obtained by this instrument are authorized by, and for the purpose set forth in, and are chargeable to allotments below enumerated, the available balances of which are sufficient to cover the cost thereof.

AMC 7[illegible], 8-1-43; P 613-43 A [illegible]

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CONTRACT FOR SUPPLIES

THIS CONTRACT, entered into this 25th day of July, 1944 by THE UNITED STATES OF AMERICA, hereinafter called the Government, represented by the Contracting Officer executing this contract, and

[redacted], RESEARCH LABORATORIES DIVISION,

a corporation organized and existing under the laws of the State of [redacted]

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[redacted] of the city of [redacted], in the State of [redacted] hereinafter called the Contractor, witnesseth that the parties hereto do mutually agree as follows:

ARTICLE 1. Definitions and Miscellaneous Provisions.—(a) The term "Secretary of War" as used herein shall include the Under Secretary of War, and the term "his duly authorized representative" shall mean any person or board authorized to act for him other than the Contracting Officer.

(b) Except for the original signing of this contract, and except as otherwise stated herein, the term "Contracting Officer" as used herein shall include his duly appointed successor or his authorized representative.

(c) Unless otherwise expressly provided herein, all the supplies to be furnished hereunder shall be manufactured and supplied in strict accordance with the specifications, schedules and drawings respectively applicable thereto, as stated herein. Unless otherwise provided herein, all specifications, schedules and drawings referred to herein or in any exhibit or appendix attached hereto are hereby made a part hereof.

(d) This contract was negotiated under the authority of the First War Powers Act, 1941, and Executive Order No. 9001, December 27, 1941.

ARTICLE 2. Changes.—Where the supplies to be furnished are to be specially manufactured in accordance with drawings and specifications, the Contracting Officer may at any time, by a written order, and without notice to the sureties, make changes in the drawings or specifications. Changes as to shipment and packing of all supplies may also be made as above provided. If such changes cause an increase or decrease in the amount due under this contract, or in the time required for its performance, an equitable adjustment shall be made and the contract shall be modified in writing accordingly. Any claim for adjustment under this Article must be asserted within 90 days from the date the change is ordered, provided, however, that the Contracting Officer, if he determines that the facts justify such action, may receive, consider and adjust any such claim asserted at any time prior to the date of final settlement of the contract. If the parties fail to agree upon the adjustment to be made the dispute shall be determined as provided in Article 12 hereof. But nothing provided in this Article shall excuse the Contractor from proceeding with the contract as changed.

ARTICLE 3. Extras.—Except as otherwise herein provided, no charge for extras will be allowed unless the same have been ordered in writing by the Contracting Officer and the price stated in such order.

ARTICLE 4. Inspection.—(a) All material and workmanship shall be subject to inspection and test at all times and places and, when practicable, during manufacture. In case any articles are found to be defective in material or workmanship, or otherwise not in conformity with the specification requirements, the Government shall have the right to reject such articles, or require their correction. Rejected articles, and/or articles requiring correction shall be removed by and at the expense of the Contractor promptly after notice so to do. If the Contractor fails to remove promptly such articles and to proceed promptly with the replacement and/or correction thereof, the Government may, by contract or otherwise, replace and/or correct such articles and charge to the Contractor the excess cost occasioned the Government thereby, or the Government may terminate the right of the Contractor to proceed as and subject to the conditions provided in Article 5 of this contract, the Contractor and surety being liable for any damage to the same extent as provided in said Article 5 for terminations thereunder.

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ARTICLE 15 - Supplies to be Furnished - (a) The Contractor shall furnish and deliver to THE GOVERNMENT the following triptane (fuel for aircraft engines) in the quantity, of the type, in the manner, and at the price set forth below:

Item 1 - Ten Thousand (10,000) gallons, Fuel, Triptane, 2,2,3 - Trimethylbutane, which shall contain not less than 97 mol. per cent pure 2,2,3 - Trimethylbutane and such finished material shall meet the following specifications:

Refractive Index N_D^{20}, max. = 1.3896

min. = 1.3881

Density S_4^{20} max. = 0.6918

min. = 0.6897

Freezing point, °C., max. = -65.0

min. = -71.0

Distillation Range: The distillation range shall not exceed 2.0°C. and must include the boiling point of 49.26°C.

Unsaturation: Unsaturation shall be determined by bromine number in accordance with the method of A. W. Francis as described in Industrial and Engineering Chemistry, Vol. 18, 1926, pp. 821, 822 and 1095:

"Estimation of the Unsaturated Content of Petroleum Products".

The amount of bromine absorbed shall be not greater than 16 mgs per gram of fuel.

F.O.B. cars, at Contractor's plant, Detroit, Michigan, filled into Government-furnished 50-55 gallon steel containers, at the total price for Item 1 of $1.20

(b) The Contractor, immediately upon execution of this contract, shall provide and keep provided National Advisory Committee for Aeronautics, Aircraft Engine Research Laboratories, Cleveland, Ohio, Attention: Colonel H. E. Page, with the name, address and telephone number of the industrial representative of Contractor at or assigned to Contractor's plant and shipping point from which shipments will be made hereunder for purpose of receiving such instructions as may be issued under the terms of this contract.

(c) The term "gallon" as used in this contract shall mean a U. S. gallon of 231 cubic inches corrected to 60° F.

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(c) The Government shall furnish to the Contractor fuels more, Cuyahoga County, Ohio, the 30-35 gallon drums referred to in paragraph (a) hereof, and any such drums which are not returned to the Government in the possession of this contract shall at the option of the Government be delivered to the Government f.o.b. empty transportation thereof to be delivered to the Government f.o.b. empty transportation, plant aforesaid.

(d) It is contemplated that the above described fuels (lubricants) will be used in single cylinder laboratory test engines similar to aircraft engines in connection with certain test work and experiments being conducted and sponsored by National Advisory Committee for Aeronautics and the purpose of obtaining such fuels or a component of which, the Government will furnish, or cause to be furnished, to the Contractor and (2) copies of all information, reports, findings and data obtained and resulting from such test and experiments; provided, however, the Government reserves the right to withhold to furnish all or any part of such information, reports, findings and data to any other aircraft engine or fuel manufacturer.

ARTICLE 16 - Delivery - (a) Delivery of all fuel (lubricants) to be furnished under the terms of this contract shall be accomplished on or before August 30, 1944, and unless otherwise directed by the Contracting Officer in writing, or by other competent authority, all of said fuel (lubricants) shall be consigned to the following destinations:

National Advisory Committee for Aeronautics
Aircraft Engine Research Laboratories
Cleveland, Ohio
Attention: Edward A. Mc Page

(b) Shipping bills of lading will be furnished for all shipments hereunder by the Contractor shall give notification thereof to the Aircraft Engineering Division, Material Command, AAF Materiel Command, 4000 Wright Field, Dayton, Ohio, and to the Aircraft Engine Research Laboratory, Cleveland, Ohio, or elsewhere as may be specified in writing by the Contracting Officer by such Government Supervisor.

(c) Any and all equipment employed by the Contractor for the transportation of the whole or part of fuel shall be adequately sealed immediately after loading and the seals number of the seal shall be indicated on the bill of lading and the seals shipping document and also on the shipment notification, bill of lading or equivalent shipping document and also on the shipment notification, failing to which the seals numbers may be checked by consignee prior to acceptance of the fuel as destination.

(d) In the event that the Contractor has, prior to the date of commencement, at the request of the Government and in order to facilitate the

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ARTICLE [redacted]

In witness whereof, the parties hereto have executed this contract as of the day and year first above written.

THE UNITED STATES OF AMERICA

By _____

DEAN SWEENEY, Captain, Air Corps

Contracting Officer

(Official title)

Two witnesses:

R. M. Sprague

W. J. Cldent

GENERAL MOTORS CORPORATION

Research Laboratories Division

By O. E. Hunt

O. E. Hunt Executive Vice President

Detroit, Michigan

(Business address)

Contractor.

I, J. C. Davidson, certify that I am the An Assistant Secretary of the corporation named as contractor herein; that O. E. Hunt who signed this contract on behalf of the contractor, was then Executive Vice President of said corporation; that said contract was duly signed for and in behalf of said corporation by authority of its governing body, and is within the scope of its corporate powers.

J. C. Davidson [CORPORATE SEAL]

J. C. Davidson

I hereby certify that, to the best of my knowledge and belief, based upon observation and inquiry,

, who signed this contract for

GENERAL MOTORS CORPORATION, had authority to execute the same, and is the individual who signs similar contracts on behalf of this corporation with the public generally.

Contracting Officer.

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Extract from Summary Memorandum on the General Motors Triptane Process, 1 Aug. 1944, prepared by Messers. Mandelbaum, Heinrich, and Hetzner of PAW, Dr. Faith of WPB, and Maj. Dees of the AAF.

Triptane as a Fuel Constituent

It is not the purpose of this memorandum to set forth the blending characteristics of triptane, but certain inferences with regard to its value as a fuel can be made. As far as is known now triptane has no unique property in the blending of fuels to the present quality level that could not be realized by the use of a sufficiently larger volume of alkylate. In addition, this generalization appears to hold for fuel quality up to that corresponding to butylene alkylate-isopentane mixture (approximately 122 lean performance number). Preliminary results obtained by the NACA laboratory at Cleveland indicate the alkylate replacement value for triptane when evaluated with one particular sample of butylene alkylate, to be in the order of 2.6 as determined by the laboratory 3-C method and by both the lean and rich ratings on the full-scale single-cylinder engine. The laboratory 1-C test did not check the above alkylate replacement value. However, flight testing has been started, and very preliminary results do appear to confirm the results obtained on the 3-C and single-cylinder full-scale engines.

As pointed out in the previous paragraph the ceiling of fuel quality which can be reached with present constituents corresponds to the mixture of butylene alkylate and isopentane. If it is desired to exceed this limit, then consideration must be given to a group of hydrocarbons including triptane, 2,3,-dimethylbutane, isononanes, and others. However, as an example of what might be achieved with 2,3-dimethylbutane in combination with selected portions of butylene alkylate and isononanes, the ceiling of fuel quality could be lifted again to a level in the range of 140 lean performance number. If it is desired to exceed this limit, then triptane may become unique in its properties. Since facilities for the manufacture of 2,3-dimethylbutane and isononanes can be built for less than $3,000 per barrel with manufacturing costs in the range of $0.20 per gallon, it appears that it will be difficult to justify triptane facilities at anywhere near the present indicated cost until fuel qualities are contemplated in excess of the ceiling indicated or unless triptane proves to have unique properties not possessed by other high quality isoparaffins in premium fuel blending.

(Original report in files of AC/AS, M&S, Wash.

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14 AUG 1944

MEMORANDUM FOR: Assistant Chief of Air Staff
Material and Services

SUBJECT: Triptane.

1. The possible value of triptane as a component of aviation gasoline has been recognized for a number of years, and has been the subject of technical investigation. The quantities available have been produced from laboratory apparatus and the lack of a substantial supply prevented extensive evaluation tests.

2. In January 1943, the General Motors Research Corporation presented a proposal to the AAF for construction of a pilot plant, which would make a quantity of triptane for test purposes, and which would permit evaluation of production potential by the new process developed by General Motors. In view of the critical shortage of aviation gasoline and the value of high quality components, the Under Secretary of War directed the Aviation Petroleum Branch, AAF to secure the necessary priorities for this project and to assist in expediting construction.

3. The Aviation Petroleum Branch secured an AA-1 priority for the project in March and with the Chemical Branch of the War Production Board gave assistance in expediting the delivery of the necessary equipment. The Aviation Petroleum Branch also assisted in the solution of various construction problems. All the materials were delivered and the project completed as originally scheduled. Due to improvements and revisions the pilot plant can produce about 4,000 gallons of triptane per month, which is almost twice its original designed capacity.

4. The AAF requested the National Advisory Committee for Aeronautics, 30 December 1942 to undertake a comprehensive program for the evaluation of triptane as a component of aviation gasoline. As triptane supplies became available, NACA instituted evaluation program, including testing in laboratory engines, multi-cylinder aircraft engines on the test stand and multi-cylinder aircraft engines in flight. Although the evaluation program is still in progress, the results to date are sufficient to indicate that one barrel of triptane is equivalent to about 2.6 alkylate of current average quality. This comparison appears reasonably valid though the range of gasoline quality represented by the current grade 100/130 and the improved grade 115/145. The NACA has been most cooperative in complying with the requests of the AAF.

5. In January 1944, an informal committee composed of representatives of AAF, PAW and WPB was formed to evaluate the possibilities of large scale production of triptane by the General Motors process with the cooperation of General Motors. Incl. No. 1 is a report of that committee dated 1 August 1944. According to the present status of the development, it is estimated that about two years would be required to bring triptane in production in commercial quantities. It is estimated

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that (according to the present knowledge of the process) the cost in materials and labor would range from $16,500 to $27,000 per day for quantities up to about 4,000 b/d. (General Motors estimates a minimum figure of about $12,000 per b/d.) To produce quantities greater than 4,000 b/d the cost would be higher and the problem of developing production of reaction chemicals and the disposal of chemical by-products would reach very large proportions. For comparison purposes, high quality alkylate on a similar basis would cost a maximum of $8,000 b/d. However, present estimates of cost for triptane facilities are based on present knowledge of the General Motors process and future developments may bring major reductions in estimated costs.

6. Conclusions.

a. In the present stage of developments, triptane, as produced by the General Motors process, does not represent a practical advantage in the production of aviation gasoline of the current quality level 100/130 grade, or of the quality level of the proposed improved grade 115/145.

b. Triptane, as produced in test quantities by the General Motors pilot plant represents an advantage to the AAF through serving as a source of supply of a very high anti-knock fuel component for use in aircraft engineering and testing activities. It is possible through the use of triptane and other high quality components to conduct aircraft engine tests for mechanical strength and to investigate engine weaknesses and difficulties with the fuel factors further removed from the problem than is otherwise possible.

c. Triptane, as produced by the General Motors pilot plant, through its degree of purity, as well as its high anti-knock rating, presents possibilities for advantageous use in the bench testing of motor fuels, and may provide an adequate basis for a change in the present system of bench ratings which requires a change in scale at the 100 octane level.

d. The triptane project, as carried out by the General Motors Corporation and assisted by the AAF, has stimulated additional interest in the high quality components of which triptane alone [illegible]. It is believed that increased interest and improved production methods in such components are necessary for progress in improved fuel development and necessary for the production of improved grade 115/145 in quantities as [illegible] to the case of 100/130 grade in the current war effort.

7. Recommendations.

a. That [illegible] be given to further development of the General Motors process for production of triptane, in that no commendable effort be made at this time by the AAF to [illegible] with large production.

b. That the AAF continue to utilize triptane [illegible] development along with the development of other high quality components only such progress as projects on [illegible] are [illegible] to the AAF.

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c. That the cooperation of the General Motors Corporation, Pratt & Whitney Division, Air Technical Service Command, Wright Field, Army Air Forces, and other engine manufacturers be encouraged toward the use of triptane (and other high quality components) for the investigation of aircraft engine mechanical strength tests and other aircraft engineering test work in which a fuel of extremely high anti-knock quality is advantageous.

d. That the AAF encourage consideration of triptane as a means of improving the present knock rating scale.

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rpt dtd 1 Aug

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Draft of Paper Prepared for Presentation at General Meeting of American Chemical Society, New York, September 13, 1944
August 18, 1944.

THE EFFECT OF MOLECULAR STRUCTURE OF FUELS ON THE POWER AND EFFICIENCY OF INTERNAL COMBUSTION ENGINES

by Charles F. Kettering, Vice-President,
General Motors Corporation, Detroit, Michigan

Introduction

The great industries in this country, those of petroleum refining and automobiles -- roughly comparable in size -- produce the coordinating factors of automotive and aircraft horsepower. These factors are the fuel and the engine. The two industries have a common technical meeting ground in chemistry; since what really makes the automobile and airplane function is simply a chemical reaction -- but not necessarily a simple one. We call this reaction or reactions "combustion" in order to conceal our lack of knowledge of what takes place in the engine cylinder. Yet upon this poorly understood reaction depends the great service these two important industries render to the public, and it is essential for both automobile and fuel technologists to recognize that each has an individual responsibility in supplying the best that science affords in his field.

It is hard to overemphasize the importance of understanding this technical meeting ground of chemistry to the future service of these great industries. To understand the real importance of this reaction, we should know that the installed horsepower of internal combustion engines of our automobiles in this country is many times that of our central power generating stations which is 30,000,000 hp, and that the installed horsepower of the airplane engines made for the war in a single month is ten times greater than that of horsepower developed by Boulder Dam.

It was just about the time battery ignition and the self-starter were introduced that people began to be conscious of the combustion disturbance which is called knock, and which is such an important barrier to high power and efficiency. It was perfectly natural for the motor car manufacturers and users to blame engine knocking on the new type of ignition. This circumstance caused us to undertake for the first time a study of knock; and ever since that time we have been continuously exploring the relationships between fuels, ignition systems, and engines. This we have done as builders of engines and equipment, with the full realization that it is the combination of fuel and engines, and not either one of them alone, that controls the useful power obtained.

Two important facts were soon established in the investigation which we began at the time when the matter of engine knock first became a critical problem. The first of these is that both fuel and engine are involved in knock, and our first work was to find out that part which belonged to each. The second thing was that for any given design of engine its production of useful power and its efficiency were dependent on the extent to which the fuel used was free from knock. At this time, the whole question of knock

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pp 6 - 12 10

was considered by many people, so far as the fuel was concerned, as controlled by specific gravity. Certain of the early experiments which we made in our laboratory, then located in Dayton, indicated that this was not so. It was in this early work that the knock characteristics of fuel was first found to depend to a large extent on molecular structure.

In 1919 and 1920 the writer and the president of your Society contributed articles to the Journal of the Society of Automotive Engineers on this subject (1,2). One of the things said there (1) was this: "The main point . . . is that the fuel proposition is, so far as future engine design is concerned, practically a question of chemical construction and make-up". We always have considered that the fuel is as much a part of the engine as the pistons or the valves, and one cannot work either with fuel or engines without taking the other into account. The researches which discovered the effects of antiknock compounds, such as aniline and tetraethyl lead--the latter almost universally used--moved back the barrier of knock and the output of internal combustion engines was improved without changing the molecular structure of the fuel used (3,4). From this work it became evident that the problem had two factors which are important. The first is that the specific structure of the fuel greatly influences the knock and the second is that materials can be added to fuel of any structure and likewise influence the result.

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Molecular Structure and Knock.

Subsequent research on fuels themselves showed still more definitely that the limitations of the fuel, from the viewpoint of knock-free power, resided not in the gross physical characteristics but in its molecular structure, or the specific way in which a fixed number of atoms were grouped to form a molecule. As a matter of historical interest, some of the results of investigations made in the 1920's (5,6,7,8) will be shown to you in a few consecutive slides. This work was done before the octane number scale existed, and these early but extensive measurements were made in a one-gram mols per liter solution in a reference gasoline. The aniline equivalent is strictly described as the number of centi-moles of aniline added to the reference gasoline (or to the solution in the case of negative values) to match the solution with regard to knock in an engine. Measurements in solution do not necessarily directly correspond to measurements on the compounds pure; but most of the compounds have since been measured in the pure state, in addition.

Figures 1 - 6 show representative data on these structural relationships for paraffins, aliphatic olefins, aromatics, six carbon ring naphthenes, five carbon ring naphthenes, alcohols, and various oxygen containing compounds. We have put marks on each chart which show the approximate relationships between the aniline scale and the octane scale. At that time we were more concerned with the way in which molecular structure responded than we were to the quantitative relationship through the usable range of concentrations. Undoubtedly, if these charts were replotted in the light of later procedures and better knowledge, there would be some alterations in relative position.

With the nature of the fuel limitation may be, as illustrated by specific examples, may be seen from the chart, Figure 8. Here are shown the behaviors of the isomeric heptanes, and also one octane (iso-octane or 2,2,4-trimethyl pentane) for comparison, so far as their relative freedom from knock are concerned, or the extent to which each limits the combination of fuel plus engine. The 7 carbon atoms and 16 hydrogen atoms of the heptanes may be arranged, as you well know,

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RP-6-3/6

in 9 different ways to produce 9 compounds, some of which have very similar physical properties. These are shown by conventional structural formulas along the bottom of the chart, and above each one is represented its critical compression ratio, or the compression ratio which can be used without knock when the engine burns that hydrocarbon as a fuel under a set of standardized conditions. These individual compression ratios cannot be exceeded without the incidence of knock, and if they are greatly exceeded, the destruction of the engines results.

As an engine runs without knock, the efficiency improves with higher compression ratios; consequently, the importance of having fuel that permits of increasing compression ratios. The higher efficiency which is normally expected from diesel engines is due to the fact that in these engines compression ratios are very high and consequently the expansion ratios of the burned gases are best for economy. Relatively recent experimental work indicated that with a fuel of high order of antiknock value specific fuel economies can be obtained in spark plug engines equivalent to that of diesels.

There are things to be seen from the chart. First, there is a fairly regular increase in the individual critical compression ratios as the structure of the molecule of heptane becomes more closely centralized or highly branched. The fundamental reason for this difference in the way hydrocarbons of different structures burn is not known, even though it has been, and still is, the subject of a large amount of research. A second important fact revealed by the chart is illustrated by the dotted line which shows that the increase in critical compression ratio obtained by the addition of tetraethyl lead to each hydrocarbon becomes larger as the structure becomes more highly branched. The freer from knock the hydrocarbon is of itself, in general, but not always, the more effective lead is in making it still better. The third and most important fact to be learned from the chart is the wide range of compression ratios covered. Iso-octane itself (2,2,4-trimethylpentane), which is rated at 100-octane number and which is the basis of present 100-octane aviation fuels, is only about half way up the scale. Among the isomeric heptanes, then, there are compounds greatly superior to 100-octane, as well as to normal heptane which is the zero of the octane number scale.

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Triptane.

The outstanding thing about the heptanes is the behavior of 2,3,3-trimethyl butane, or triptane. As was shown by engine tests run a good many years ago, (5,9), trimethyl butane is one of the best fuels known in respect to degrees of freedom from knock. It is so good that when leaded it is beyond the capacity of some methods of measuring its quality, as indicated by its relation to our present standard, iso-octane.

It is possible, however, to look at this special heptane from another standpoint--that is, not in terms of compression ratio, which represents gains primarily due to increases in efficiency, but from the standpoint of gains by supercharging, primarily increases in power. A chart, Figure 2, shows the knock-limited power obtainable from a particular but probably fairly representative supercharged engine with varied amount of supercharger pressure, for some fuels. Here the concern is with the upper range of fuels, and iso-octane of 100-octane number is near the bottom of the chart. The power obtained with leaded triptane is nearly three times as great as with iso-octane.

Because of these factors, it was decided to make enough trimethyl butane to find out more of its practical use. Once the barriers of knock are definitely removed, engine design can move ahead on an independent basis. A large number

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of problems always arise relating to engine design and the use of engines for special applications which can only be intelligently evaluated by experiment. To do this large scale experimenting, a knock-free fuel must be available in quantity.

History of Triptane.

The history of trimethyl butane, triptane, is an interesting one. It was first made as an individual chemical compound by Ghevenne, a Belgian, in 1922 (10). It was again made by the Ethyl Gasoline Corporation (11) and first tested in gasoline solution in an engine in 1926 (9) incidental to the molecular structure investigations in the General Motors Research Laboratories, when it was first recognized as being an outstanding fuel component. It has been made by the laboratory methods of the Grignard reaction at various times for engine test.

But triptane suffered from the limitations that it could not then be made cheaply in quantity. About 1929, some 300 gallons of the compound was prepared by the Dow Chemical Company for the Ethyl Corporation by the rather laborious Grignard laboratory method using metallic magnesium, at a cost of about $65 a gallon. This sample was made for possible use as a standard fuel; and for the compound trimethyl butane, the coined name "triptane" was suggested by Calingaert (12). The triptane so produced was submitted to engine tests at various laboratories. It was tested at Wright Field in 1941 in a full-scale aircraft engine, and found to be superior to any other fuel previously tested.

Obviously, in order to have triptane available in quantity at a reasonable price for experimental use in an extensive engine program, it was necessary to have a better method for making it, and in order to evaluate it as a specific fuel component, it was also necessary to have it reasonably pure.

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Production of a Sample of Triptane

Following a series of researches in the General Motors Laboratories, it was found about two years ago that pure triptane can be made by a relatively simple procedure of methylating an olefin with methyl chloride in the presence of a material, such as lime, to form an olefin, which is readily hydrogenated to triptane.

It was decided to use this method to make a large-scale sample of triptane, several tank cars in amount. The raw materials used for this purpose were trimethyl ethylene and methyl chloride. Trimethyl ethylene was readily and immediately available from tertiary amyl alcohol from Sharples Chemicals, Inc., located convenient to Detroit, while methyl chloride could be obtained from the R and H Division of the E. I. DuPont de Nemours & Company at Buffalo. Lime, the other ingredient of the process, was prepared for this use by the Kelley Island Lime and Transport Company at their plant near Toledo. This particular reaction is now somewhat out of date, but its temporary use was dictated purely by expediency, and must be regarded in the same light as making experimental crankshafts from large billets of steel.

After progressing through laboratory development and a small-scale pilot plant, the larger-scale pilot plant was built by the Blaw-Knox Company to make up to 5 or 10 barrels of triptane a day. This was done under the sponsorship of the War Department and the Army Air Forces. A photograph of this plant is shown in Figure 10. It was completed in late 1943, and by January 1944, had been in operation producing triptane in somewhat better than expected yields and with a purity of about 99 per cent.

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PP 6 - 5/6

Use of Triptane.

On this sample, it is hoped to be able to obtain enough data to evaluate in a thoroughly comprehensive manner its possibilities as a fuel, both pure and blended with other fuels, and including work on actual flight tests in airplanes. Such tests are under way at Wright Field, Dayton, at the Aircraft Engine Research Laboratory of the National Advisory Committee for Aeronautics in Cleveland, at the Allison Engine Division of General Motors Corporation, and at the General Motors Research Laboratories.

In single-cylinder test engines, typical results are these: Triptane by itself is capable of giving 30 per cent more power than iso-octane at lean or cruise mixture ratios, and 80 per cent more at rich or take-off mixture ratios. The addition of only 1 cc of tetraethyl lead per gallon increases permissible or knock-limited output still further by 35 per cent lean and 40 per cent rich. The output from triptane plus 3 cc of lead has been carried up to an indicated mean effective pressure of more than 400 lbs. per square inch. Figure 11 shows such data obtained in one particular singel-cylinder test engine. A full-scale Allison airplane engine has been operated on triptane blends at an output of more than 2500 horsepower, although the rated take-off horsepower with 100 octane aviation gasoline is only one-half that figure, or about 1380 horsepower.

Such utilizations of triptane are primarily related to the power development of an engine or how much fuel and air can be burned in the engine. A more fundamental advantage of fuels free from knock such as triptane lies in using them to produce more work per pound of fuel or higher thermodynamic efficiency, as by the use of higher compression ratios.

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Studies are under way to evaluate the commercial possibilities of triptane and related compounds, with some preliminary indication that the value of the fuel may justify the present projected cost per gallon, which is relatively high as compared with fuels of lower quality. More importantly, an engine development program is contemplated to see what may be done with engines and their applications to various uses, once the barrier of uncontrolled combustion has been completely removed. The objective is to find the best combination of engine and fuel to give the greatest value per total dollar, irrespective of what form it may take. This phase of the problem is how to design engines to take advantage of their greater possibilities.

Fuel-Engine Relationships

In a broader view this is, of course, only one phase of the problem of the fuel-engine relationship. The important thing is to get the most out of the fuel by suitable treatment before use, and then by burning it in an engine made to fit the prior treatment. As to what type of engine to build at any one time it does not matter whether it be carburetor, injection, diesel 2-cycle, 4-cycle, non-reciprocating or whatever, so long as the over-all economies are right. Engines are all made out of metal and brains, and what we want to do is to put as much of the latter in as possible. When that is done we get the most and the cheapest power out of a pound of fuel.

What the engine picture looks like is a king of circle, as shown in Figure 12. If we think of a barrel of crude oil entering the circle at some point, we can think of it being refined around one direction to make more octane number, or around the other direction to make more cetane number. But the two processes meet at the same point in a high compression engine which has just about the same thermal efficiency since that is determined only by compression ratio. But one important difference is that today the octane number (gasoline) engine can be run about a third faster than the cetane number (diesel) engine because of the combustion process.

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And as was stated at the beginning, the combustion process is where the fuel and the engine meet, and that is what we are trying to find out more about. The future development of automotive and aircraft engines will depend upon how well management, as well as engineers and chemists, understand the fundamentals of the relationship between the fuels and proper engines.

This may be said in conclusion. In spite of the very large differences between triptane and the other heptanes in respect to the way they burn in engines, the present state of our knowledge is such that the reason for the differences is not known. This being true of such simple compounds as the 7-carbon-atom hydrocarbons, it suggests that there is much room in which to expand our physical-chemical knowledge of other compounds as well. This would surely be true of the proteins, for instance, complex compounds which are consumed not in an engine but in our own bodies. Thus the field of engine combustion, and the relationship of fuel structure to it, is perhaps only one locality in a large realm over most of which there is need for better knowledge of the isomeric chemistry involved.

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11. Graham Edgar, George Calingaert, and R. E. Marker, Jour. Am. Chem., Soc. 51, 1483 (1929)
12. The origin of the word "triptane" is ascribed to George Calingaert in Ind. Eng.Chem., Oct. 1943, p. 8 of advertising section.

(Figures 1 to 12 inclusive not reproduced.)

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29 August 1944

MEMORANDUM FOR: Assistant Chief of Air Staff
Materiel and Services

SUBJECT: Distribution of Information on Value of Components and Various Fuels in Aircraft Engine Operation.

1. In order for the aviation gasoline manufacturers to do their most effective work in the production of various petroleum components and fractions for use in 100/130 Grade and the improved 115/145 Grade, it is considered advisable for the AAF to make available to proper individuals representing various aviation gasoline companies, certain technical information as may be available on the actual value of such materials in aircraft engine operation. This cooperation of the AAF is believed essential in order to gain the full production potential and support the aviation gasoline industry. Action has been taken by Materiel Division, AC/AS, Materiel and Services to facilitate the release of such information by the AAF.

2. In respect to the distribution list (Inclosure No. 1 is paraphrase copy of radio ENG-7380, 24 August 1944 from AAF Materiel Command to War Department) it is believed that the AAF should cooperate as far as reasonable and practicable with all the companies engaged in the production of aviation gasoline, and should not encourage reliance solely on a small part of the industry. The AAF Materiel Command has proposed distribution of such information to seven oil companies. There are a number of other companies who are active in the production of aviation gasoline. It is believed highly desirable that the AAF cooperate with all the active aviation gasoline manufacturers who are in a position to advantageously use information as mentioned in paragraph 1, and that the AAF not confine the distribution of that information to seven companies to the exclusion of other companies.

3. It is recommended that the Petroleum Administration for War be requested to submit recommendations on a distribution list for subsequent consideration by the AAF in the establishment of a distribution plan. Inclosure No. 2 is a suggested letter to the Director of Refining, Petroleum Administration for War, requesting such recommendations.

Incls -2
Incl. No. 1 - paraphrase copy of radio (Withdrawn)
Incl. No. 2 - suggested ltr to PAW

D. W. [redacted]
Colonel, Air Corps
Chief, Air Services Division
Office, Asst. Chief of Air Staff,
Materiel and Services.

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Paper for Presentation at Meeting of American Chemical Society Entitled "The Effect of Molecular Structure of Fuels on the Power and Efficiency of Internal Combustion Engines".

R. V. Kerley:lht:
Ext. 3-0227

2d Ind.

Hq., Air Technical Service Command, Wright Field, Dayton, Ohio. 8 SEP 1944

To: Commanding General, Army Air Forces, Washington 25, D. C.
Att: AC/AS - M and S - Lt. Col. C. D. Gasser.

1. With reference to the paper inclosed with basic communication, the information covered in this paper is restricted under Project MX-274 and information on triptane generally is confidential under Project MX-367, since patent applications relative to the method of preparing triptane is under secrecy by the Commissioner of Patents and other patent applications referencing the anti-knock values of triptane are carried under secrecy by the Commissioner of Patents.

2. It is the recommendation of this Command that authorization be given to Mr. Kettering to present this paper to the closed meeting of members of the American Chemical Society, provided distribution of the paper is handled in accordance with Army regulations for the handling of classified documents, and provided that no further publication of the paper is made. Provided the paper is handled in this manner, it is not considered necessary to delete the portions indicated by the Aviation Petroleum Branch.

3. This is in no manner considered to be a release from secrecy by the Commissioner of Patents, which release must obviously be a matter pertaining to the General Motors Corporation and the Commissioner of Patents.

For the Director:

[redacted]

R. C. CARROLL,
Brig. General, U. S. A.,
Chief, Engineering Division.

8 SEP 1944

Incl. n/c

GEN.
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ADM. EXC.
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Lt. [redacted] EPL-5L Hirschfeld Ext. 2-0160

Authority for Purchase

No 394247

VENDOR

CONTRACT No. W-33-038 ac-7711

PURCHASE ORDER NO.

VIA TERMS METHOD PROPOSAL

BELOW THE ABOVE SPACE TO BE USED BY THE PURCHASE BRANCH ONLY

Item	Quantity	Unit	Estimated Unit Price	DESCRIPTION OF MATERIAL OR SERVICES TO BE PURCHASED.	Unit Price	Total Price
1	6000	gals.		Fuel, triptane, (2,2,3-trimethylbutane), according to the specifications of Exhibit "A" attached. Drums to be marked, Project No. MT-1708.		

No License Rights Article
No Patents Article RLP
Patents and Royalties Office

Not On Unapproved List Date 11-7-44 Signed Elvin

CONTROL UNIT LEGAL BRANCH 1/4/45

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Y-117835

NEGOTIATIONS COMPLETED 1st Lt J R Reed

MX-367

Reed

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Controlled materials are not involved

Total Estimated Cost $6,000 CLASSIFICATION CL-06-A Actual Cost

B—FUNDS EXPEND. ORDER No. MISCL. CHARGE No.	Project No.	Item No.	A—FUNDS Project No.	Item No.	C—FUNDS Project No.	Class No.	Item No.
531-302 (06-A)	611-2	531-1					

Increase of Funds to Actual Cost Approved

MATERIAL TO BE DELIVERED Power Plant Laboratory WANTED NOT LATER THAN 30 January 1945 (Date)

DELIVER TO Lab., Cleveland Airport, Cleveland, Ohio. Office of the Dir., NACA Aircraft Engine Research

Chief-Division-Organization

Procurement Data Number of Sets

DATE FURNISHED

Expenditure Control—S. F. O.

Budget & Fiscal Officer

Remarks on the following matter marked with "X" appear in the space below:

1. Recommended Sources of Supply X 2. Government furnished material X 3. Tools, patterns, etc. loaned by Government
4. Should Serial Number be assigned 5. Point of Inspection X 6. Increase Existing Orders 7. General Remarks: X

1. General Motors Research Laboratories, 485 West Milwaukee Avenue, Detroit, Mich. Attn: Mr. T. A. Boyd. W33-038 ac-7711 (13570) Myjanning

CLEARED 11-30-44

2. This is fuel to be filled into new (unused) Government furnished 50-55 gallon drums.

5. Inspection at source for quantity and at destination for quality.

7. The following information is furnished in accordance with MDOM40-9.
   a. This is a pure chemical compound of particular interest as a component of high performance number aircraft engine fuels, and will be used by the U.S.A.C.A.

(See reverse side)

The supplies and services to be obtained by this instrument are authorized by, are for the purpose set forth in and are chargeable to allotment number(s):

42/50705.502 — 615.0.611-08 x 0 33-038

P A

Upon due inquiry made, you found that the [redacted] enumerated herein could not be procured from any other branch of the Government without transfer of funds, or the [redacted] of this article from point of supply precludes their purchase from any other branch of the Government.

Date 28 NOV 1944

Signature J. G. Hirsch
J. G. HIRSCH, 1st Lt., A.C.

Authorized by: D. J. REID, Col., A.C., Acting Chief, Power Plant Lab.

Signature H. Z. BOWEN, Col., A.C., Deputy Chief, Engineering Division

Coordinated by: [redacted]

Coordinated by: [redacted] E, Jr., Col., A.C.

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Aircraft Engine Research Laboratory and by any other laboratories designated by the Air Technical Service Command to determine its effectiveness as such.

b. This quantity is required for a continuation of the initial test program for the complete evaluation of the material.

c. This is not new material, however sources are extremely limited. Only two previous purchases have been made. One of 125 gallons from the Ethyl Corporation at $35 per gallon on Purchase Order No. 40-6926 and a second of 10,000 gallons from General Motors Corporation at $1.00 per gallon on Authority for Purchase No. 381767.*

d. It is expected that the procurement of this quantity of triptane will permit further evaluation of the material as a component of aircraft engine fuel and will indicate whether production facilities should be allocated for its manufacture in large quantities.

Note: Procurement Branch Memorandum, No. 43-48-18, AFPMA-6A, EPS:hk, dated 30 December 1943, subject: "Contract with General Motors Corporation for the Experimental Production of Triptane", to the Commanding General, Materiel Command, Attn: Procurement Division, directs the procurement of this material. This memorandum is in the office of the Procurement Division.

* After final negotiations on this Authority for Purchase were completed, Contract No. W33-038-AC 1881 was issued. Contract was for $1 for the entire amount with the agreement that the contractor be furnished copies of all test data obtained using this fuel.

This is a standard commercial item.

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Aero Engine 1/19.

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PETROLEUM ADMINISTRATION FOR WAR

WASHINGTON 25

[redacted]

December 6, 1944

In Reply Refer To:
Rfg-30815-TLA

Subject: Triptane

Mr. W. A. Perkins, Asst. Chief Engineer,
Pratt & Whitney Aircraft Division,
United Aircraft Corporation,
East Hartford 8, Connecticut.

MX-367

Dear Mr. Perkins:

The Research Laboratories of the General Motors Corporation have developed a process and have built pilot plant equipment for the production of triptane in rather substantial quantities for test purposes.

General Motors is also anxious that as much information as possible be developed on the value of triptane in high quality aviation fuels. A substantial proportion of the capacity of the pilot plant will, therefore, be available for the production of triptane for distribution, at the government's direction, to petroleum companies and others having a legitimate war use for the product.

In a recent meeting with representatives of the General Motors Corporation, the Army, and other agencies of the government, it was decided that the distribution of the available triptane would be made at the direction of the Refining Division of the Petroleum Administration for War. If you, therefore, believe that some quantity of this material would be useful to you in experimental and development work on engines, you should make your needs known to this office. Your request should be accompanied by a rather complete statement concerning the use to which you will put the triptane. If the request is approved by this office, General Motors will be so advised by us and your order may be placed directly with them.

Where the quantities of triptane required in this initial phase of the work are not too large, the General Motors Corporation has agreed to furnish the material gratis. The recipients will, however, be expected to furnish containers and pay shipping costs. General Motors, however, does desire that any interesting information developed on the product be made generally available to those authorized to receive such information.

The General Motors Corporation will also have available various by-products from their triptane synthesis which will be useful for engine work. These by-products are:

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PETROLEUM ADMINISTRATION FOR WAR

WASHINGTON 25

CONFIDENTIAL

In Reply Refer To:
Rfg-308:5-TLA

December 7, 1944

Subject: Triptane

Lt. Colonel C. D. Gasser,
Army Air Forces,
Room 5D-975 Pentagon Building,
Arlington, Virginia.

Dear Colonel Gasser:

For your information we are attaching a copy of a letter that was sent to all manufacturers of 100 Octane Number aviation gasoline concerning the availability of quantities of triptane for testing purposes from the General Motors Corporation. The same letter, with minor changes and deletions of references to blending, was sent to the following engineering representatives of the major engine builders.

W. A. Parkins, Asst. Chief Engineer,
Pratt & Whitney Aircraft Division,
East Hartford, Connecticut

R. M. Hazen, Chief Engineer
Allison Division, General Motors Corp.,
Indianapolis, Indiana.

R. W. Young, Chief Engineer,
Wright Aeronautical Corporation,
Paterson, New Jersey.

A. T. Gregory, Chief Engineer,
Ranger Aircraft Engines,
Farmingdale, L.I., New York.

H. N. DuBois, Chief Test Engineer,
Packard Motor Car Company,
Detroit, Michigan.

It is assumed that you may wish to obtain some quantity of this material for use in your laboratory at Wright Field. We would appreciate your advising us whenever you desire to order triptane from General Motors. For your information, they will be in a position to produce somewhat over 1,000 gallons per month.

Sincerely yours,

A. B. Chilberton,
Assistant Director of Refining.

Attachment.

cc: Director, Air Technical
Service Command.

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[redacted], D. C.

AFDAP-5
December 13, 1944

Mr. A. B. Culbertson
Assistant Director of Refining
Petroleum Administration for War
Room 5013, Interior Building
Washington 25, D. C.

Dear Mr. Culbertson:

Reference is made to a letter from your office dated December 7, 1944, Reference No. Rfg-308:5-TLA, Subject: "Triptane."

A requirement exists for 10,000 gallons of triptane to be used in the Air Technical Service Command's current fuel test program being conducted by the National Advisory Committee for Aeronautics, Cleveland, Ohio. Arrangements for the above-mentioned requirement are presently under way between A.T.S.C. and General Motors.

Very truly yours,

D. S. [redacted]
Colonel, Air Corps
Chief, Engineering Br., Mat. Div.
Office, Asst. Chief of Air Staff
Materiel and Services

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WASHINGTON 25, D. C.

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December 28, 1944

In Reply Refer To:
Rfg-308:5-TLA

Subject: Triptane

Commanding General,
Army Air Forces,
Washington 25, D. C. Attention: AFDMA-2E

Dear Sir:

This will acknowledge your letter of December 13 concerning a requirement for 10,000 gallons of triptane from the General Motors Corporation, to be used in the Air Technical Service Command's current fuel test program being conducted by the National Advisory Committee for Aeronautics in Cleveland, Ohio.

We appreciate being informed of this requirement, and note that General Motors has already set aside 5,000 gallons toward fulfilling it.

Sincerely yours,

A. B. Culbertson,
Assistant Director of Refining.

cc: T. A. Boyd
General Motors Corporation.

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(AR 8-30)

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...ty for Purchase

PURCHASE ORDER

METHOD PROPOSAL

THIS AREA TO BE USED BY THE PURCHASE BRANCH ONLY

Quantity	Unit	DESCRIPTION OF MATERIAL OR SERVICES TO BE PURCHASED	Unit Price	Total Price
4000	gals	Fuel, triptane, (2,2,3-trimethylbutane), according to the specifications of Exhibit "A" attached. Drums to be marked, Project No. MT-1708.		

Not On Unapproved List
Date: 1-4-45
Signed

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CONTROL UNIT
LEGAL BRANCH
4445

NEGOTIATIONS COMPLETED

MX-367 Controlled materials are not required.

Total Estimated Cost $4,000 CLASSIFICATION CL-06-A Total Actual Cost

B—FUNDS			A—FUNDS		C—FUNDS			Increase of Funds to Actual Cost Approved
EXPEND. ORDER No. MISCL. CHARGE No.	Project No.	Item No.	Project No.	Item No.	Project No.	Class No.	Item No.	
531 (06-A)	611-2	531-1						

MATERIAL TO BE DELIVERED: Power Plant Laboratory, Office of Lia.Offr., NACA Aircraft Eng. Research Lab. — WANTED NOT LATER THAN 15 February 1945

DELIVER TO: Cleveland Airport, Cleveland, Ohio.

Procurement Data Number of Sets — DATE FURNISHED

Chief-Division-Organization

Expenditure Control—S.F.O.

Budget & Fiscal Offr

Remarks on the following matter marked with "X" appear in the space below:

1. Recommended Sources of Supply X 2. Government furnished material X 3. Tools, patterns, etc. loaned by Government ____
4. Should Serial Number be assigned ____ 5. Point of Inspection X 6. Increase Existing Orders ____ 7. General Remarks: X

1. General Motors Research Laboratories, 485 West Milwaukee Avenue, Detroit, Mich.
Attn: Mr. T. A. Boyd. W33-038 ae 7711 (13580) CLEARED

2. This is fuel to be filled into new (unused) Government furnished 50-55 gallon drums.

5. Inspection at source for quantity and at destination for quality.

7. The following information is furnished in accordance with M.D.O.M. 40-9.
a. This is a pure chemical compound of particular interest as a component of high performance number aircraft engine fuels, and will be used by the N.A.C.A.
(see reverse side)

The supplies and services to be obtained by this instrument are authorized by, are for the purpose set forth in and are chargeable to allotment number(s):

2-12/50705, 502 — 5150 P 611-08 A 033-038 A 50

Upon due inquiry made it was found that the articles enumerated hereon could not be procured from any other [illegible] of funds, or the immediate need of these supplies for the requirements of the using [illegible] Government.

Date: 28 DEC 1944

Initiated by: J.M.HIRSCH, 1st Lt., A.C.

D.J.KLEIN, Col., A.C., Acting — H.E.BOCKEY, Col., A.C. Chief, Power Plant Lab. — Deputy Chief, [illegible] Div.

Coordinated by: [redacted] Coordinated by: [redacted]

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Aircraft Engine Research Laboratory and by any other laboratories designated by the Air Technical Service Command to determine its effectiveness as such.

b. This quantity is required for a continuation of the initial test program for the complete evaluation of the material.

c. This is NOT new material, however sources are extremely limited.

d. It is expected that the procurement of this quantity of tripTane will permit further evaluation of the material as a component of aircraft engine fuel and will indicate whether production facilities should be allocated for its manufacture in large quantities.

*This is a standard commercial item.

Aero Engine 1/30

OUT RECORDS UNIT PROC/ BR. JAN 2 00:12

1944 DEC 14

RECEIVED AEROPROPULSION LAB. DEC 4 11

RECEIVED JUN 4 PM 3:55

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PRODUCTION DIVISION
WAR UNIT

[redacted]

WPAFB, HQ. AMC, DAYTON, OHIO

ACTION INFOR. A.G.O. 4 INFOR.

Buy

OUT JAN 4

DETROIT MICHIGAN 07/427/ JAN 3 3.12 PM 20 14 1945 JAN 3 16:33

CAPT B SWEENEY CONTRACTING OFFICER PROCUREMENT DIVISION

WRIGHT FIELD

7711 GREENWICH TIME

REFERENCE T-SDMR403 REGARDING NEW PROCUREMENT REQUEST FOR TRIPTANE

WE REQUEST NEW CONTRACT LIKE CONTRACT W33-038AC1881 WITH SAME TERMS

CONDITIONS SPECIFICATIONS AND PRICE DELIVERY 5000 GALLONS ON OR BEFORE

JANUARY 30 1945 AND 5000 GALLONS ON OR BEFORE MAY 30 1945 TRUCKS FOR

SHIPMENT TO BE FURNISHED BY GOVERNMENT AS REQUESTED BY CONTRACTOR

T O RICHARDS RESEARCH LABORATORIES DIV OF GMC

END GMCRH SENT 3 PCCS BY 133 GR

WSIT

DYSO R 3 AT 21152 ID

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PP-1-46

[redacted] ADVISORY COMMITTEE FOR AERONAUTICS
[redacted] New Hampshire Ave., DuPont Circle
Washington 25, D. C.

January 4, 1945

FROM: National Advisory Committee for Aeronautics

TO: Director, Air Technical Service Command,
Army Air Forces, Wright Field, Dayton, Ohio.

Attention: [redacted] (TSEMPL-SL)

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Subject: Distribution of NACA Information on Value of Components and Various Fuels in Aircraft Engine Operation.

1. A copy of the Air Technical Service Command's letter of November 14, 1944, to the ATSC Liaison Officer at the [redacted] Laboratory, concerning the distribution of [redacted] the NACA during the course of the investigation of triptane as a blending component of [redacted] fuels has been referred to this office. Inasmuch as the actual distribution of these reports to agencies other than the Army Air Forces is handled by the NACA Washington office, a direct reply is being made to the Air Technical Service Command.

2. As requested, the fifteen additional companies listed in your letter of November 14, 1944 have been added to the distribution list to receive NACA reports on the triptane investigation. Names and addresses of the individuals to whom the reports are addressed are shown on the attached page, which shows the complete distribution list. The companies newly added are indicated by an asterisk.

3. The arrangements now used by the NACA for the distribution of these reports are as follows:

a. Report is transmitted to Air Technical Service Command Liaison Office upon receipt of approval from NACA Washington office.

b. Report is sent to Bureau of Aeronautics, Navy Department same time as to Army Air Forces.

c. One week after report is transmitted to Army and Navy, copies are sent to members of the NACA Subcommittee on Aircraft Fuels and Lubricants.

d. Three weeks after the report is transmitted to the Army and Navy, copies are sent to the petroleum companies, engine manufacturers, and other agencies requested by ATSC.

4. The Committee would appreciate being advised as to which of the current series of reports should be used to initiate the distribution of the 15 additional companies as it will be necessary to have extra copies made up now of the reports in the process of being distributed.

[redacted]

Encl. [redacted]
ATSC Liaison Officer, [redacted]

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LIST OF NAMES AND ADDRESSES USED FOR DISTRIBUTION OF NACA REPORTS ON TRIPTANE INVESTIGATION

First Distribution:

Director,
Air Technical Service Command,
Army Air Forces,
Wright Field, Dayton, Ohio

Chief,
Bureau of Aeronautics,
Navy Department,
Washington, D. C.

Second Distribution (One Week later)

Subcommittee on Aircraft Fuels and Lubricants

Prof. W. G. Whitman, Chairman,
War Production Board,
Room 1073, Tempo. "S" Bldg.,
Washington 25, D. C.

Mr. S. D. Heron, Vice Chairman,
Ethyl Corporation,
Research Laboratories,
1600 West Eight Mile Road,
Detroit, Michigan.

*Mr. Robert V. Kerley,
Power Plant Laboratory,
Engineering Division,
AAF, ATSC,
Wright Field, Dayton, Ohio.

*Commander George G. Lamb, USNR,
Bureau of Aeronautics,
Navy Department,
Washington, D. C.

Mr. Kenneth S. Cullen,
Civil Aeronautics Administration,
Washington 25, D.C.

Mr. Donald B. Brooks,
National Bureau of Standards,
Washington 25, D. C.

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Dr. P. Barnard,
Standard Oil Company of Indiana,
Whiting, Indiana.

Mr. T. A. Boyd,
Research Laboratories Division,
General Motors Corporation,
P.O. Box 188, North End Station,
Detroit, Michigan.

Mr. G. M. B. Davis,
Esso Laboratories,
Standard Oil Development Company,
Elizabeth, New Jersey.

Dr. J. Bennett Hill,
Development Division,
Sun Oil Company,
Marcus Hook, Pennsylvania.

Mr. Earl Ryder
Pratt & Whitney Aircraft,
East Hartford, Connecticut.

Third Distribution (three weeks later)

The Texas Company,
Chrysler Building,
New York, New York.
Atten. Mr. W. E. Kuhn

Wright Aeronautical Corporation.
132 Rockwith Avenue,
Paterson, New Jersey.
Atten. Mr. Philip B. Taylor.

Allison Division,
General Motors Corporation,
Indianapolis, Indiana.
Atten. Mr. H. M. Hasen.

Ethyl Corporation,
405 Lexington Avenue,
New York, New York.
Atten. Dr. Graham Edgar.

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Universal Oil Products Company,
310 So. Michigan Avenue,
Chicago, Illinois.
Atten. Mr. Joseph G. Alther, Vice Pres.

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PP-1-4/C

Shell Oil Company,
100 Bush Street,
San Francisco, California.
Attn. Mr. A. G. Marshall.

Shell Development Co.
4560 Horton Street,
Emeryville, California.
Attn. Mr. S. Tymstra.

Shell Oil Company,
Box 62,
Wood River, Illinois.
Attn. Mr. W. P. L. Love.

Phillips Petroleum Company,
Bartlesville, Oklahoma.
Attn. Mr. H. C. Alden.

Socony-Vacuum Oil Company,
26 Broadway,
New York, New York.
Attn. Mr. J. B. Rather.

Standard Oil Company of Indiana,
Whiting, Indiana.
Attn. Mr. J. K. Roberts.

California Research Corporation,
200 Bush Street,
San Francisco 4, California.
Attn. Mr. R. A. Halloran.

Pratt & Whitney Aircraft,
400 South Main Street,
East Hartford, Conn.
Attn. Mr. L. S. Hobbs.

Mr. G. H. B. Davis,
Esso Laboratories,
Standard Oil Development Co.
Elizabeth, New Jersey.

Petroleum Administration for War,
Department of the Interior,
Washington 25, D. C.
Attn. Mr. A. B. Culbertson

British Air Commission,
1785 Massachusetts Avenue, N.W.,
Washington 6, D.C.
Attn. Mr. S. A. W. Thompson.

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CP-1-5K

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oooAtlantic Refining Company,
P. O. Box 6138,
Philadelphia, Pa.
Attem. Mr. T. G. Delbridge.

oooCities Service Refining Corporation,
716 Hodges Street,
Lake Charles, Louisiana.
Attem. Mr. W. W. Love.

oooContinental Oil Company,
Ponca City, Oklahoma.
Attem. Mr. Walter Miller.

oooGulf Research & Development Company
P. O. Box 2038
Pittsburgh, Pa.
Dr. H. H. Ayres.

oooPure Oil Company,
35E. Wacker Drive,
Chicago, Illinois.
Attem. Mr. W. B. Ross

oooStandard Oil Company of Ohio,
Midland Building,
Cleveland, Ohio.
Attem. Mr. E. B. McConnell.

oooSinclair Refining Company,
630 Fifth Avenue,
New York, New York.
Attem. Mr. S. W. Ioom.

oooCoordinating Research Council, Inc.,
30 Rockefeller Plaza,
New York 20, New York.
Attem. Mr. C. B. Veal.

oooTide Water Associated Oil Co.
79 Montgomery Street,
San Francisco, California.
Attention Mr. H. Y. Hyde.

oooSignalfield Oil Corp.
555 South Flower Street,
Los Angles, California.
Attem. Mr. D. E. Day.

oooUnion Oil Co. of California,
617 West 7th Street,
Los Angles, California.
Attem. Mr. D. E. Carr.

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PP-1-6/8 6

**Sun Oil Company,
Marcus Hook, Pa.
Atten. Dr. J. Bennett Hill.

***Humble Oil & Refining Company,
Humble Building,
Houston, Texas.
Atten. Mr. N. D. Wilde.

***Magnolia Petroleum Company,
Magnolia Building,
Dallas, Texas.
Atten. Dr. Armand J. Abrams.

***Pan American Petroleum & Transport Co.
122 East 42nd Street,
New York, New York. (17)
Atten. Dr. L. W. Moore

Note:

* Receives copy of transmittal letter only. Receives report through official channels on first distribution.

** Receives report as a member of the NACA Subcommittee on Aircraft Fuels and Lubricants.

*** Companies added as requested by ATSC letter of November 14, 1944.

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Materiel Command Contract Form No. 21

Contract No. W 33-038 ac-7711 (13580)

CONTRACT

(SUPPLIES)

ANMB Preference .....

CONFIDENTIAL

MM 367

This document contains information affecting the national defense of the United States within the meaning of the Espionage Act, 50 U.S.C. 31 and 32, as amended. Its transmission or the revelation of its contents in any manner to an unauthorized person is prohibited by law.

WAR DEPARTMENT

GENERAL MOTORS CORPORATION
RESEARCH LABORATORIES DIVISION
(Contractor)

Contract for Furnishing and Delivery of Triptane ..... *Amount,* $ 1.00 .....

Place, Army Air Forces, ~~Materiel Command~~ Air Technical Service Command, Wright Field, Dayton, Ohio.

The Finance Officer, U. S. Army, ~~Jefferson and Livernois Avenues, Detroit, Michigan,~~ is designated as the officer to make payments in accordance with this contract. The supplies and services to be obtained by this instrument are authorized by, are for the purposes set forth in, and are chargeable to allotments below enumerated, the available balances of which are sufficient to cover the cost thereof.

212/50705, 502-5150 P 611-08 S 33-038

AFP: ~~42036~~ 394247

Class: 06-A

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[redacted]

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CONTRACT FOR SUPPLIES

THIS CONTRACT, entered into this 22nd day of January, 1945 by THE UNITED STATES OF AMERICA, hereinafter called the Government, represented by the Contracting Officer executing this contract, and [redacted],

a corporation organized and existing under the laws of the State of [redacted]

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of the city of Detroit, in the State of Michigan hereinafter called the Contractor, witnesseth that the parties hereto do mutually agree as follows:

ARTICLE 1. Definitions and Miscellaneous Provisions.—(a) The term "Secretary of War" as used herein shall include the Under Secretary of War, and the term "his duly authorized representative" shall mean any person or board authorized to act for him other than the Contracting Officer.

(b) Except for the original signing of this contract, and except as otherwise stated herein, the term "Contracting Officer" as used herein shall include his duly appointed successor or his authorized representative.

(c) Unless otherwise expressly provided herein, all the supplies to be furnished hereunder shall be manufactured and supplied in strict accordance with the specifications, schedules and drawings respectively applicable thereto, as stated herein. Unless otherwise provided herein, all specifications, schedules and drawings referred to herein or in any exhibit or appendix attached hereto are hereby made a part hereof.

(d) This contract was negotiated under the authority of the First War Powers Act, 1941, and Executive Order No. 9001, December 27, 1941.

ARTICLE 2. Changes.—Where the supplies to be furnished are to be specially manufactured in accordance with drawings and specifications, the Contracting Officer may at any time, by a written order, and without notice to the sureties, make changes in the drawings or specifications. Changes as to shipment and packing of all supplies may also be made as above provided. If such changes cause an increase or decrease in the amount due under this contract, or in the time required for its performance, an equitable adjustment shall be made and the contract shall be modified in writing accordingly. Any claim for adjustment under this Article must be asserted within 90 days from the date the change is ordered, provided, however, that the Contracting Officer, if he determines that the facts justify such action, may receive, consider and adjust any such claim asserted at any time prior to the date of final settlement of the contract. If the parties fail to agree upon the adjustment to be made the dispute shall be determined as provided in Article 13 hereof. But nothing provided in this Article shall excuse the Contractor from proceeding with the contract as changed.

ARTICLE 3. Extras.—Except as otherwise herein provided, no charge for extras will be allowed unless the same have been ordered in writing by the Contracting Officer and the price stated in such order.

ARTICLE 4. Inspection.—(a) All material and workmanship shall be subject to inspection and test at all times and places and, when practicable, during manufacture. In case any articles are found to be defective in material or workmanship, or otherwise not in conformity with the specification requirements, the Government shall have the right to reject such articles, or require their correction. Rejected articles, and/or articles requiring correction shall be removed by and at the expense of the Contractor promptly after notice so to do. If the Contractor fails to remove promptly such articles and to proceed promptly with the replacement and/or correction thereof, the Government may, by contract or otherwise, replace and/or correct such articles and charge to the Contractor the excess cost occasioned the Government thereby, or the Government may terminate the right of the Contractor to proceed as and subject to the conditions provided in Article 6 of this contract, the Contractor and surety being liable for any damage to the same extent as provided in said Article 6 for terminations thereunder.

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[illegible] furnish and deliver to the [illegible] at the prices set forth below:

Item I - The Contractor shall furnish (10,000) gallons, Fed. Spec. [illegible] Trimethylbenzene, which shall contain not less than 97 mol. per cent pure 1,2,3 - Trimethylbenzene and such finished material shall meet the following specifications:

Refractive Index n_D^{20} max. = 1.5054

min. = 1.5037

Density $\frac{20}{4}$ max. = 0.8814

min. = 0.8797

Freezing point, °C., max. [illegible]

min. = -25.4°

Distillation Range: The distillation range shall not exceed 2.0°C. and must include the boiling point of 80.92°C.

Bromination: Bromination shall be determined by bromine number in accordance with the method of A. W. Francis as described in Industrial and Engineering Chemistry, Vol. 18, 1926, pp. 821, 822 and 1095:

"Estimation of the Unsaturated Content of Petroleum Products".

The amount of bromine absorbed shall be not greater than 16 mgs per gram of fuel.

F.O.B. cars, at Contractor's plant, Redford, Michigan, filled into Government-furnished new and unused 50-55 gallon steel containers, at the total price for Item I of $1.00

(b) The Contractor, immediately upon execution of this contract, shall provide and keep provided National Advisory Committee for Aeronautics, Aircraft Engine Research Laboratories, Cleveland, Ohio, Attention: Office of the Liaison Officer, with the name, address and telephone number of the authorized representative of Contractor at or assigned to Contractor's plant and shipping point from which shipments will be made hereunder for purpose of receiving such instructions as may be issued under the terms of this contract.

(c) The term "gallon" as used in this contract shall mean U. S. gallon of 231 cubic inches corrected to 60°F.

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(d) The [redacted] Contractor's plant, [redacted] in paragraph (c) hereof, and any such [redacted] Government in the performance of this contract, shall at the expiration or termination hereof be delivered to the Government f.o.b. cars, Contractor's plant aforesaid.

(e) The Contractor shall stencil the drums, filled with fuel (Triptane) as hereinbefore provided in paragraph (c) hereof, on the head (top) and side thereof with the following markings: "Project NX-2706
W 33-038 ac-7711".

(f) It is contemplated that the above described fuel (Triptane) will be used in single cylinder laboratory test engines and/or in aircraft engines in combination with certain test work and experiments being conducted and performed by National Advisory Committee for Aeronautics for the purpose of evaluating such fuel as a component of aviation fuel. The Government will furnish, or cause to be furnished, to the Contractor two (2) copies of all information, reports, findings and data obtained and resulting from such test work and experimenting; provided, however, the Government reserves the right at its option to furnish all or any part of such information, reports, findings and data to any other aircraft engine or fuel manufacturer.

ARTICLE 16 - Delivery - (a) Delivery of all fuel (triptane) to be furnished under the terms of this contract shall be accomplished by the Contractor during the period beginning January 1, 1945 and continuing to and including May 31, 1945 in accordance with the following schedule:

1. Five thousand (5,000) gallons during the period from January 1, 1945 through January 31, 1945.

2. Five thousand (5,000) gallons during the period from February 1, 1945 through May 31, 1945.

Unless otherwise directed by the Contracting Officer in writing, or by other competent authority, all of said fuel (triptane) shall be consigned to the following destination:

National Advisory Committee for Aeronautics
Aircraft Engine Research Laboratories
Cleveland Airport
Cleveland, Ohio
Attention: Office of Liaison Officer

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(b) Government bills of lading will be furnished for all shipments hereunder, but Contractor shall make application therefor to the Commanding Officer, Central District, AFSC, West Warren Avenue and Lonyo Street, Detroit, 32, Michigan, or otherwise as may be specified in writing to the Contractor by such Commanding Officer.

(c) Any and all equipment employed by the Contractor for the transportation of the stocks of fuel shall be adequately sealed immediately after loading and the serial number of the seal shall be indicated on the bill of

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lading or equivalent shipping document and also on two inspection certificates, in order that the serial numbers may be checked by consignee prior to unloading the fuel at destination.

(d) In the event that the Contractor has, prior to the date of execution hereof, at the request of the Government and in order to facilitate the prosecution of the war, entered upon the performance hereof, the parties hereto agree that such performance, if any, shall be subject to the terms of this contract the same as though performed subsequent to the date of execution hereof.

ARTICLE 16A - Property Accountability - The AAF Area Representative, 4414 Prospect Avenue, Cleveland 3, Ohio, or other officer appointed by competent authority, is designated as the officer to maintain the necessary property records in connection with this contract as contemplated by Army Regulations.

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ARTICLE 37 [redacted]

In witness whereof, the parties hereto have executed this contract as of the day and year first above written.

THE UNITED STATES OF AMERICA

Type or print under their respective signatures the names of the witnesses and Contractor's representative.

By Dean Sweeney

DEAN SWEENEY, Captain, Air Corps

Contracting Officer
(Official title)

Two witnesses:

R.H. Spreen

L.H. Bridenstine

GENERAL MOTORS CORPORATION
RESEARCH LABORATORIES DIVISION
Contractor.

By O. E. Hunt

O. E. Hunt Executive Vice President
Title

Detroit, Michigan
(Business address)

I, J. C. Davidson, certify that I am the An Assistant Secretary of the corporation named as contractor herein; that O. E. Hunt who signed this contract on behalf of the contractor, was then Executive Vice President of said corporation; that said contract was duly signed for and in behalf of said corporation by authority of its governing body, and is within the scope of its corporate powers.

J. C. Davidson [CORPORATE SEAL]
J. C. Davidson

I hereby certify that, to the best of my knowledge and belief, based upon observation and inquiry, , who signed this contract for GENERAL MOTORS CORPORATION, RESEARCH LABORATORIES DIVISION, had authority to execute the same, and is the individual who signs similar contracts on behalf of this corporation with the public generally.

Contracting Officer.

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AAFMC-266-WF-8-8-42-200M

[redacted]

ARMY AIR FORCES
MATERIEL CENTER

MEMORANDUM REPORT ON

JOHN DUCKWORTH, Major, A.C.
TSEPL-5L:lhb
Ext. 3-0227

Date 7 March 1945

SUBJECT: Conference on Triptane and High Octane Blending Agents at N.A.C.A., Cleveland, Ohio on 19 and 20 Feb. 1945.

SECTION ~~POWER PLANT LABORATORY~~

SERIAL No. ~~TSEPL-5-531-415~~

Contract No. .....
Expenditure Order No. .....
Purchase Order No. .....

A. **Purpose.**

1. To submit a brief review of items discussed and action taken at conference held at ATSC Liaison Office, N.A.C.A., A.E.R.L., Cleveland, Ohio, on 19 and 20 February 1945, regarding tests being run on triptane and high octane blending agents.

B. **Factual Data.**

1. This conference was requested by the ATSC Liaison Officer at N.A.C.A., A.E.R.L., to discuss the results of tests conducted to date on triptane and high octane blending agents. Personnel from N.A.C.A., Commander G. G. Lamb and Ensign Berry of Bureau of Aeronautics, and Major John Duckworth attended this conference.

2. Reference is made to Memorandum Report No. ENG-57-531-255, "Conference on N.A.C.A. Test Program to Investigate 150 Grade Fuels." This report outlined the original objectives considered necessary to constitute a comprehensive test program.

3. The test program has included investigation of knock ratings of various fuels and blends in single cylinder laboratory knock test engines, (methods described by AN-VV-F-746 and AN-VV-F-748), in full-scale single cylinder test engines, in full-scale multi-cylinder test engines, and, finally, in flight. All small single cylinder laboratory knock testing has been completed, single and multi-cylinder full-scale testing is about one-half completed, and B-24D flight testing about two-thirds completed.

4. High octane blendsagents included in these tests are:

2,2,3 Trimethylbutane (Triptane)	Xylidine
Toluene	2,2 Dimethylbutane (neohexane)
Cumene	2,3 Dimethylbutane (diisopropyl)
Hot acid isooctane	- Methyl-tertiary-butyl ether.

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Of the above blend agents, triptane, & C_7 hydrocarbon, was believed at one time to be superior to all other blend agents from the standpoint of knock rating. The results of tests conducted by NACA indicate that there are hydrocarbons and high octane blend agents equal to or better than triptane on the basis of anti-knock value. Blend agents which appear to fall in this category include neohexane, diisopropyl, toluene and methyl-tertiary-butyl ether. The last named compound is an oxygenated compound and is unfavorably compared to hydrocarbons on the basis of heating value. It should be noted that the hydrocarbons listed above are available, or can be made more readily available than triptane, based on present art of syntheses. For these reasons it appears that the value of triptane as a high-octane blending agent is dependent upon its ability to compete economically with a number of already available hydrocarbons.

C. Conclusions.

1. None - data merely submitted.

D. Recommendations.

1. None - data merely submitted.

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Distribution:

Power Plant Laboratory,
TSESE-4

Prepared by JOHN DUCKWORTH, Major, Air Corps
(Name)

Approved by R. V. KERLEY, Chief,
Chief, Fuel and Oil Branch

Approved by D. J. KEIRN,
Colonel, Air Corps,
Actg. Chief, Power Plant Laboratory
Prop. & Acces. Subd., Engr. Division.

Concurrence:

[redacted]

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AFDMA-2E

14 APR 1945

High Performance Conventional Engine Development.

Director, AAF Air Technical Service Command
Wright Field, Dayton, Ohio

Attention: Chief, Engineering Division (TSEMG)

1. Recent comments by the AC/AS, MAS, indicate that it may be advantageous to undertake development of a conventional engine that can take maximum or near maximum advantage of fuel grades in the range of 140/200 to 160/200, using triptane as a blend agent. General views on the above matter advanced by AC/AS, MAS, were briefly discussed with the Chief, Power Plant Laboratory and a representative of the Fuel and Oil Branch, Power Plant Laboratory, by this office on 11 April 1945.

2. Triptane, which was originally believed to be superior to all other blend agents from the standpoint of knock rating, has been under investigation by the National Advisory Committee for Aeronautics on behalf of the Army Air Forces for the past several months. However, at a recent conference held at the Aeronautical Engine Research Laboratories of N.A.C.A., Cleveland, Ohio, during which N.A.C.A. triptane test data were reviewed by Air Technical Service Command, Bureau of Aeronautics, and N.A.C.A. representatives, it was concluded that there are hydrocarbons and high octane blend agents equal to or better than triptane. Blend agents which appear to fall within this category include mesitylene, diisopropyl, toluene, and methyl-tertiary-butyl ether. It was further concluded that blend agents listed above other than triptane are available or can be made available more readily than triptane, based on the present art of synthesis.

3. Pursuant to above mentioned comments by AC/AS, MAS, it appears that the problem at hand is generally confined to the period immediately after cessation of present hostilities (both in Europe and the Pacific). It is fairly well recognized that little or no possibility exists for use of any higher grade fuel than Grade 115/145 during the present war. Moreover, it is quite likely that even Grade 115/145

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fuel may not become available in any appreciable quantity during this war. It therefore follows that any engine development to be undertaken should be predicated on the above, although it is obvious that limited test quantities of new fuels could be made available at such time considered necessary.

4. The nature of this potential engine development using a super fuel somewhere within the range indicated should be given careful consideration with a view toward arriving at one of the two available courses of action. These two courses of action include: (1) progressive development and modification of a presently available engine design to where it can take maximum or near maximum advantage of such a super fuel, versus, (2) undertaking development of an engine of entirely new design. In the event the course of action is taken that will lead to a new engine design, the number of cylinders, together with their arrangement, whether the engine is air or liquid cooled, cubic inch displacement and other pertinent details are generally left to the discretion of your office and such manufacturers as you may wish to contact. It is, however, considered essential that one or two points be clearly defined. These points are:

a. The highest possible grade of fuel should be considered consistent with availability of components that will lead to a substantial increase in horsepower (over the entire power range) per cubic inch displacement with the lowest practicable HP/weight ratio. Triptane should be one of the blend agents (or the fuel itself) that is given major consideration, together with other fuels incorporating other blend agents as may be selected. The selection of fuel grade and composition should include careful evaluation from both lean and rich performance standpoint in order that maximum advantage may be gained.

b. Despite the fact that certain commercial representation has been made to the effect that post-war automotive engines can be reduced to 1/3 or 1/4 their present size and, at the same time, retain power equal to or above that attainable with present automotive engines when using triptane, it is the opinion of this office that study of this matter by the A.T.S.C. should not include engines below 1650 or above 5800 cubic inch displacement.

5. It is directed that above outlined study be undertaken by your office under 3B priority, and that your comments and recommendations be furnished at the earliest practicable date, consistent with above priority rating, relative the following:

a. The type of engine (or engines) that should be developed, together with pertinent details, such as cubic inch displacement, method of cooling, number of cylinders and their arrangement, fuel grade, fuel metering system, horsepower range with specific fuel consumption under various conditions, etc.

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b. A description of the fuel grade to include specification data relative composition, volatility, etc. Included should be an estimate of the extent of cost of such a fuel, i.e., number of barrels of Grade 100/130 necessary to make one barrel of the super fuel.

c. Advisability of undertaking the above engine development, together with an estimate of time required to where laboratory and flight test articles would become available. Also included should be contractor or contractors to be considered in undertaking such a development.

By Command of General ARNOLD:

(Signed) JOHN G. MOORE
Colonel, Air Corps

JOHN G. MOORE
Colonel, Air Corps
Executive, AC/AS, M&S

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202.4-7

CASE HISTORY
of
BUDA CHORE BOY

Buda Chore Boy, a one-half ton, industrial shop truck manufactured by the Buda Company, Harvey, Illinois, and submitted to the Army Air Forces by the Manufacturer for consideration as approved Army Air Forces materials-handling equipment.

Documents in this case history were obtained from the files of Air Technical Service Command, Wright Field, and Headquarters, Army Air Forces, Washington, D. C.

Classified documents are included herein and, therefore, compliance with pertinent sections of AR 380-5 is necessary.

Compiled by
Historical Office
Air Technical Service Command
Wright Field
June, 1945

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SUMMARY OF THE
BUDA CHORE BOY PROJECT

The Buda Chore Boy was first presented to the Army Air Forces by the Manufacturer, the Buda Company, Harvey, Illinois, in January, 1943, when Mr. Mulcahy, Manager, Industrial Division, Buda Company, called
*(27) at the Equipment Laboratory, Engineering Division, Wright Field. As a result of Mr. Mulcahy's presentation of literature covering a one-half ton warehouse truck and accompanying trailer, known as Buda Chore Boy and Trailer, Model C, an Authority for Purchase for four each
(1,27) trucks and trailers was initiated 12 January 1943. The procurement was authorized for the purpose of determining whether a military requirement existed for the equipment in connection with cargo handling
(27) in air freight terminals.

In accordance with established policy for procurement of materials handling equipment, a Wright Field requisition was placed with the
(1) Quartermaster Corps, Washington, and subsequently, 8 March 1943, that installation issued a Purchase Order to Buda for $3,444.00 to cover
(2) the four trucks and trailers. What course Buda followed in supplying the articles is not clear from the record but several months later, November, 1943, Mr. Mulcahy notified Equipment Laboratory that the equipment had been delivered to Indianapolis Air Service Command Depot
(14,27) which was not in accordance with shipping instructions.

By the time Equipment Laboratory effected delivery of one of the
(22) trucks and trailers to Wright Field, 12 January 1944, the Buda Company had initiated a new approach for Army Air Forces consideration of the Chore Boy. In December, 1943, Congressman Compton I. White of Idaho called on General O. P. Echols, Assistant Chief of Air Staff, Materiel,
(5,6) Maintenance and Distribution, Washington. Congressman White and Mr. Mulcahy repeatedly requested verbally and in writing that General
(5,6,7,8) Echols have the Buda Chore Boy placed on the approved Army Air Forces
(9,10,11) list for use in Army airports. Mr. White stated that it should be recognized that the Chore Boy had special advantages which matched the Army's requirements and "In view of this situation, I request that the
(8) Buda Company's 'Chore Boy' be placed on the Army's approved list ..."

General Echols and Colonel W. S. Ege, Chief, Legislative Services, Army Air Forces, Washington, in conversations and letters, assured Mr.
(5,6,7,8) White and Mr. Mulcahy in December 1943 that every consideration had been
(9,10,11) and would be given the Chore Boy. Confusion abounded because of misunderstandings over the Model C of wood construction, which Buda said they built especially for Materiel Command, Wright Field, and made no claim for its ability, and the Model B of steel construction, which was Buda's standard item - the one they were desirous of having Army Air
(10) Forces accept as standard equipment. Mr. Mulcahy insisted that Air Service Command Depots wanted the Model B Chore Boy but that requisitions
(10,23) were denied by Air Service Command Headquarters, Patterson Field. That

*The numbers placed in parentheses in the margin refer to documents found in the Document File attached.

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Headquarters was aware of the requisitions and of several Buda attempts to effect sales promotion but held that Buda was not cognizant of Army Air Forces regulations although they had been advised repeatedly of
(14,15) procurement and test procedures required prior to any action by Air Service Command.

Both Materiel Command and Air Service Command considered the Buda Model B Chore Boy of steel more desirable than the Model C of
(14,22) wood (which Materiel Command stated was ordered originally because
(26) of metal conservation). In January, 1944, test efforts on the Model C were dropped and Materiel, Maintenance and Distribution, Washington, authorized Materiel Command to procure a test quantity of Model B
(25) Chore Boys. The Army Air Forces Board, Orlando, Florida, was to evaluate the item for Air Forces use.

As with the Model C, delays were experienced in obtaining the
(35,36,40) Model B although direct procurement by Wright Field was ordered and
(41,43,46) every effort was made to expedite Army Air Forces Board testing of the item. While the Authority for Purchase for three Model B's was ini-
(28) tiated 24 January 1944 (at an estimated total cost of $1785.00) it was 7 July that year before General Echols was able to formally report to
(62) the Buda Company that the Army Air Forces had no requirement for the Buda Chore Boy. He explained that the equipment had been subjected to tests in comparison with materials handling vehicles already in use
(52) and that after thorough tests at Eglin Field, Florida, the Army Air Forces Board concluded that the Chore Boy did not have sufficient merit
(56,62) over other vehicles to warrant its adoption as a new item of equipment. The Board found that the truck was unable to operate on unsurfaced roads, that it hauled too little at too slow speeds, it was inferior to the three-wheeled scooter currently in use for small items, was not a reasonable substitute for light duty outdoor tractors, as a warehouse truck it was definitely surpassed by fork and platform trucks already in use, and its limited utility would not justify its
(56) cost to the Government.

Between December 1943 and July 1944, both Congressman White and Mr. Mulcahy kept in frequent touch with General Echols and Equipment
(5,62) Laboratory personnel on the progress of their efforts to have the Chore Boy accepted. They even carried the case in person to Mr.
(18) Patterson, Under Secretary of War, early in January, 1944.

General Echols' statement of rejection of the Chore Boy was not
(64,65) satisfactory to Congressman White. Mr. White took exception to General Echols' letter to Buda and stated that it was difficult to understand the attitude of General Echols' department in view of War Department
(63,65) rules for procuring equipment on a competitive basis. When Colonel Ege answered Mr. White for General Echols, the Congressman charged
(67) Colonel Ege with adroitness "in evading an issue and in protecting an untenable position ..." Mr. White's repeated plea was to have the item placed on the "approved list" and asserted that Army Air Forces did not understand this point but rather thought Buda was seeking an
(65) outright sale which Mr. White declared was not the case. However,

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the correspondence indicates that Mr. White failed to understand
(65,66) that whatever was sought, it was necessary for an item to meet Army
Air Forces specifications before it could be approved; for that reason
(67,68) the Buda Chore Boy had been thoroughly tested. Colonel Ege re-explained
the whole situation to Mr. White 13 September 1944 and suggested that
he contact the Quartermaster General, the procuring agent for materials
(68) handling equipment, for any further consideration of the Buda Chore Boy.
When indications were received that the Chore Boy would be turned down,
Mr. Mulcahy stated that Buda was perfectly satisfied with the way
(58) Wright Field had handled the Buda product. Buda replied to General
Echols' letter of rejection by forwarding a copy of the letter to
Wright Field with a statement that if Wright Field wished they would
(52,64) be glad to discuss the structural changes which Eglin Field recommended.

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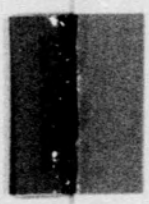

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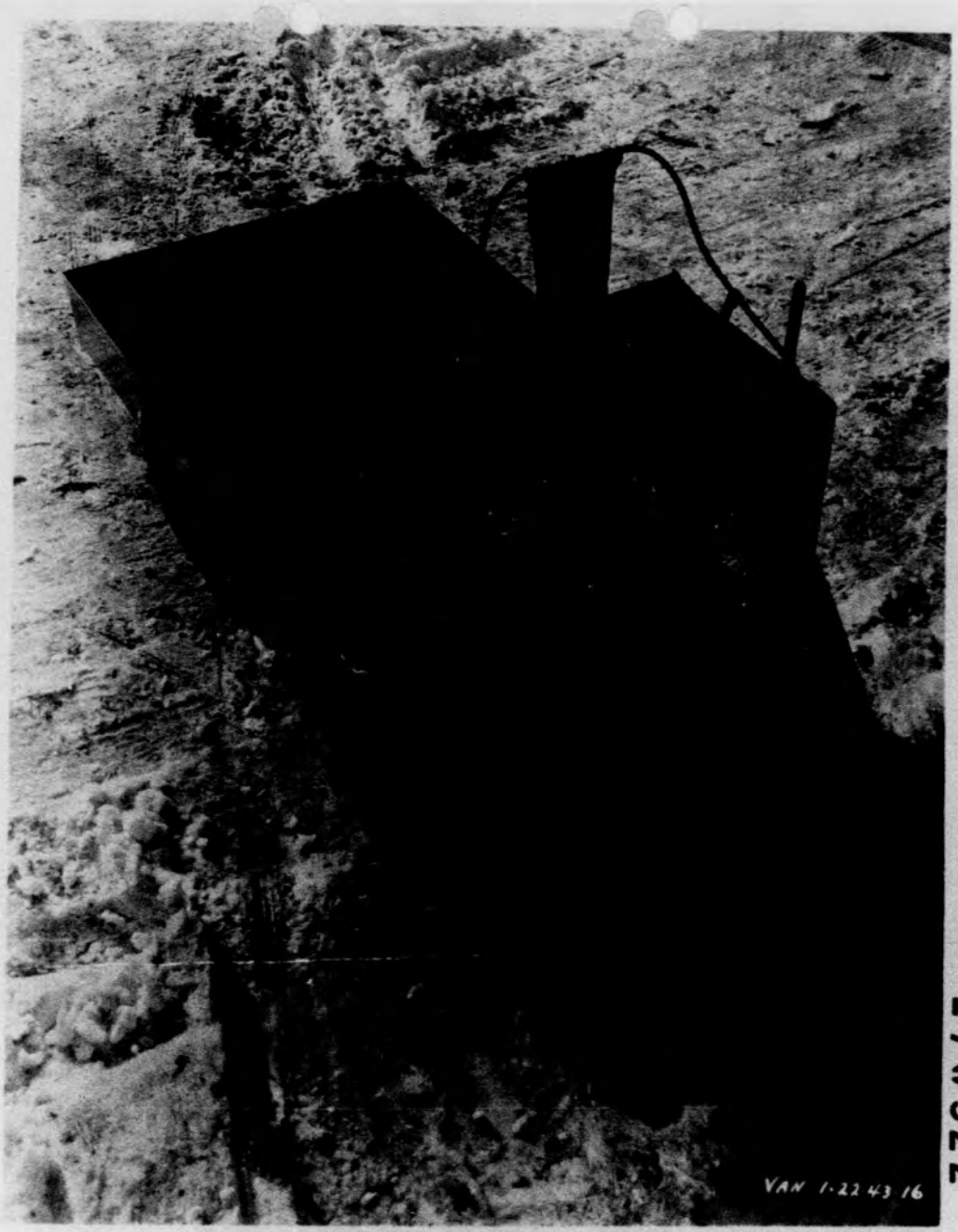

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Top view of Buda ½ ton industrial shop truck—showing some of its outstanding construction features.

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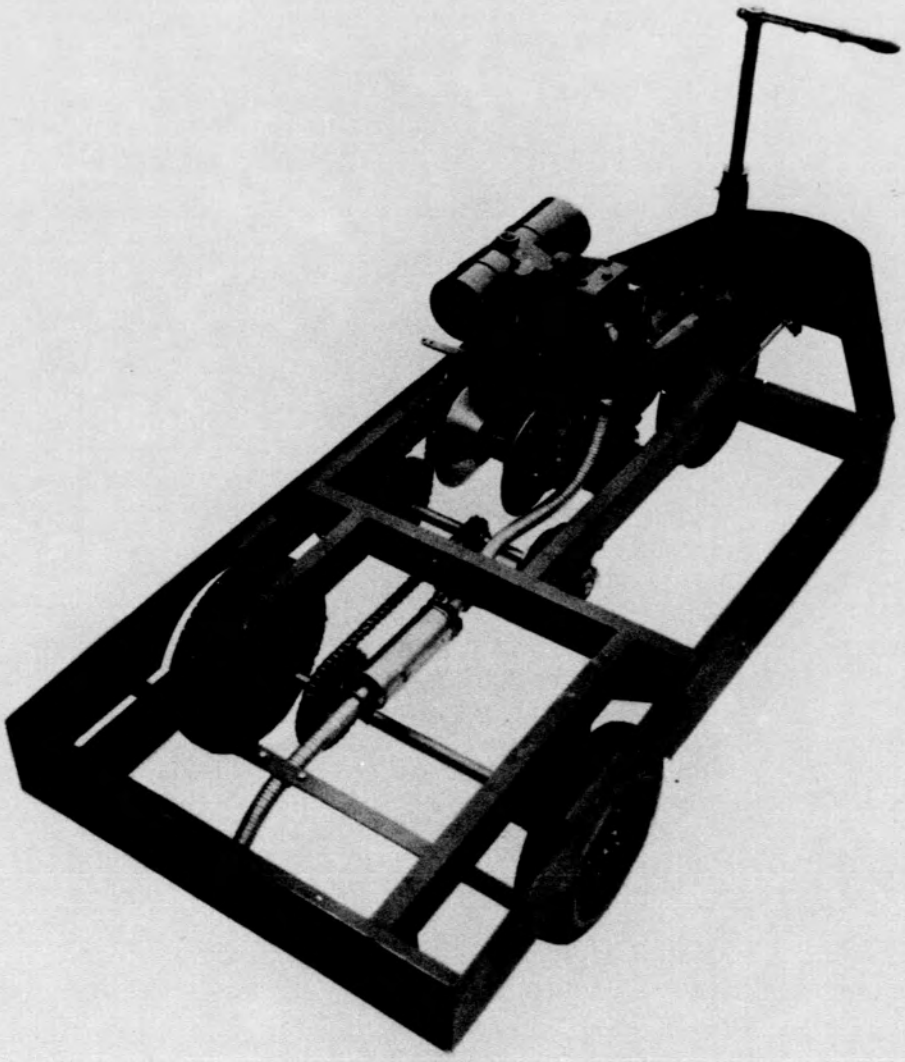

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View of Buda Chore Boy with floor and engine having been removed to reveal frame construction, engine, and transmission.

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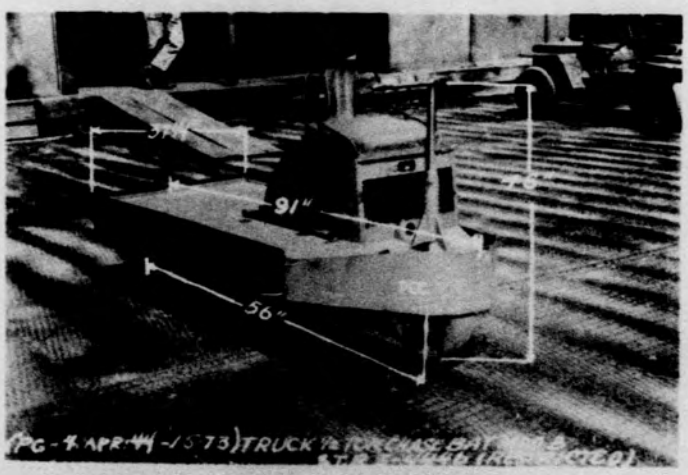

A. The overall dimensions of the 'Chore Boy'.

B. The 'Chore Boy' has no traveling ability on other than hard surfaced roads.

Inclosure 3A and B.

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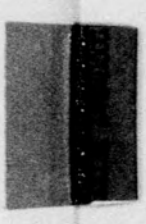

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1. (U) AFP 247628, 12 Jan. 1943
(File: Contract Files)

AFP 247628, initiated 12 Jan. 1943 by Equip. Lab. (WF), provided for purchase from Buda Company, Harvey, Illinois (hereinafter referred to as Buda) four 1/2 ton warehouse trucks, Buda Model C "Chore Boy" and four 1/2 ton warehouse trailers, Buda Model C "Chore Boy" at a total estimated cost of $3,600.00. This AFP resulted in WF Requisition (535)43-295-AF to the Quartermaster General (Wash.), 21 Jan. 1943, for procurement of the items in accordance with T.I. 1177, based on Ser. of Supply, War Dept. (Wash.) Memo of 29 June 1942. (Documents attached). The quantities specified on subject AFP were required for tests to determine if the articles were suitable for use as cargo handling warehouse trucks.

2. (U) P.O. #O. I. 20074, 8 Mar. 1943
Fr: Quartermaster Depot, Wash.
To: Buda Co., Harvey, Ill.
(File: Contract Files)

8 March 1943, Quartermaster Depot (Wash.) issued to Buda a P. O. for $3,440.00 to cover four Chore Boy trucks and four Chore Boy trailers. One of each item was to be shipped to: Middletown Air Depot, Middletown, Pa.; San Antonio Air Depot, San Antonio, Texas; Sacramento Air Depot, McClellan Field, Cal.; and Wright Field.

3. (U) Ltr. 11 Oct. 1943
Fr: Lt. Col. H. B. Benedict, Chief, Distrib. Sect. MM&D, Wash.
To: Supply Div., ASC, Patterson Field
(File: M&S)

11 Oct. 1943, Chief, Distrib. Sect., MM&D (Wash.) forwarded descriptive literature on the Buda "Chore Boy" Industrial Shop Truck to Supply Div., ASC (Patterson Field) and requested remarks and recommendations on subject item. ASF Hdqs. (Wash.) had requested information on the possible application of the Buda truck for industrial shop use in view of a shortage of industrial power trucks (1 Oct. letter attached).

4. (U) 1st Ind. 15 Oct. 1943
Fr: Supply Div., ASC, Patterson Field
To: Supply & Main. Br., MM&D, Wash.
(File: M&S)

Supply Div., ASC (Patterson Field) stated the Buda Chore Boy was well known at that headquarters as Buda representatives had made many contacts with ASC in an effort to encourage AAF Depot use of the item. In realization of the critical condition of industrial power equipment, ASC had given the Buda article every consideration but had decided against its practicability for the following reasons: (1) There were no provisions for using the truck as a towing tractor. (2) The platform was stationary whereas AAF had need for trucks capable of stacking and tiering material; in addition 4000 lb. capacity was essential for even limited use of stationary platform equipment and Buda's truck had only 1000 lb. capacity.

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(3) The load space was not large enough for AAF supplies. In view of these deficiencies, ASC requested that this type of equipment not be allocated to AAF. Subsequently, by 2d Ind., 21 Oct. 1943 (attached) MM&D (Wash.) forwarded this information to Storage Div., ASF (Wash.) in reply to their 1 Oct. inquiry.

5. (U) Ltr. 21 Dec. 1943
Fr: Hon. Compton I. White
House of Rep., Wash.
To: Maj. Gen. O. P. Echols,
AC/AS MM&D, Wash.
(File: M&S)

Congressman Compton I. White of Idaho in a letter to Gen. Echols, AC/AS, MM&D (Wash.), 21 Dec. 1943, referred to a recent telephone conversation concerning the Buda application for approval of their Chore Boy as standard equipment for the ASC. Mr. White stated that from his personal experience with the Chore Boy he felt it would be advantageous to the Army, as well as to Buda, if the Company were placed in line for supplying airports and landing fields with the Chore Boy.

6. (U) Ltr. 23 Dec. 1943
Fr: Maj. Gen. O. P. Echols,
AC/AS, MM&D, Wash.
To: Mr. W. T. Mulcahy,
Manager, Industrial Div.,
Buda Co.
(File: M&S)

Subsequent to a visit from Congressman White and Mr. Mulcahy, Manager, Industrial Div., Buda, Gen. Echols assured Mr. Mulcahy, 23 Dec. 1943, that the Buda Chore Boy had been and would be given every consideration wherever it might advantageously fill an AAF requirement. Mat. Com. (WF) was testing three of the trucks for air freight work. However, currently the AAF were using other equipment for this type of work which had proven satisfactory for five years. AAF policy to standardize all satisfactory equipment in use in order to eliminate maintenance and parts problems.

7. (U) Ltr. 24 Dec. 1943
Fr: Col. W. S. Ege, Chief
Leg. Services, AAF, Wash.
To: Hon. C. I. White,
House of Rep., Wash.
(File: M&S)

With reference to Congressman White and Mr. Mulcahy's recent visit to Gen. Echols, Col. Ege, Chief, Leg. Services, AAF (Wash.) sent Congressman White a copy of Gen. Echols' 23 Dec. letter to Mr. Mulcahy. Col. Ege assured Mr. White that his constituent's product would be carefully considered whenever a requirement existed. However, because strenuous effort was being made to curtail all AAF purchases not vitally essential to the war effort, no assurance could be given Mr. Mulcahy that his product would be required in the immediate future.

8. (U) Ltr. 27 Dec. 1943
Fr: Hon. C. I. White,
House of Rep., Wash.
To: Maj. Gen. O. P. Echols,
AC/AS, MM&D, Wash.
(File: M&S)

Congressman White thanked Gen. Echols, 27 Dec. 1943, for the courtesy of Col. Ege's [24 Dec.] letter. Mr. White stated that he felt there was some misunderstanding about the nature of the application of the Buda Co. Buda wanted their item placed on the approved AAF list for use in

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Army airports - " when and if such equipment is required." However, Mr. White stated that it should be recognized that the Chore Boy had special advantages which matched the Army's requirements and "In view of this situation, I request that the Buda Company's 'Chore Boy' be placed on the Army's approved list ...".

9. (U) Ltr. 27 Dec. 1943
Fr: Col. W. S. Ege, Chief, Leg. Services, AAF, Wash.
To: Hon. C. I. White, House of Rep., Wash.
(File: M&S)

In further answer to Congressman White's 21 Dec. letter to Gen. Echols, Col. Ege explained to Mr. White that before an item could be placed on the Army's approved list, it was necessary to make thorough tests prior to releasing the article for world wide distribution in the Service. Col. Ege reiterated that the Chore Boy was currently undergoing tests at Mat. Com. (WF) and would be placed on the approved list if it met the tests successfully. Col. Ege pointed out that having the article on the approved list would not necessarily insure quantity purchases which were governed by the problem of supplying spare parts and maintaining a reasonable number of different models of equipment.

10. (U) Ltr. 28 Dec. 1943
Fr: Mr. W. T. Mulcahy Buda Co.
To: Maj. Gen. O. P. Echols, AC/AS, MM&D, Wash.
(File: M&S)

28 Dec. 1943, Mr. Mulcahy requested further consideration of the Model B Buda Chore Boy as a standard AAF item, "or at least the honoring of requisitions that have been placed for [it] by certain Supply Depots". Mr. Mulcahy explained in detail to Gen. Echols the difference between the Model C of wood construction, which had been supplied Mat. Com. (WF), and the standard Model B of steel construction, which had met the requirements of such users as the Navy, Marine Corps, Army Ordnance, aircraft plants, Maritime Comm. Shipyards, and industrial plants. The model C was purely experimental, built only for Mat. Com., and was not the truck requested by certain ASC Depots. Mr. Mulcahy stated that the ASC Supply Depot at San Bernardino, Cal. had had considerable experience with a Model B, loaned to them, and found it so capable, versatile and speedy that they had been most anxious to acquire a number of the trucks.

11. (U) Ltr. 31 Dec. 1943
Fr: Col. W. S. Ege, Chief Leg. Services, AAF, Wash.
To: Hon. C.I. White House of Rep., Wash.
(File: M&S)

31 Dec. 1943, Col. Ege notified Congressman White that in order to facilitate placing the Chore Boy on the approved list, if it met Army specifications, he was forwarding copies of the recent correspondence to Mat. Com. (WF). This was to acquaint Mat. Com. with Mr. White's interest

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in the matter and insure diligent prosecution of the tests. Col. Ege wrote this letter in reply to Mr. White's 27 Dec. letter to Gen. Echols which Col. Ege believed had been written before Mr. White received Col. Ege's second letter (dated 27 Dec.).

12. (U) IDM 1 Jan 1944
Fr: Col. J. W. Sessums
Exec., MM&D, Wash.
To: Col. E.P. Rose
Air Ser. Div., Wash.
(File: M&S)

Exec., MM&D (Wash.) asked Air Ser. Div. (Wash.) to ascertain the facts concerning reports that certain ASC Supply Depots wanted the Chore Boy trucks; also find out if the item in question was on the approved list and if it had to be on the list before ASC could purchase it. Exec., MM&D stated that if Mat. Com. were "dragging their feet" on the testing, it was possible the reported depot use could be used as a service test.

13. (U) Memo 4 Jan. 1944
Fr: Col. J. A. Wilson
Chief, ASC Liaison Sect.,
Air Ser. Div., Wash.
To: Chief, Supply Div.
ASC, Patterson Field
(File: M&S)

Col. Wilson, Chief, ASC Liaison Sect., Air Ser. Div. (Wash.) forwarded to ASC (Patterson Field) correspondence pertaining to Congressman White and Mr. Mulcahy's visit to Gen. Echols and requested information on which to base an additional reply to Mr. Mulcahy's letter [of Dec. 28 concerning the Model C versus the Model B Chore Boy.].

14. (U) Ltr. 7 Jan. 1944
Fr: Col. J. F. Early
Dep. Chief, Supply Div.
Patterson Field
To: [Col. J. A. Wilson
Chief, ASC Liaison Sect.
Air Ser. Div.] Wash.
(File: M&S)

Col. Early, Dep. Chief, Supply Div. ASC (Patterson Field) stated, in reply to Col. Wilson, that the Model C. Chore Boys procured by Mat. Com. (WF) were never delivered to the proposed destinations for test; rather they were sent to the Indianapolis Storage Depot as was all materials handling equipment for the AAF in accordance with established procedure of the Quartermaster Corps, the procuring agency for such equipment. Neither ASC nor Mat. Com. had knowledge of the Chore Boys being at Indianapolis until recent date as notice of shipment was not received from the Quartermaster or the contractor. Col. Early suggested a detailed plan if further investigation of the Model B were proposed and recommended dropping Mat. Com. test efforts on the Model C since it was a special design not adaptable for general application.

15. (U) Memo 7 Jan. 1944
Fr: Col. J.F. Early
Dep. Chief, Supply
Div., Patterson Field
To: Col. J. A. Wilson
Chief, ASC Liaison Sect.
Air Serv. Div., Wash.
(File: M&S)

Col. Early forwarded to Col. Wilson an IOM (attached) in which it was held evident that Buda was not cognizant of procurement regulations or AAF substantiation to effect procurement; also that Buda had conducted a sales campaign on San Bernardino (Cal.) ASC by making a loan of subject equipment. A Buda representative had made several attempts to effect sales promotion in

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visits to ASC Hdqs. (Patterson Field) and had been advised repeatedly of procurement and test procedures required prior to any action by ASC.

16. (U) Note 11 Jan. 1944
Fr: "epc" [Secy. to Exec. MM&D, Wash.]
To: Col. J. W. Sessums
Exec., MM&D, Wash.
(File: M&S)

Col. Moreland, Air Ser. Div. (Wash.) had reported that San Bernardino ASC Depot expressed no preference for the Chore Boy when he talked with Col. Warrick, Depot Supply Officer; rather they would keep what they had [in the line of warehouse trucks] as they had a range of spare parts for them.

17. (U) IDM 11 Jan. 1944
Fr: Col. J. W. Sessums
Exec., MM&D, Wash.
To: Col. D. W. Benner,
Air Ser. Div., Wash.
(File: M&S)

ASC had furnished many conflicting statements and reports on the Buda situation which had left Gen. Echols unable to properly defend his position in conversations with Congressman White and Mr. Mulcahy. As a result, Gen. Echols had requested a service history of the Chore Boy in the Services. Exec., MM&D (Wash.) listed the specific information that Gen. Echols wanted and requested that Air Ser. Div. (Wash.) expedite the reply.

18. (U) Memo 11 Jan. 1944
Fr: Hon. R. P. Patterson,
Under Secy. War, Wash.
To: AC/AS, MM&D, Wash.
(File: M&S)

Mr. Patterson, Under Secy. War asked [Gen. Echols] whether he thought the Buda Chore Boy would be usable for AAF. White and Mr. Mulcahy had called on Mr. Patterson 11 Jan. 1944 with reference to the truck.

19. (U) Tel. Conv., 12 Jan. 1944
Col. J. W. Sessums, Exec.
MM&D, Wash. and Col. G.V.
Holloman, Chief, Equip.
Lab., WF
(File: M&S)

Col. Sessums, Exec., MM&D (Wash.) told Col. Holloman, Chief, Equip. Lab. (WF) that the Buda people had sent a Congressman in to see Gen. Echols about their request for standardization of the Chore Boy and that Gen. Echols was being worn out with daily telephone calls on the situation. Col. Sessums thought the Congressman might instigate an investigation in which case there should be a good account from ASC as to what actually happened to the experimental trucks [Model C] that were delivered to the Indianapolis Depot by mistake. Col. Holloman stated that shipping instructions had already been supplied, that the necessary follow up would be made and records would be kept up to date. Col. Holloman brought out that the standard Model B could be bought without a service test and suggested a directive to that effect be made and that Wright Field would back it up. Col. Sessums concluded the conversation with the suggestion that he send a teletype to Mat. Com. (WF) and ask for a report on the serviceability of the Model B, which report could be used "as ammunition against the Air Service Command."

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20. (U) TT 13 Jan. 1944
Fr: AC/AS, MM&D, Wash.
To: Col. G. V. Holloman, Chief, Equip. Lab., WF
(File: Central Files)

AC/AS, MM&D (Wash.), in teletype, 13 Jan. 1944, asked Col. Holloman, Chief, Equip. Lab. (WF) for information on the serviceability, utility and economy of the Model B Buda Chore Boy for use in material handling for the AAF. It was understood that the item was in general use in material handling work for the Navy, Marines, Army Ordnance and industrial factories.

21. (U) IDM 14 Jan. 1944
Fr: Lt. Col. H. B. Benedict, Chief, Distrib. Sect., Air Ser. Div., Wash.
To: Col. J. W. Sessums Exec., MM&D, Wash.
(File: M&S)

14 Jan. 1944, Col. Benedict, Chief, Distrib. Sect. Air Ser. Div. (Wash.) supplied the information Col Sessums had requested on the status of the Chore Boy within the Services. The truck had been procured in insufficient quantities to allow comment on maintenance factors and the general information available was of such sketchy nature that nothing favorable or unfavorable seemed to be said about the item. Col. Benedict raised the question of the AAF having use for a truck of such small capacity and only one cylinder engine in view of the bulky nature of AAF material.

22. (U) TT 17 Jan. 1944
Fr: Brig. Gen. F.O. Carroll Chief, Eng. Div., WF
To: AC/AS, MM&D, Wash.
(File: Central Files)

In reply to the 13 Jan. teletype, Chief, Eng. Div. (WF) stated that a Model C Chore Boy, differing from the Model B in that it was of wood construction in lieu of steel, was received by Equip. Lab. (WF) 12 Jan. 1944. Procurement of experimental Model C's of wood construction was initiated 12 Jan. 1943 when metal conservation was directed but since that time wood had become more critical. Chief, Eng. Div. stated that Mat. Com. (WF) considered the steel construction of the Model B more desirable. Limited tests of the Model C indicated that the truck in general was an economical means of transportation for small items, could be serviced easily, and would promote more efficient use of heavier vehicles in use. The truck had been delivered to Fairfield Air Depot, ASC (Fairfield, Ohio) for a practical test and results would be forwarded to office of AC/AS, MM&D (Wash.) on 21 Jan. 1944. Chief, Eng. Div. asked if the truck should be submitted to the Equipment Div., AAF Bd., Orlando, Fla. (hereinafter referred to as AAF Bd.) for determination of requirements.

23. (U) Ltr. 18 Jan. 1944
Fr: Mr. W. T. Mulcahy Buda Co.
To: Maj. Gen. O. P. Echols AC/AS, MM&D, Wash.
(File: M&S)

Mr. Mulcahy wrote Gen. Echols that San Bernardino, Spokane, and Warner-Robbins ASC Depots had asked ASC Hdqs. (Patterson Field) for Buda Chore Boys and had not had action on even second requisitions. San Bernardino had used a standard Model B, on loan, and wanted to secure a quantity while the other two Depots had seen the truck in operation and were anxious to secure some.

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24. (U) Memo 20 Jan. 1944
Fr: Maj. Gen. O.P. Echols, AC/AS, MM&D, Wash.
To: Under Secy. War, Wash.
(File: M&S)

Gen. Echols, in reply to Mr. Patterson's 11 Jan. Memo, stated that he was having the Buda Chore Boy submitted to Equip. Div., AAF Bd. for determination of possible uses of the truck in the AAF. Also, with the idea of waiving extensive AAF tests, Gen. Echols was investigating the Navy and other users' service experience with the item.

25. (U) TT 20 Jan. 1944
Fr: MM&D, Wash.
To: Col. G. V. Holloman Chief, Equip. Lab., WF
(File: Central Files)

MM&D (Wash.) requested Col. Holloman to contact the AAF Bd. to ascertain the number of Model B Buda Chore Boys necessary to determine possible uses of this equipment by the AAF in depots, other ASC activities, posts, camps or stations. MM&D authorized Col. Holloman to procure the required Chore Boys for the AAF Bd. to evaluate the item from the standpoint of economical advantages over standard material handling equipment, trailer towing ability, capability on unpaved surfaces, airdrome use, etc.

26. (U) TT 21 Jan. 1944
Fr: Brig. Gen. F.O. Carroll, Chief, Eng. Div., WF
To: MM&D, Wash.
(File: Central Files)

In compliance with request from MM&D (Wash.), Eng. Div. (WF) was contacting AAF Bd. by wire and telephone to ascertain number of Model B Buda Chore Boys to purchase in order to determine possible AAF uses of the equipment. The report promised to MM&D [on practical use of Model C Chore Boy] for 21 Jan. 1944 would not be forwarded until receipt of reports from AAF Bd.

27. (U) Memo for Record, 21 Jan. 1944
By: Capt. R. H. Burks, Misc. Br., Equip. Lab., WF
(File: Equip. Lab., Eng. Div.)

21 Jan. 1944, Equip. Lab. (WF) recorded action taken with respect to procurement of Model C Buda Chore Boys during the previous year. Mr. Mulcahy, Buda representative called on Col. Fink and Major Bishop, Equip. Lab. in Jan. 1943 and presented the Model C truck and trailer. Four trucks and trailers were subsequently ordered to determine if a military requirement existed for the equipment in connection with cargo handling at air freight terminals. Mr. Mulcahy informed Equip. Lab. about 10 Nov. 1943 that ASC had told him verbally that Chore Boys and trailers covered by WF Procurement Authority had been delivered to the Indianapolis Depot, ASC, Indianapolis, Ind., which was not in accordance with shipping instructions. Capt. Burks, Misc. Equip. Br., Equip. Lab., projed officer, checked the statement with ASC and took action to have shipping instructions complied with in accordance with WF Requisition No. (535)43-295-AF (in this Case History). The Buda representative telephoned Equip. Lab. 28 Dec. 1943 at which time the Buda items were still undelivered to proper destinations. Equip. Lab. received one Buda Chore Boy, Model C, 13 Jan. 1944 and Capt. Scott, Equip. Lab., was instructed to investigate possibilities of the article.

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28. (U) AFP 385381
24 Jan. 1944
(File: Contract Files)

AFP 385381, initiated 24 Jan. 1944, provided for procurement of three Model B Buda Chore Boys, described as 1/2 ton shop trucks with "Jeep hitch" at an estimated total cost of $1785.00. The quantity was required for test authorized by MM&D (Wash.). Buda was to be sole source based on procurement authorization in MM&D teletype 20 Jan. Accompanying the AFP was an ICM from Eng. Div. (WF) to Proc. Div. (WF) which requested that Gen. Proc. Br., Proc. Div. make direct procurement in order to obtain the trucks as soon as practicable.

29. (U) Ltr. 25 Jan. 1944
Fr: Col. J. W. Sessums,
Exec., MM&D, Wash.
To: CG, ASC
Patterson Field
(File: M&S)

As a result of Mr. Mulcahy's 18 Jan. letter to Gen. Echols, Col. Sessums asked ASC (Patterson Field) to furnish a report of the San Bernardino Supply Depot's experience with the Model B Chore Boy.

30. (U) Radiogram, 31 Jan. 1944
Fr: Brig. Gen. E. L. Eubank,
Exec. Dir., AAF Bd.,
Orlando, Fla.
To: Equip. Lab., Eng. Div., WF
(File: Equip. Lab., Eng. Div.)

In reply to teletype of 21 Jan. 1944, AAF Bd. notified Equip. Lab. (WF) that two Buda Chore Boys would be required for review by the Bd., one to be shipped directly to the Bd. and the other to AAF Proving Ground Command, Eglin Field, Fla. (Hereinafter referred to as Eglin Field). AAF Bd. requested anticipated shipping dates and letter directive for the project.

31. (U) Ltr. 2 Feb. 1944
Fr: Maj. Gen. O. P. Echols
AC/AS, MM&D, Wash.
To: Mr. W. T. Mulcahy
Buda Co.
(File: M&S)

Gen. Echols advised Mr. Mulcahy that he was obtaining a service history from users of the Chore Boy and studying the possible uses for the item within the AAF.

32. (U) Tel. Conv., 8 Feb. 1944
Col. J. W. Sessums,
Exec., MM&D, Wash.
and Col. G. V. Holloman,
Chief, Equip. Lab., WF
(File: M&S)

To Col. Sessums' questions on the status of the Buda Chore Boys, by telephone 8 Feb., Col. Holloman replied that WF was buying three of the B Models and the Chore Boy people were extremely pleased with the treatment WF was giving them. The trucks were to be tested by AAF Bd. and meanwhile a "blitz" service test was being conducted at Fairfield Air Depot on one or two of them [apparently the Model C's procured previously] and the people that used them liked them but the procurement people werenot enthusiastic. Col. Holloman further stated, "Now insofar as we are concerned it is a swell job. Its a swell piece of equipment. Insofar as the people at Air Service Command its a swell piece of equipment, but it has to be [decided] by Air Service Command as to whether they're going to buy it or not."

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33. (U) 1st Ind. 11 Feb. 1944
Fr: Lt. Col. W. B. Gibson
Supply Div., ASC,
Patterson Field
To: Supply and Main. Br.
Air Ser. Div., Wash.
(File: M&S)

Asst. Chief, Supply Div., ASC (Patterson Field) quoted a teletype from the San Bernardino ASC Depot which stated that a ten day service test of the Chore Boy at that installation indicated the equipment was satisfactory. Further, that 2 requests for local purchases had been made to ASC Hdqs. (Patterson Field).

34. (U) TT 15 Feb. 1944
Fr: Mat. Div., MM&D, Wash.
To: Col. G. V. Holloman,
Chief, Equip. Lab., WF
(File: Central Files)

15 Feb. 1944, Mat. Div. (Wash.) asked Col. Holloman when reports from Eglin Field and AAF Bd. on the Buda Chore Boy could be expected. A Congressman was pressing Gen. Echols, AC/AS, MM&D, (Wash.) for a reply.

35. (U) TT, 16 Feb. 1944
Fr: Eng. Div., WF
To: AC/AS MM&D, Wash.
(File: Central Files)

Eng. Div. (WF) notified [Gen. Echols], 16 Feb. 1944, that the Chore Boys should arrive at Eglin Field and AAF Bd. about 24 Feb. Tests would follow immediately and should be completed by 15 March at which time advance reports should be available. WPB release was holding up shipment of trucks momentarily.

36. (U) Ltr. 21 Feb. 1944
Fr: Buda Co.
To: Capt. N. C. Smith,
Contracting Officer, WF
(File: Contract Files)

Buda notified Contracting Officer (WF) that the WPB Limitation form sent to that Company 7 Feb. 1944 for signature should instead be signed by proper authorities at Wright Field and sent directly to WPB (Wash.)

37. (U) Ltr. 21 Feb. 1944
Fr: Brig. Gen. F. O. Carroll,
Chief, Eng. Div., WF
To: AAF Bd., Orlando, Fla.
(File: Central Files)

Under authorization of AAF Bd. teletype message of 31 Jan. 1944 (in this Case History), Chief, Eng. Div. (WF) notified AAF Bd. that two Model B Chore Boys were being shipped, one to AAF Bd. and one to Eglin Field. Chief, Eng. Div. cited characteristics of subject truck, purpose of the requested AAF Bd. test, and the service record of the item.

38. (U) P. O. (33-038)44-4833-E
29 Feb. 1944
To: Buda Co.
(File: Contract Files)

P. O. (33-038)44-4833-E, issued to Buda, 29 Feb. 1944, called for the three Chore Boys listed on AFP 385381 (in this Case History) at a total cost of $1,800.00. Shipping destinations were: Wright Field, Eglin Field, and AAF Bd. P.O. was based on Buda quotation of 7 Feb. 1944.

39. (U) TT 2 March 1944
Fr: Mat. Div., Wash.
To: Col. G. V. Holloman,
Chief, Equip. Lab., WF
(File: Central Files)

2 March 1944, Mat. Div. (Wash.) stated in teletype to Col. Holloman: "Congressman White has been in almost daily touch with General Echols concerning the status of the Eglin Field and Orlando tests." Congressman White had been informed that the tests would be completed about 15 March and Gen. Echols wanted to know if the Chore Boy had arrived at Eglin Field and AAF Bd. and the latest estimates on completion of tests.

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40. (U) TT 4 March 1944
Fr: Brig. Gen. F. O. Carroll, Chief, Eng. Div., WF
To: AC/AS, MM&D, Wash.
(File: Central Files)

Chief, Eng. Div. (WF) stated that delivery of the Chore Boys which Mat. Div. (Wash.) inquired about 2 March had been delayed because of Mat. Com. (WF) difficulties with WPB orders. Tests would be completed 15 days after receipt of the articles at Eglin Field and AAF Bd.

41. (U) Ltr. 10 March 1944
Fr: Buda Co.
To: Capt. J. C. Scott, Equip. Lab., WF
(File: Equip. Lab., Eng. Div.)

Buda forwarded to Capt. Scott, 10 March 1944, copies of letters of 9 and 10 March to Gen. Proc. Br., Proc. Div. (WF) in which Buda stated the trucks would be shipped immediately upon receipt of authorization for deletion of "Reproduction and License Rights" and WPB Form 1319 which was understood to have been approved in Wash. 7 March. Buda asked Capt. Scott, as well as Gen. Proc. Br. to expedite procedure for deletion of "Reproduction and License Rights" from the P.O. This clause did not apply since Model B Chore Boys were standard Buda design and had been manufactured on a production basis for years.

42. (U) Ltr. 16 March 1944
Fr: Buda Co.
To: Lt. Col. J. H. Bishop, Equip. Lab., WF
(File: Equip. Lab., Eng. Div.)

Mr. Mulcahy quoted to Col. Bishop, Equip. Lab. (WF), part of a letter he had written to Congressman White on 11 March 1944 to assure him that Wright Field was doing everything possible to follow Gen. Echols' instructions. Mr. Mulcahy suggested that Congressman White "permit the Washington end of it to remain as is" until he heard further from him. In reply, Congressman White had expressed pleasure over the progress made in placing the Buda Chore Boy on the approved list of the War Dept. and enclosed a copy of a message from Col. Sessums, which reported the status of procurement of the Model B Chore Boy.

43. (U) TG 17 March 1944
Fr: Brig. Gen. F. O. Carroll, Chief, Eng. Div., WF
To: AAF Bd., Orlando, Fla.
(File: Central Files)

With reference to Mat. Com. (WF) letter of 21 Feb. 1944 which stated the Chore Boys were being delivered to AAF Bd. and Eglin Field at that time, Chief Eng. Div. (WF) notified AAF Bd. on 17 March that the trucks were being shipped that day via commercial truck. Chief, Eng. Div. requested that Mat. Com. be notified when the vehicles arrived and that tests be initiated immediately.

44. (U) TT 18 March 1944
Fr: Mat. Div., Wash.
To: Eng. Div., WF
(File: Central Files)

Mat. Div. (Wash.) asked again when Eng. Div. (WF) expected Chore Boy test models to arrive at Eglin Field and AAF Bd. and when tests would be completed Mr. Binning, Air Serv. Div., (Wash.) had said WPB authorization 9420 was approved 9 March and was forwarded to WF 10 March. Congressman White had again phoned Gen. Echols about status of tests and would undoubtedly repeat inquiry the first of the next week.

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45. (U) TT 21 March 1944
Fr: Brig. Gen. F. O. Carroll, Chief, Eng. Div., WF
To: AC/AS, M&D, Wash.
(File: Equip. Lab., Eng. Div.)

The trucks had not arrived at Eglin Field and AAF Bd. by 20 March but Buda had shipped the items 17 March. Chief, Eng. Div. (WF) suggested that Mat. Div. (Wash.) ask AC/AS, OC&R (Wash.) to have Eglin Field notify Mat. Div. directly upon arrival of the equipment. Chief, Eng. Div. stated that the tests would last 15 days after arrival of trucks.

46. (R) Ltr. 1 April 1944
Fr: Col. C. B. Overacker, Chief, Proof Dept. AAFPGC, Eglin Field, Fla.
To: C.O., 1st Proving Ground Group; & C.O., 27th Sub-Depot AAFPGC, Eglin Field, Fla.
(File: Equip. Lab., Eng. Div.)

Eglin Field outlined the program for the test of the Buda Chore Boy, Model B, (AAF Bd. Project No. (M-4) 479). It was to be a Fourth Priority service test. The letter includes description of the truck, instructions for conducting the test, list of records to be kept, and type of reports to be made.

47. (U) TT 8 April 1944
Fr: Mat. Div., Wash.
To: Eng. Div., WF
(File: Equip. Lab., Eng. Div.)

8 April, Mat. Div. (Wash.) asked Eng. Div. (WF) for current information on completion date of tests. Major Calhoun, OC&R (Wash.) had advised Mat. Div. (Wash.) that test trucks had arrived at Orlando but he had no information on arrival of trucks at Eglin Field.

48. (U) IDM, 8 April 1944
Fr: Lt. Col. A.P. Tappan Mat. Div., Wash.
To: Col. J. W. Sessums Exec. M&D, Wash.
(File: M&S)

Col. Bishop, Misc. Equip. Lab. (WF), had stated that the "pressure" for Government purchase of Buda Chore Boys was primarily the result of the activities of Mr. Mulcahy who had been a frequent visitor at WF. Mr. Mulcahy was anxious to have the truck listed in the Mat. Com. (WF) catalog as standard equipment for ASC use, both in this country and overseas, in order for his company to compete with other manufacturers who could so advertise similar type trucks. Col. Bishop thought the Chore Boy would not pass AAF Bd. tests except for limited usage, and therefore would not be recommended for general AAF use.

49. (U) IDM 10 April 1944
Fr: Lt. Col. A.P. Tappan Mat. Div., Wash.
To: Col. J. W. Sessums, Exec., M&D, Wash.
(File: M&S)

Col. Bishop had reported that test trucks arrived at Eglin Field 3 April and Orlando [AAF Bd.] 31 March. Col. Macklin, OC&R (Wash.) had stated that it would be impossible to get the formal test reports within two weeks after the trucks reached the testing centers, but that he would get some kind of an informal report.

50. (U) IDM 12 April 1944
Fr: Lt. Col. A. P. Tappan Mat. Div., Wash.
To: Col. J. W. Sessums Exec., M&D, Wash.
(File: M&S)

As reported by Col. Macklin, test to date on the Chore Boy indicated it to be an acceptable piece of equipment for depot use in paved areas and that it would eventually be listed as an approved item for use within the load limits for which it had been designed (about 1,500 lb. capacity.) It was anticipated that about 6 weeks would be required for the remainder of the necessary processes before the Chore Boy might be listed as approved.

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51. (U) Ltr. 11 May 1944
Fr: Brig. Gen. F. O. Carroll, Chief, Eng. Div., WF
To: AC/AS, MM&D, Wash.
(File: Central Files)

Chief, Eng. Div. (WF) asked that AC/AS, MM&D (Wash.) transmit the following information to AC/AS, OC&R (Wash.): "Mr. Mulcahy of the Buda Company called at the Materiel Command, 5 May 1944. He stated that San Bernardino and Spokane Depots desire 50 to 75 Chore Boy trucks, which are being tested at Eglin Field under AAF Board Project No. (M-4) 479."

52. (R) Final Report
Serial No. 3-44-66,
20 May 1944, AAFPGC,
Proof Dept., Eglin Field, Fla.
(File: Equip. Lab., Eng. Div.)

20 May 1944, Eglin Field submitted a formal detailed report on the test of the Buda Chore Boy, Model B. It was recommended that several specified changes be incorporated if the truck were given further consideration for standardization. Complete details of the test are included in the document and completed questionnaire submitted by Wright Field is attached.

53. (U) Ltr. 29 May 1944
Fr: Maj. H. F. Marshall
Prod. Div., Liaison Office for AAF Bd., WF
To: Exec. Div., AAF Bd.
Orlando, Fla.
(File: Central Files)

Major Marshall, Prod. Div. Liaison Officer for AAF Bd. (WF) supplied AAF Bd. with production data from Buda based on 500 Standard Model B Chore Boys.

54. (U) IDM 31 May 1944
Fr: Col. J. F. Phillips, Chief, Mat. Div., Wash.
To: Col. J. W. Sessums, Exec., MM&D, Wash.
(File: Equip. Lab., Eng. Div.)

Col. Phillips, Chief, Mat. Div. (Wash.) recorded the status of the Buda Chore Boy situation for Col. Sessums, Exec., MM&D (Wash.) and included a brief chronological history of the project. Chief, Mat. Div. stated that Capt. Scott had seen an Eglin Field report which recommended approval for standardization of the truck within continental limits for ATC and ASC if specified extensive modifications were made. Capt. Scott thought the manufacturer would not choose to include the modifications in order to qualify for AAF business. Printing of the reports at AAF Bd. would delay receipt of the formal report in Wash. Difficulty in getting WPB clearances, time in transit to Eglin Field and AAF Bd., and the low priority AAF Bd. assigned to the project were the major factors responsible for the time required to secure results of the test. Chief, Mat. Div., suggested that Col. Bishop explain the situation to Mr. Mulcahy and that someone take the advance copy of the AAF Bd. report to Congressman White, preferably Col. Baldwin since his "conversations to date with Congressman White have been on a very pleasant basis."

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55. (U) Ltr. 10 June 1944
Fr: Col. H. Z. Bogert,
Actg. Chief, Eng. Div., WF
To: AC/AS, MM&D, Wash.
(File: Central Files)

5 June 1944, Mat. Div. (Wash.) requested Col. Bishop to submit comments on paragraphs 9 and 10 of the Mat. Div. IDM dated 31 May 1944, copy of which was delivered to Col. Bishop by Capt. Scott. 7 June 1944, Equip. Lab. (WF) replied that further comments on the Buda Chore Boy Project could not be made prior to receipt of test reports from the AAF Bd. Further, that a complete correspondence file on the project had been mailed to Mat. Div. 10 June, Actg. Chief, Eng. Div. (WF) sent AC/AS, MM&D (Wash.) a complete file on the Buda Chore Boy and stated that subject file had been requested by Col. Tappan, Office AC/AS, MM&D, in the 6 June teletype.

56. (R) AAF Bd. Project
No. (M-4) 479
23 June 1944
(File: Equip. Lab., Eng. Div.)

Final report by AAF Bd. on Project (M-4) 479, under which the Buda Chore Boy was tested for replacement of standard materials handling vehicles, concluded that there was no military requirement for subject vehicle and recommended that it be dropped from further consideration for the following reasons: (1) It was unable to operate on unsurfaced roads. (2) It hauled too little at too slow speeds. (3) It was inferior to three-wheeled scooter currently in use for small items. (4) Specified deficiencies eliminated it as a reasonable substitute for light duty outdoor tractors. (5) As a warehouse truck, it was definitely surpassed by fork and platform trucks already in use. (6) Its limited utility would not justify its cost to the Government.

57. (U) Tel. Conv. 30 June 1944
Lt. Col. J. H. Bishop,
Equip. Lab., WF, and
Buda Co.
(File: Equip. Lab., Eng. Div.)

Mr. Dempsey, Pres. of Buda, in telephone conversation 30 June 1944, told Col. Bishop that he would call Mr. Fisher, Vice-Pres. of Buda, then in Wash. and request him to get in touch with Col. Baldwin, Office AC/AS, MM&D, (Wash.) and assure him that the AAF were expediting tests to determine the military requirements of the Buda Chore Boy. Col. Bishop made the call to Buda at request of Col. Baldwin of Gen. Echols' office.

58. (U) Tel. Conv. 1 July 1944
Lt. Col. J. H. Bishop
Equip. Lab., WF, and
Mr. W. T. Mulcahy,
Buda Co.
(File: Equip. Lab., Eng. Div.)

Mr. Mulcahy, in telephone conversation with Col. Bishop, stated that he was perfectly satisfied with the way Wright Field had handled the Buda product; he had told Col. Baldwin and Gen. Echols that everything was 100%. Col. Bishop said that Washington had questioned whether or not WF had done everything possible to expedite the project. Mr. Mulcahy further stated: "General Echols said it was not a confirmed statement but that Colonel Baldwin had talked with Orlando and they said the Chore Boy was out." Col. Bishop replied, "We have no control over that - we presented it to the proper people."

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59. (U) Tel. Conv. 5 July 1944
Lt. Col. J. H. Bishop,
Capt. J. H. Scott, Equip.
Lab., WF, and Mr. Mulcahy,
Buda Co.
(File: Equip. Lab., Eng. Div.)

Mr. Mulcahy reported on conference with Gen. Echols. Verbal report at MM&D (Wash.) from AAF Bd. indicated: "No requirement at present."

60. (U) Ltr. 5 July 1944
Fr: Maj. Gen. D.H. Dunton
Dep. Com., ASC,
Patterson Field
To: Maj. Gen. O. P. Echols
AC/AS, MM&D, Wash.
(File: M&S)

With reference to recent telephone conversations about the Buda Chore Boy, Gen. Dunton, Dep. Com., ASC (Patterson Field) wrote Gen. Echols that ASC and the entire AAF had definitely accorded complete consideration to the possible initiation of procurement of a quantity of the trucks. Gen. Dunton, in presenting a chronological history of ASC's activity in the Buda case, cited AAF Bd.'s rejection of the vehicle as a basis for dropping further action, and quoted the latest information from San Bernardino ASC Depot. This Depot had reported that day, 5 July 1944, that the vehicle was suitable for limited use only and that procurement was not recommended.

61. (U) Ltr. 5 July 1944
Fr: Mr. W. T. Mulcahy, Buda Co.
To: Col. T. A. Baldwin,
Exec. Office, MM&D, Wash.
(File: Equip. Lab., Eng. Div.)

Mr. Mulcahy assured Col. Baldwin 5 July 1944 that Buda had had excellent cooperation from both Col. Bishop and Capt. Scott on Chore Boy test activities; and Mr. Mulcahy said if Buda had had as good cooperation from AAF Bd., the matter would have been brought to a conclusion some time ago.

62. (U) Ltr. 7 July 1944
Fr: Maj. Gen. O. P. Echols
AC/AS, MM&D, Wash.
To: Mr. W. T. Mulcahy
Buda Co.
(File: M&S)

Gen. Echols wrote Mr. Mulcahy, 7 July 1944, that AAF had no requirement for the Buda Chore Boy at that time. He explained that the equipment had been subjected to tests in comparison with materials handling vehicles already in use in the AAF and that the AAF Bd. found that the Chore Boy did not have sufficient merit over other vehicles to warrant its adoption as a new item of equipment.

63. (U) Ltr., 8 July 1944
Fr: Col. W. S. Ege
Chief, Leg. Services, AAF,
Wash.
To: Hon. C. I. White,
House of Rep., Wash.
(File: M&S)

Col. Ege forwarded to Congressman White a copy of Gen. Echols' July letter to Mr. Mulcahy and reiterated the fact that the AAF Bd. had concluded there was no military requirement for the vehicle at that time.

64. (U) Ltr. 12 July 1944
Fr: Buda Co.
To: Capt. J.C. Scott,
Equip. Lab., WF
(File: Equip. Lab., Eng. Div.)

Mr. Mulcahy forwarded to Capt. Scott 12 July 1944 a copy of Gen. Echols' letter which formally rejected the Chore Boy. Mr. Mulcahy stated that if Capt. Scott wanted to discuss the structural changes recommended by Eglin Field, Buda would be glad to make arrangements.

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65. (U) Ltr. 17 Aug. 1944
Fr: Hon. C. I. White
House of Rep., Wash.
To: Maj. Gen. C. P. Echols
AC/AS, MM&D, Wash.
(File: M&S)

17 Aug. 1944, Congressman White took exception to Gen. Echols' statement to Mr. Mulcahy in the July correspondence: "Procurement of this equipment for general use in the Air Service Command is not recommended." Mr. White stated that it had been repeatedly explained in the several conferences with Gen. Echols that what was sought was not an outright sale, but rather to have the Buda item placed on the Army approved list so that when any AAF installation wanted the Chore Boy, the order could be filled with the Army's approval. Mr. White stated it was difficult to understand the attitude of Gen. Echols' department in view of War Dept. rules for procuring Army equipment on a competitive basis.

66. (U) Ltr. 28 Aug. 1944
Fr: Col. W. S. Ege
Chief, Leg. Services, AAF,
Wash.
To: Hon. C. I. White
House of Rep., Wash.
(File: M&S)

In answering Congressman White's 17 Aug. letter to Gen. Echols, Col. Ege reiterated that there was no requirement for the Buda vehicle as concluded after it was tested. Col. Ege stated further that materials handling equipment under which classification the Chore Boy came, was currently procured for the AAF by the Quartermaster Corps and Army Air Bases did not procure such equipment locally. Therefore the AAF had no approved list of supplies and such a list would be maintained by the Quartermaster Corps. For efficiency and economy and to avoid problems of supply and maintenance the Army had standardized the various types of materials handling equipment and the current standard types were adequate for AAF needs.

67. (U) Ltr. 7 Sept. 1944
Fr: Hon. C. I. White
House of Rep., Wash.
To: Col. W. S. Ege
Chief, Leg. Services,
AAF, Wash.
(File: M&S)

Congressman White charged Col. Ege with adroitness "in evading an issue and in protecting an untenable position..." in reply to Col. Ege's 28 Aug. letter. He asked why the AAF made a series of tests if procurement of materials handling equipment were the Quartermaster Corps' responsibility, why the AAF excluded the Chore Boy from the list of authorized equipment, and why the AAF prevented Buda competition in supplying this class of equipment "when Army tests have demonstrated its adaptability and usefulness." Mr. White charged that the Army procurement policy as evidenced in Col. Ege's letter, "definitely eliminates competition and nullifies the long established government policy of procuring supplies and equipment by open competition" and in his opinion "merits a thorough investigation."

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68. (U) Ltr. 13 Sept. 1944
Fr: Col. W. S. Ege, Chief,
Leg. Services, AAF, Wash.
To: Hon. C. I. White
House of Rep., Wash.
(File: M&S)

13 Sept. 1944, Col. Ege explained to Congressman White that because of his visit to Gen. Echols and his special interest in the Buda Chore Boy matter, the AAF procured the 3 articles for test the preceding Feb. with the thought that the truck could be purchased in quantity when required if it proved to be particularly adaptable to AAF operations. However, the thorough [AAF Bd.] test revealed a number of factors which made the truck unsuitable for AAF use (listed in the Document). Col. Ege repeated that AAF Stations in the field did not procure materials handling equipment locally but rather by requisition from a Quartermaster stock catalog which did not include manufacturers' names. Equipment was referred to by type, size and power, "thereby insuring competition and preventing sole source supplying such as the purchasing of the Buda vehicle to the exclusion of other makes.". Col. Ege suggested that Mr. White contact the Quartermaster General for any further consideration of the Buda Chore Boy.

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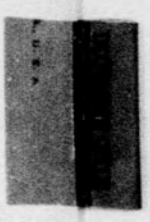

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AAFMC-104-WF-8-80-43-50M sets of 4

C-1(1)

ORIGINAL

Authority for Purchase

No. 247628

VENDOR Rqn (535) 43-195-AF
The Buda Company

CONTRACT No. CK 43-295-AF

DELIVERY VIA TERMS METHOD PROPOSAL

PURCHASE ORDER No.

☞ THE ABOVE SPACE TO BE USED BY THE PURCHASE BRANCH ONLY ☜

Item	Quantity	Unit	Estimated Unit Price	DESCRIPTION OF MATERIAL OR SERVICES TO BE PURCHASED.	Unit Price	Total Price
1	4	ea.	$650.00	Truck, warehouse, 1/2 ton, The Buda Company Model C "Chore Boy" equipped with sideboards and stake pockets, rear pintle hook and windshield.		
2	4	ea.	250.00	Trailer, warehouse, 1/2 ton, The Buda Company Model "Chore Boy" Trailer per proposal drawing symbol No. CB-12-23-42 equipped with sideboards and stake pockets and rear pintle hook.		

Completed ✓ JAA

All per our letter of transmittal

Total Estimated Cost $3,600.00 CLASSIFICATION CL-19 aa - 2X Ean Total Actual Cost

B—FUNDS EXPEND. ORDER No. MISCL. CHARGE No.	Project No.	Item No.	A—FUNDS Project No.	Item No.	C—FUNDS Project No.	Class No.	Item No.	Increase of Funds to Actual Cost Approved
658-170 (19)	611-4	658-5						

MATERIAL TO BE OBLIGATED FOR Equipment Laboratory WANTED NOT LATER THAN March 1, 1943

DELIVER TO ~~Air Supply Stripping, Wright Field, Dayton, Ohio~~ (Destination)

Procurement Data Number of Sets See Reverse Side

DATE FURNISHED

Section Chief

Accounting Branch

Budget Officer

Remarks on the following matter marked with "X" appear in the space below:

1. Recommended Sources of Supply X 2. Government furnished material ____ 3. Tools, patterns, etc., loaned by Government ____
4. Should Serial Number be assigned ____ 5. Point of Inspection X 6. Increase Existing Orders ____ 7. General Remarks: X

1. The Buda Company, Harvey, Illinois (Sole source for experimental model).
5. Destination.
7. a. Model "C" Chore Boy is a three wheel warehouse truck with rated load 1/2 ton, wheelbase 56", tread of rear wheels 32", overall length 92", overall width 37" and loading space 12.8 sq.ft. The warehouse trailer is a three wheel trailer with rated load 1/2 ton, wheel base 56", tread of rear wheels 32", overall length 92", overall width 37" and loading space 12.8 sq.ft.

b. The quantity is required for tests at Patterson Air Depot, Middletown Air Depot, San Antonio Air Depot and Sacremento Air Depot.

c. New equipment.

d. A cargo handling warehouse truck will be made available if tests are successful. These items contain rubber tires, for which there is no satisfactory substitute.

Material - - $1200.00 The above items are not listed on the AAF Stock List. OVER

Proc. Auth. No. AC 3010-611-09 A 0705-V3

Proc. Auth. No. AAF P A

Proc. Auth. No. AAF P A

Upon due inquiry made it was found that the articles enumerated herein could not be procured from any other branch of the Government without transfer of funds, or the immediate need of these supplies requires the remoteness of the station from a point of supply precludes their purchase from any other branch of the Government.

Date 1-12-43

Initiated by: H. H. Burks, Captain, A. C.

Recommended: G. V. HOLLOMAN, Colonel, A. C.

Approved: F. O. CARROLL, Brig. General, U.S.A., Chief, Engineering Division, T.C.

Coordinated by Production Engineering Div.

Coordinated by Chief, Contract Sec.

Approved: F. L. HARRISSER, Colonel, A. C.

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Shipping Instructions:

Item 1 Quantity	Item 2 Quantity	Destination
1	1	Depot Supply Officer, Middletown Air Depot, Olmsted Field, Middletown, Pennsylvania.
1	1	Depot Supply Officer, San Antonio Air Depot, Duncan Field, San Antonio, Texas.
1	1	Depot Supply Officer, Sacramento Air Depot, McClellan Field, California.
1	1	AAF Supply Officer, Wright Field, Dayton, Ohio (5x-5)

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2-3

In reply refer to:
WHW:eh - 82-W

January 23, 1943

Commanding General,
Materiel Command,
Headquarters Army Air Forces,
Washington, D. C.
Attention: Contract Section

Wright Field Requisition No. (535) 43-295-AF

1. There is forwarded herewith, for transmittal to The Quartermaster General, Wright Field Requisition No. (535) 43-295-AF calling for four (4) each, warehouse trucks and four (4) each, warehouse trailers.

2. Model "C" Chore Boy is a three wheel warehouse truck with rated load one-half (1/2) ton, wheelbase 56", tread of rear wheels 32", overall length 92", overall width 37" and loading space 12.8 square feet. The warehouse trailer is a three wheel trailer with rated load one-half (1/2) ton, wheel base 56", tread of rear wheels 32", overall length 92", overall width 37" and loading space 12.8 square feet.

3. The quantities specified are required at the Fairfield Air Depot, Middletown Air Depot, San Antonio Air Depot, and Sacramento Air Depot, for tests to determine if these articles are suitable for a cargo handling warehouse truck.

for A. E. JONES,
Brig. General, U.S.A.,
Chief, Procurement Division.

Incls:
Requisition No. (535) 43-295-AF (4)
Sub-Procurement Authority

JAN-0 1943

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WRIGHT FIELD
REQUISITION

Wilson - 82-4.

To: The Quartermaster General, Washington, D. C. No. of Sheets 2 Sheet No. 1

Requisition No. (535) 43-295-[illegible] January 21, 1943 Period March 1, 1943

SHIP TO See Shipping Instructions

Requisitioned By (show Signature, Rank, Organization, Destination. If different from "SHIP TO" include address):

Joseph H. Goldberg
JOSEPH H. GOLDBERG, 2nd Lt., Air Corps, Contracting Officer, Wright Field, Dayton, Ohio

Approved By:

COMPLETED

NOT REQUIRED

hmf - 10-4-43

STOCK NO.	ARTICLES	UNIT	ON HAND AND DUE	CONSUMED	REQUIRED	APPROVED
ITEM NO.	Class 19					
1.	TRUCK, warehouse, 1/2 ton, The Buda Company Model C "Chore Boy" equipped with sideboards and stake pockets, rear pintle hook and windshield.	ea.			4	
2.	TRAILER, warehouse, 1/2 ton, The Buda Company Model "Chore Boy" Trailer per proposal drawing symbol No. CB-12-25-42 equipped with sideboards and stake pockets and rear pintle hook.	ea.			4	

NOTE: The items on this requisition to be procured in accordance with T.I. 1177.

Total cost not to exceed $5,500.00.
APP 247628 - 1-12-43 - E. H. Marks, Capt. - Equipment Lab. - [illegible] misel chg 658-170 (19) - proj 611-4 - item 658-5.

F. O. B. SHIPPING POINT.
Quartermaster Inspection and Acceptance at Contractor's Plant.

SUB-PROCUREMENT AUTHORITY to cover is attached.

PREFERENCE RATING: AA-2X.

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AF Form No. 401 April 6, 1951

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REQUISITION
(EXTRA SHEET)

No. (25) 4-27
Sheet No. 2

STOCK NO.	ARTICLES	UNIT	ON HAND AND DUE	CONSUMED	REQUIRED	APPROVED
ITEM NO.	NOTE: It is recommended that Items 1 and 2 be procured by negotiations with The Buda Company, Harvey, Illinois.					
	SHIPPING INSTRUCTIONS as follows:					
	Depot Supply Officer, Middletown Air Depot, Olmsted Field, Middletown, Pennsylvania			Depot Supply Officer, San Antonio Air Depot, Duncan Field, San Antonio, Texas		
1.	1			2		
2.	1			1		
	Depot Supply Officer, Sacramento Air Depot, McClellan Field, Calif.			AAF Supply Officer, Wright Field, Wright, Greene County, Ohio		
1.	1			1		
2.	1			1		

NOTE: It is requested that the Chief, Follow-Up Branch, Procurement Division, Wright Field, Dayton, Ohio, be advised when shipment leaves the contractor's plant.

NOTE: All purchase orders issued against this requisition should refer to the Wright Field Requisition number. Contractors should be directed to indicate Requisition number in addition to the purchase order number on all papers and packages for identification purposes.

It is requested that copy of Purchase Order when issued be furnished to each of the following:

1 ea. - Consignee
1 ea. - Contracting Officer, Wright Field, Dayton, Ohio
1 ea. - Chief, Equipment Laboratory, M.R.S., Wright Field, Dayton, Ohio
1 ea. - Budget Office, Wright Field, Dayton, Ohio

PROCUREMENT AUTHORITY: The supplies and/or services to be obtained by this instrument are authorized by, are for the purpose set forth in, and are chargeable to Procurement Authority No. AC 3010 P 611-09 A 0705-23, the available balance of which is sufficient to cover cost of same.

TRANSPORTATION: Cost of transportation, if required, is chargeable to Procurement Authority No. AC 30[illegible] P 442-03 A 0705-23. It is requested that copy of Bill of Lading showing cost of transportation be furnished to Budget Office, Wright Field, Dayton, Ohio, also this office.

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AFAMC-7

WAR DEPARTMENT
AIR CORPS
OFFICE, CHIEF MATERIEL DIVISION
WASHINGTON, D. C.

TECHNICAL INSTRUCTIONS

July 9, 1942

Serial No.: TI-1177

Subject: Coordination of Production and Assembly.

To: Commanding General, Materiel Center
Wright Field, Dayton, Ohio

1. Objective:

Establishment of procedure to effect maximum timely delivery of complete items of equipment where two or more Supply Services procure the components thereof.

2. Authority:

Commanding General, Services of Supply

3. Action Desired:

a. Appropriate action to insure compliance with the provisions of Memorandum (SPPDE-/01), Headquarters, Services of Supply, dated June 29, 1942, copy attached.

b. Submission of a report, in this connection, showing those items of equipment pertinent to the Army Air Forces, which fall into the category of items requiring coordination by another Supply Service.

(1) Included in this report should be your recommendation as to which Supply Service should assume coordinating responsibility and be termed "The Coordinating Service".

c. Upon receipt of this report, further necessary action will be taken by this Headquarters leading to agreement with the other Services concerned and your office will be notified accordingly.

By Command of Major General Echols:

W. F. Volandt

W. F. VOLANDT
Colonel, Air Corps
Assistant Chief of Staff (C)

Incl:
Cy.Memo.SOS,6-29-42

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SPTDE-401

WAR DEPARTMENT
HEADQUARTERS, SERVICES OF SUPPLY
WASHINGTON, D. C.

June 29, 1942

MEMORANDUM FOR: The Commanding General, Army Air Forces
The Quartermaster General
The Surgeon General
The Chief of Engineers
The Chief of Ordnance
The Chief Signal Officer
The Chief of Chemical Warfare Service
The Chief of Transportation Service

SUBJECT: Coordination of Production and Assembly.

1. To effect maximum timely delivery of complete items of equipment, it is necessary, where two or more Supply Services procure the components thereof, that production and delivery of these components be closely and continuously coordinated. This applies not only to components of an item of issue which are assembled physically before or after issue (e.g., tank, tank guns and tank radio), but also to the separate components of an item of issue (e.g., searchlights and trailers).

2. The production of component items and assembly thereof should be so scheduled as to effect a maximum availability of complete assemblies for issue. In scheduling production, due allowance must be made for the time required for inspection, delivery to the point of assembly and necessary installations of associated components. Delivery of components to the point (e.g., assembly plants, intermediate depot or other establishment) must be synchronized to insure delivery of proper quantities at the proper times.

3. In order to effect this synchronization it is necessary to correlate the production scheduling of the two or more Supply Services which procure these components. Responsibility vests in each Service for the production of its own items but, in addition, one of the procuring Services must be charged with the coordination of associated production schedules. Accordingly, one of the Supply Services shall, by mutual agreement with the other Services concerned, assume coordinating responsibility and be termed "The Coordinating Service" for the complete item of equipment in question. Suggestions for determining the Coordinating Service in a particular case are given in Par. 5 below. As soon as determination is made in a particular case, the Coordinating Service will report the fact of having assumed this status to the Director, Procurement and Distribution Division, Headquarters, Services of Supply.

4. The Coordinating Service will be responsible for furnishing the associated Services with pertinent information such as schedules, points of assembly, times of delivery, etc. Each associated Service procuring

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Components of that item will be responsible for deliveries at the proper time and place and in the proper quantities, and will remain responsible until the components are properly identified and receipted for by the receiver. By means of mutual exchange of data and continual liaison with the associated Services, the Coordinating Service will maintain continued follow-up to determine as far in advance as possible any lack of synchronization. Shortages disclosed by these analyses will be corrected to the greatest extent possible by the pertinent Services. Lack of synchronization which cannot be thus overcome by the mutal efforts of the Services concerned will be reported to this office by the Coordinating Service. This, however, does not relieve any associated Service of its responsibility for reporting to this office difficulties in procurement on which it needs assistance.

5. The following suggestions are made for the guidance of the Supply Services in mutually determining which Service shall be the Coordinating Service. The Coordinating Service may be:

a. The Service originally allotted funds for the procurement of the complete assembly, (e.g., Engineers for air compressors, the trucks for which are procured by the Quartermaster with funds transferred by the Engineers),

b. The Service which procures the item determining the tactical employment of the complete assembly (e.g., Ordnance for complete tanks which determine the employment of tank radios),

c. The Service which uses the complete assembly, (e.g., Engineers for ponton bridge equipment, the vehicles for which are procured by the Quartermaster),

d. The Service which issues the assembly to the using Arm or Service (e.g., Ordnance for chemical shell, procured by Ordnance, filled by Chemical Warfare, and returned to Ordnance for issue),

e. For components pertaining to aircraft, agreement has been reached with the Commanding General, Army Air Forces, that the Air Force Materiel Command will be the Coordinating Service in each case.

6. It is appreciated that coordinated efforts by several of the Supply Services have been under way to obtain proper synchronization in the case of certain assemblies. This directive is issued for the purpose of emphasizing the necessity for broadening such coordination for all assemblies requiring synchronization and for systematic placement of responsibility.

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7. This Division is prepared to assist the Supply Services in setting up such procedures as may be required to effect synchronization and in solving special problems which may arise. In the event that an agreement cannot be reached among the Supply Services as to any phase of the synchronization problem, the matter will be submitted by the Services concerned without delay to this office for decision.

For the Commanding General:

s/ C. D. Young
C. D. YOUNG
Brigadier General, U.S. Army,
Director, Procurement & Distribution Division

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D-2(1/27/43)

PURCHASE ORDER
WAR DEPARTMENT

DATE MARCH 8, 1943

WASHINGTON QUARTERMASTER DEPOT

WASHINGTON, D. C.

TO

THE BUDA COMPANY,
HARVEY, ILLINOIS

SHIP TO

SEE BELOW

CC No. W 950-QM-5129

PURCHASE ORDER (OFFICE IDENTIFYING) NO. O. I. 20074

REQUISITION NO. PD-W-EM 278 (43) (AF) HEAD RECON: (535) 295-43-AF

TO EXPEDITE PAYMENT, PLACE THE ABOVE NUMBERS ON ALL PACKAGES, BILLS, AND SHIPPING PAPERS

PAYMENT WILL BE MADE BY FINANCE OFFICER, USA AT 801 CHANNING PL NE WASH DC

TO WHOM INVOICES, IN TRIPLICATE, WILL BE RENDERED. SEE PAR. 7 OF INSTRUCTIONS ON THE REVERSE SIDE HEREOF.

THE SUPPLIES AND SERVICES TO BE OBTAINED BY THIS INSTRUMENT ARE AUTHORIZED BY, ARE FOR THE PURPOSE SET FORTH IN, AND ARE CHARGEABLE TO PROCUREMENT AUTHORITY NO. QUOTED BELOW, THE AVAILABLE BALANCE OF WHICH IS SUFFICIENT TO COVER COST OF SAME. 23

AUTH. NO. AC 3010 P 611-09 A 0705-

In accordance with your WRITTEN bid dated 3/5/43, No. ....., and subject to all conditions and requirements thereof, award is hereby made you for furnishing the following articles. Allowable variations from quantities cited ..... percent, exclusive of condition 7 on reverse side hereof.

Deliveries NONE F. O. B. HARVEY, ILLINOIS

MARCH, 1943 - Inspection FACTORY

QUANTITY	UNIT	ARTICLE	UNIT PRICE	TOTAL PRICE
4	EA.	(ITEM 1) TRUCKS, WAREHOUSE, MODEL "C" BUDA CHORE BOY, WITH SIDE AND END BOARDS AND STAKE POCKETS AND JEEP HITCH.	625.00	$2,500.00
4	EA.	(ITEM 2) TRAILERS, MODEL CHORE BOY WITH SIDE AND END BOARDS AND STAKE POCKETS.	235.00	940.00
				$3,440.00
		SHIP AS FOLLOWS:		
		(1) EA. ITEM 1 AND (1) EA ITEM 2 TO EACH OF THE FOLLOWING DESTINATIONS:		
		DEPOT SUPPLY OFFICER, MIDDLETOWN AIR DEPOT, OLMSTED FIELD, MIDDLETOWN, PENNSYLVANIA		
		DEPOT SUPPLY OFFICER, SAN ANTONIO AIR DEPOT, DUNCAN FIELD, SAN ANTONIO, TEXAS		

CONT'D PAGE 2

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PB-JEB 2/26/43

CLARKE P. COLE, 1ST LT., QMC
Signature and Title of Contracting Officer

SEE IMPORTANT INSTRUCTIONS ON REVERSE SIDE WHICH ARE MADE PART OF THIS AGREEMENT

W.D. O. I. 20074

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WAR DEPARTMENT
Q. M. C. Form No. 308-A
Approved July 17, 1931

PURCHASE ORDER
WAR DEPARTMENT
(EXTRA SHEET)

CONTRACT NO. (IF ANY) W

PURCHASE ORDER (OFFICE IDENTIFYING) SEE PAGE ONE PAGE TWO

REQUISITION NO.

SHEET NO.

QUANTITY	UNIT	ARTICLE	UNIT PRICE	TOTAL PRICE
		DEPOT SUPPLY OFFICER, SACRAMENTO AIR DEPOT, MCCLELLAN FIELD, CALIFORNIA AAF SUPPLY OFFICER, WRIGHT FIELD, GREENE COUNTY, DAYTON, OHIO		

CONTRACTOR WILL ADVISE CHIEF, FOLLOW-UP BRANCH, PROCUREMENT DIVISION, WRIGHT FIELD, DAYTON, OHIO WHEN SHIPMENTS LEAVE HIS PLANT.

SHIP ON GOVERNMENT B/L TRANSPORTATION IS CHARGEABLE TO AC 3002 P 442-03 A 0705-23, THE AVAILABLE BALANCE OF WHICH IS SUFFICIENT TO COVER THE COST OF SAME.

PACKING AND MARKING OF OUTSIDE CONTAINERS TO BE MADE IN ACCORDANCE WITH O. Q. M. G. TENTATIVE SPECIFICATION NO. 94, DATED DECEMBER 15, 1942.

CONFIRMING LETTER OF AWARD MARCH 8, 1943.

ALLOTMENT NUMBER W-7

METHOD OF PURCHASE: NEGOTIATED UNDER AUTHORITY OF THE FIRST WAR POWERS ACT, 194[illegible], AND EXECUTIVE ORDER NO. 9001, DECEMBER 27, 1941

IF DELIVERY OF THIS ORDER WILL BE AFFECTED BY W. P. B. REGULATIONS, THE CONTRACTING OFFICER SHOULD BE ADVISED.

P. D. NO. W-EM-278 (43) (AF)
F. A. NO. 8-356
APPRO: A C A 1942-43

MJ

THIS FORM FOR USE WHEN REQUIRED WITH Q. M. C. FORM 308

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Written
10/11/43
HAB/abm

AFTRS/4AZ

EBS/SAM 095.
(The Buda Company)

11 OCT

SUBJECT: Descriptive Literature on the Buda "Chore Boy" Industrial Shop Truck.

TO: Commanding General, Air Service Command
Patterson Field, Fairfield, Ohio

ATTN: Supply Division, Ground Equipment Branch
Unit ASC/P4B.

1. There is attached hereto, copies of descriptive literature on the Buda "Chore Boy" Industrial Shop Truck. Referenced pamphlets were forwarded to this Headquarters by the Army Service Forces requesting information regarding the possible application of this unit for industrial shop use due to the shortage of industrial power trucks.

2. It is requested that remarks and recommendations be forthcoming.

By Command of General ARNOLD:

H. B. BENEDICT
Lieut. Col., Air Corps
Chief, Distribution Section
Office of the Asst. C/AS, M, M & D.

5 Incls:
5-Pamphlets.

OFFICE SYMBOL	AFTRS/4AZ	2	3	4	5	6
SIGNATURE OF RESPONSIBLE OFFICER			- 1 -			
INTERNAL OFFICE COORDINATION						

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Mr. William S. Binning, Room 5D-976 Pentagon Building

Army Air Forces

Bulletins No. 1096-A (in quint.) 1 October 1943

Storage Division,
Allocation Branch Rm. 5E-683 Pentagon Bldg., 71779

1. Attached are several sets of descriptive literature on the Baia "Chore Boy" industrial shop truck.

2. This machine appears to have value for certain applications and it is possible some use may be found for such a unit in view of the shortage of industrial power trucks.

MAXWELL A. GOODWIN,
Major, A. U. S.,
Chief, Equipment Section,
Storage Division.

1 Encl.
Bulletin No. 1096-A
(in quint.)

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151.2 ?

Letter, dated 11 October 1943, subject: Investigation literature on the Mack "Chore Boy" Industrial Dump Truck.

(11 October 43(3)) 1st Ind. AMSMA

AAF [illegible] Patterson Field, Fairfield, Ohio. 15 October 1943.

To: Commanding General, Army Air Forces, Washington 25, D. C. Attention: Asst. C/AC, Mil. Supply and Maintenance Branch.

1. Reference is made to basic letter from your Headquarters dated 11 October 1943, subject: Investigation literature on the Mack "Chore Boy" Industrial Dump Truck, file number [illegible]. (The Mack Company).

2. This headquarters is familiar with the Mack "Chore Boy". Representatives of the Mack Company have made every effort to encourage the use of this type equipment in the Army Air Forces depots. These representatives have made many contacts with this headquarters on this matter.

3. Realizing the efficient condition of industrial power equipment, this headquarters has given this equipment every consideration, but has decided against it's practicability for the following reasons.

a. There are no provisions for using this truck as a towing tractor, and if same could be converted the towing capacity would not be great enough for practical use.

b. The platform does not raise. The Army Air Forces has need of fork trucks and platform trucks with provisions for stacking and storing materials in lieu of stationary platform equipment. That limited use there is in Army Air Forces installations for stationary platform equipment must customarily have a capacity of 4000 lbs. or greater, and this truck has a capacity of only 2000 lbs.

c. The [illegible] space is only 17.4 sq. ft. which is not large enough to handle Army Air Forces supplies.

4. In view of the above information it is requested that this type equipment not be allocated to the Army Air Forces.

For the Commanding General:

E. H. ALLEN
Major, Air Corps
Asst., Equipment Section
Supply Division

Incl.
Literature w/c

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WRITTEN
HAM/ejw
71775
10/2/43

SUBJECT: Descriptive Literature on the Buda 'Chore Boy' Industrial Shop Truck

BSS/SAR .095
(The Buda Co.) 2nd Ind. AFDSS/4/AE

War Department, Headquarters, Army Air Forces, Washington, D. C.
TO: Commanding General, Army Service Forces, Washington, D. C. - ATTN: Storage Division.

1. With reference to memorandum from your office dated 1 October 1943, further reference is made to the information set forth in preceding indorsement wherein is noted that the Buda 'Chore Boy' Industrial Shop Truck does not satisfactorily meet Air Forces needs.

For the Commanding General, Army Air Forces:

H. B. BENEDICT
Lt. Col., Air Corps
Chief, Distribution Section
Office of the Asst. C/AS, M, M & D.

Incl.
n/c

Basic ltr. dtd. 9/1/43. Ltr. and 1st Ind. dtd. 10/1/43.

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INTERNAL OFFICE COORDINATION						

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AAF-A60-Supply File

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HOUSE OF REPRESENTATIVES

COMMITTEE ON IRRIGATION AND RECLAMATION

WASHINGTON, D. C.

COMPTON I. WHITE
FIRST DISTRICT, IDAHO

HOME ADDRESS:
CLARKS FORK, IDAHO

COMMITTEES:
IRRIGATION AND RECLAMATION, CHAIRMAN
PUBLIC LANDS, CHAIRMAN SUBCOMMITTEE
CENSUS, WEIGHTS, AND MEASURES
INDIAN AFFAIRS
MINES AND MINING

AGNES S. ROWE
SECRETARY

December 21, 1943

5

Major General O. P. Echols
Assistant Chief Staff
Army Air Forces Division
Material Procurement
4-C-886, Pentagon Building
Washington, D. C.

My dear General:

Making further reference to our recent telephone conference concerning the application of the Buda Company of Harvey, Illinois, to have their airport motorized servicing unit, "The Chore Boy", placed on the Army's approved list as standard equipment for the Air Service Command.

As you know, the Buda Company is one of the large manufacturing organizations of this country producing a general line of equipment - a line with which I am personally familiar from my experience in the contracting and mining business. It is my feeling that it would be mutually advantageous for both the Buda people and the Army to place this company in line for supplying your airports and landing fields with this facility.

Sincerely yours,

Compton I. White

Compton I. White, M. C.

CIW:ves

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LDM/ltr/4700
Wtn 12/28/42

DEC 28 1942

Mr. Walter T. Mulcahy
Manager, Industrial Division
The Buda Company
Harvey, Illinois

Dear Sir:

Subsequent to the call you and the Honorable Congressman White made to my office a few days ago, I contacted our organization at Dayton relative to the matter we discussed.

As you know, the Army Air Forces Materiel Command has procured three (3) Buda Chore Boy Trucks for experimental purposes. These trucks are being tested in conjunction with air freight work rather than as warehouse equipment.

Your truck has been presented as an item to be used in engineering shops and hauling small parts and equipment from one job to another in conjunction with engineering work. At the present time, the Army Air Forces is using gasoline motor scooters and four-wheel steerable trailers, towed by tractors, for this type of work. This type of equipment has been used for this work by the Army Air Forces for approximately five (5) years and has proven satisfactory for that purpose. The Army Air Forces policy has been to standardize all items of equipment now in use, where such equipment has proven satisfactory. By such standardization the maintenance problems and problems arising from shortages of parts have, to a great extent, been eliminated.

You may be assured that your product has been and will be given every consideration wherever it might advantageously fill an Air Forces requirement.

Sincerely yours,

O. P. ECHOLS
Maj. Gen., U. S. A.
Assistant Chief of Air Staff,
Materiel, Maintenance & Distribution.

HQ AAF
DEC 28 1942
M M & D MAIL SECTION

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INTERNAL OFFICE COORDINATION						

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Compton - White
Exec. Mvt 3 - 2

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24 December 1943

Copy for General Meyers

Honorable Compton I. White
House of Representatives
Washington 25, D.C.

Dear Mr. White:

You will recall that a few days ago you visited General Echols' office, accompanied by Mr. Mulcahy, and discussed the possible utilization of the Zuda 'Shave Hat' Brushs by the Army Air Forces.

For your information there is attached a copy of General Echols' letter to Mr. Mulcahy, written after checking into this matter with the proper authorities of the Army Air Forces organization at Dayton.

While the Army Air Forces has always endeavored to procure the most up to date and efficient equipment for every application, it has been necessary to standardize on the minimum number of type of equipment. Only by so doing, has it been possible to provide adequate maintenance and repair parts.

You may be assured that your constituent's products will be carefully considered for procurement whenever a requirement presents itself. A strenuous effort is being made to curtail all purchases in the Army Air Forces not vitally essential to the war effort, and consequently no assurance could be given to Mr. Mulcahy that his product will be required in the immediate future.

Sincerely yours,

Signed

WARREN S. HILL
Colonel, Air Corps
Legislative Services

1 Incl.

HQ AAF
DEC 24 1943
W & D MAIL SECTION

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SEVENTY-EIGHTH CONGRESS

JOHN J. McBRIDE, CLERK

HOUSE OF REPRESENTATIVES

COMMITTEE ON
IRRIGATION AND RECLAMATION
WASHINGTON, D. C.

COMPTON I. WHITE
FIRST DISTRICT, IDAHO
HOME ADDRESS:
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COMMITTEES:
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PUBLIC LANDS, CHAIRMAN SUBCOMMITTEE
COINAGE, WEIGHTS, AND MEASURES
INDIAN AFFAIRS
MINES AND MINING
AGNES S. ROWE
SECRETARY

December 27, 1943

Major General O. P. Echols
Assistant Chief Staff
Army Air Forces Division
Material Procurement
4-C 886, Pentagon Building
Washington, D. C.

Dear General Echols:

I very much appreciate the courtesy of the letter received from Colonel Warren S. Ege, Air Corps Legislative Services, concerning the application of the Buda Company for placing their airport delivery truck - "Chore Boy" - on the Army's approved list.

There seems to be some misunderstanding as to the nature of the application of the Buda Company. What they are asking is that their airport utility truck - "Chore Boy" - be placed on the approved list of the Army Air Corps for use in the several army airports - when and if such equipment is required. However, it should be recognized that the special type and design of this utility delivery truck has special advantages - and matches the Army's requirements.

In view of this situation, I request that the Buda Company's "Chore Boy" be placed on the Army's approved list for equipment of this kind.

Sincerely yours,

Compton I. White

Compton I. White, M. C.

CIW:wem

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Comm. Buda
AAF. A.G.O.
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AAF 433

w/12/23/43 AAF

X 632.2

December 27, 1943

/s/ AFAIB-12-27-43
3D978, 6692
MSS

Honorable Compton I. White
House of Representatives
Washington 25, D.C.

Dear Mr. White:

Replying to your letter of December 21st with reference to the Buda Company of Harvey, Illinois, and my letter to you of recent date attaching a copy of a letter to Mr. Walter T. Mulcahy, in order for an item to be placed on the Army's approved list of standard equipment, you can, of course, understand that it is necessary for the Army to thoroughly test such an item prior to releasing it for world wide distribution in the Service.

As mentioned in the letter to Mr. Mulcahy from General Echols, the Buda Company's "Chore Boy" is currently undergoing these tests at the Materiel Command, upon the completion of which the "Chore Boy" will be placed on the approved list as standard equipment, provided it successfully completes the tests.

Being on the approved list does not necessarily insure quantity purchases of an item, as this is governed by the problem of supplying spare parts and maintaining a reasonable number of different models of equipment.

Please be assured that the Buda Company will be given every consideration in procurement of this type of equipment.

Sincerely yours,

Signed

HARMON S. BIXE
Colonel, Air Corps
Chief, Office of Legislative Services

(231 451.93 Wire)

HQ. A.A.F.
28 DEC 1943
A.A.F. MAIL SECTION

JMB:epc:3365

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44

THE BUDA COMPANY

CABLE ADDRESS "BUDA"
WESTERN UNION CODE

(ESTABLISHED 1881)
GENERAL OFFICES AND WORKS

HARVEY, ILLINOIS
(CHICAGO SUBURB)

ADDRESS ALL COMMUNICATIONS TO THE COMPANY NOT TO INDIVIDUALS

December 28, 1943

IN REPLY REFER TO

10

Commanding General,
Army Air Forces
Washington, D. C.

Attention: O. P. Echols, Major General U.S.A.
Assistant Chief of Air Staff

Dear Sir:

This will acknowledge and thank you for your letter of December 23rd with reference to the Buda Chore Boy Shop Truck discussed with you recently.

The Buda Chore Boy Trucks we supplied the Army Air Forces, Materiel Command, were not our standard Chore Boy, and are not the Trucks several Air Service Command Depots have requested. Our standard Chore Boys, known as Model B, are of all steel construction and have been in constant successful use by the U. S. Navy and Marine Corps, Army Ordnance, Aircraft Plants, Maritime Commission Shipyards, and Industrial plants of all types. They have been performing very satisfactorily and are successfully meeting the requirements of such users.

The Chore Boys (Model C) supplied the Army Air Forces, Materiel Command, were of different construction and built especially for them at their request. They were constructed with wooden frames, wooden decks, wooden engine housing and wooden removable side boards. In fact, the Materiel Command requested that we substitute wood for steel wherever possible in order to reduce the total weight to the very minimum.

These experimental Model C Chore Boys are purely experimental and not the truck requested by certain Air Service Command Depots. In fact, the only ones we have built were those for the Materiel Command and we have no knowledge of their stability or ability to perform the work we know our standard Model B will do.

The Buda Chore Boys, Model B, are not only very economical in first cost, but in operation and maintenance, as has been proven. Furthermore, we are in a position to supply spare parts promptly for them, and we feel confident that considerable saving could be effected by the Air Service Command in the use of Model B Chore Boys, both indoors and outdoors at their Supply Depots.

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May we submit for your guidance the fact that the San Bernardino, California, Air Service Command Supply Depot has had considerable experience with one of our standard Model B Chore Boys, which was loaned them, and found it so capable or performing various materials handling jobs, and so much more versatile, as well as speedier in transferring loads, that they have been most anxious to get a number of them for their use. Other AAF Supply Depots have wanted them including Spokane, and Warner-Robbins at Macon, Georgia, et cetera.

With the above in mind, we respectfully request further consideration of the Buda Chore Boy, Model B, truck as a standard item for the Army Air Forces, or at least the honoring of requisitions that have been placed for them by certain Supply Depots.

We thank you for the consideration and attention you have given our verbal request and trust that we may hear further from you now that you have more facts.

Sincerely yours,

THE BUDA COMPANY

W. T. Mulcahy
Manager, Industrial Division

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AAF 84

(1) 45193 Nwa

December 31, 1943

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Honorable Compton I. White,
House of Representatives,
Washington 25, D. C.

Dear Mr. White:

Replying to your letter of December 27th to General Echols on the subject of the Fuda Company "Chore Boy", I believe you had not received our second letter at the time you wrote the letter of December 27th.

In order that the placing of the "Chore Boy" on the approved list will not be delayed, assuming it meets Army specifications for this type of equipment, I am forwarding to the Materiel Command, where these tests are conducted, copies of our correspondence. This should acquaint them with your interest in the matter and insure a diligent prosecution of these tests.

Sincerely yours,

WARREN S. ROE
Colonel, Air Corps
Chief, Legislative Services

HQ. AAF
1 JAN 1944
M A G MAIL SECTION

JRS:epc:9965

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Initial of Other Concerned						

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WAR DEPARTMENT - ARMY AIR FORCES
Office, Assist Chief of Air Staff, Materiel, Maintenance, and Distribution

Inter-Desk Memorandum

To: Col. Rose - Air Services Division

Date 1 Jan. 1944

SUBJECT: Buda Company - "Chore Boy"

Reference the attached letter, we have gotten conflicting reports about San Bernardino wanting these "Chore Boys". This letter states that Spokane, Martin-Robbins, etc. do want them. Please ascertain the true facts and have the Air Service Command Liaison Officer with Materiel Command find out if the item in question is on the approved list and if it has to be on the approved list before the Air Service Command can purchase them. If the Materiel Command is dragging their feet on testing on these things, we can probably correct this phase of it by accepting the depot use as a service test.

Suggest you have a reply drafted to Mr. Mulcahy for Gen. Echols' signature to the effect that due to conflicting reports we are having a detailed investigation made of Air Service Command and Materiel Command and will advise him as soon as information is furnished this office.

From Colonel Sessums

THIS FORM WILL NOT BE USED OUTSIDE THE AC/AS, M. M. & D.

M,M,D.-111

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WAR DEPARTMENT AFDSS-1L
HEADQUARTERS OF THE ARMY AIR FORCES
WASHINGTON

4 January 1944

MEMORANDUM FOR THE COMMANDING GENERAL, AIR SERVICE COMMAND, Patterson Field, Fairfield, Ohio. Attention: Chief, Supply Division.

Subject: Buda Company - "Chore Boy".

1. Attention is invited to the attached communications which pertain to a visit to the Office of General Echols by Congressman White and Mr. Walter T. Mulcahy of the Buda Company, Harvey, Illinois.

2. It is requested that this office be furnished information on which to base an additional reply to Mr. Mulcahy. Congressman White is also evidently interested in this matter as his secretary called this office on two occasions yesterday and wanted to talk to someone who was going to work on this matter. The secretary was informed that the correspondence was being referred to the Headquarters, Air Service Command, and that a reply would be furnished as soon as possible.

3. It is requested that all of the attached correspondence be returned as it constitutes the whole file on the subject in the Headquarters, Army Air Forces.

J. A. WILSON,
Colonel, Air Corps,
Chief, ASC Liaison Sec.,
Air Services Div., MMAD.

3 Incls.
#1 - Cy ltr to WTW dtd 12/23
#2 - ltr to Col Rose dtd 1 Jan
#3 - Ltr to Echols dtd 28 Dec

Asst 32

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O - Buda
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ARMY AIR FORCES
HEADQUARTERS
AIR SERVICE COMMAND

PATTERSON FIELD, FAIRFIELD, OHIO

IN REPLY REFER TO: ASC-SR

7 January 1944

Subject: Buda Company - "Chore Boy".

To: Commanding General, Army Air Forces, Washington, D. C.
Attn: M&AD.

1. With reference to basic memorandum of 4 January 1944, with three (3) inclosures, concerning the Buda Company "Chore Boy," additional information is submitted with recommendations for further action.

2. The "Chore Boy" (Model C), procured by the Materiel Command, was never delivered to the proposed destinations for test, but was delivered to the Indianapolis Storage Depot as was all Materials Handling Equipment for the Army Air Forces. This destination for receipt of Materials Handling Equipment procured and allocated by the Quartermaster Corps has been changed to the Specialized Depot, Columbus, Ohio. The "Chore Boys," in all probability, were shipped to Indianapolis per instructions of the Quartermaster Corps, resulting from their Memorandum No. 85-39-43 dated 17 February 1943, Subject: "Materials Handling Equipment," which later was rescinded and replaced by memorandum of same subject, No. 85-82-43, dated 1 May 1943. These headquarters as well as Materiel Command had no knowledge of the "Chore Boys" being in stock at Indianapolis until of recent date, as no notification of shipment was ever received from the Quartermaster Corps or the contractor.

3. The "Chore Boy" (Model B), if used exclusively for handling small parts within an installation of the Army Air Forces or any other Arm of the Service, would of necessity fall within the category of Materials Handling Equipment; further, being gas powered by combustion engine, same would be an allocated item procured by the Quartermaster Corps upon receipt of requirements from the separate Arms or Services.

4. If it is proposed to further the investigation of the adaptability of this equipment to the needs of the Army, it is believed the following plan would be advisable:

a. The Quartermaster Corps to prepare specifications covering the equipment in order that quotations might be submitted by competitive bid and not as a sole source of procurement.

b. That the Quartermaster Corps procure test models for all Services, as well as the Army Air Forces, which are served by the Quartermaster Corps, resulting from Adjutant General's Memorandum No. 85-82-43 dated 1 May 1943.

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Ltr. to CG, AAF, 7 January 1944, subj: Buda Company - "Chore Boy".

c. That service test be conducted at points so designated by the Arm or Service affected, which in the case of the Army Air Forces is the AAF School of Applied Tactics, Orlando, Florida. If tests are favorable, the Arm or Service affected would set up an authorization for issue which could be used by the supply sections of the Arm or Service to compute requirements for centralized procurement by the Quartermaster Corps.

5. If the aforementioned proposed plan is not acceptable, or if the unit in question is classified as other than Materials Handling Equipment which could be procured direct by the separate Arm or Service, it would be advisable to direct procurement of service test models on the Materiel Command for final test at Orlando, Florida, with recommendations of the test forwarded prior to any authorization for local purchases by AAF Activities or a general procurement initiation by this command.

6. Further action upon the part of the Materiel Command to accomplish test reports on the three (3) units already procured is not favorably recommended as these units were of a special design and, in all probability, would not be adaptable for general application.

For the Commanding General:

JAMES F. HARLY,
Colonel, Air Corps,
Deputy Chief,
Supply Division.

1 Incl.:
Memo. frm. Hqs. AAF (Col. J. A. Wilson) above subj., 4 Jan. 44, w/incls.

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D-Plans
Exhs. A+5-9(1/7/44)

ARMY AIR FORCES
HEADQUARTERS
AIR SERVICE COMMAND

PATTERSON FIELD, FAIRFIELD, OHIO

IN REPLY REFER TO: ASCSR

7 January 1944

MEMORANDUM TO: Colonel J. A. Wilson, Chief, ASC Liaison Sec.,
Air Services Div., MMRD, Hqs. AAF, Washington, D.C.

15

1. I am inclosing a copy of an inter-office memorandum on the subject of the "Chore Boy" equipment, which memorandum will give you a little more detailed information than was contained in the official letter on this subject forwarded to you this date.

2. The attached memorandum is being forwarded to you in the event any further questions come to your office on this subject.

James F. Early

JAMES F. EARLY,
Colonel, Air Corps,
Deputy Chief,
Supply Division.

1 Att.:
Memo., 7 Jan. 44.

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RH:hce
ASCSR&D

7 January 1944

MEMORANDUM FOR: Major Gibson.

1. The following data is forwarded for your information in replying to Colonel J. A. Wilson's letter of 4 January 1944.

2. Information relative to the "Chore Boy" (Model C) procured by the Materiel Command was unknown to this Command until recent date when same was reported as being in stock at the Indianapolis Depot. Shipment to that destination, in all probability, was accomplished due to the fact that all Materials Handling Equipment for the Air Forces, procured by the Quartermaster Corps, was delivered to that destination for redistribution. These shipments covered all Materials Handling Equipment for which requirements were submitted by this Headquarters to the Quartermaster Corps covering allocated items (namely, power-operated equipment) and those that are not allocated, but are procured by the Quartermaster Corps upon submission of Purchase Requests by this Headquarters. The particular contract for the "Chore Boys" in all probability was taken over by the Quartermaster Corps for administration as well as the contracts for other Materials Handling Equipment of the Army Air Forces that were current as of 1 May 1943, at which time procurement responsibility was delegated to the Quartermaster Corps.

3. The normal procedure to justify procurement of new equipment is for the Materiel Command to procure service test equipment, forwarded to the AAF School of Applied Tactics, Orlando, Florida, who performs the necessary tests. Test reports, if favorable, will include the recommended basis of issue as well as the organizations or installations authorized the equipment in question. This report is then forwarded to O.C.&R. in Washington, who coordinates same with M.M.&D., Supply and Maintenance. If approved by these offices, the report is forwarded to ASCSP6, this Headquarters, for submission of applicable data to the Supply Division in order that procurement may be accomplished. If procurement is effected, ASCSP6 takes necessary action to publish or revise the applicable TO or T/O&E. This procedure was not in effect during the time that initial procurement was effected for Materials Handling Equipment, such as fork trucks, platform trucks, warehouse cranes, etc., but was procured by trial methods which later substantiated their needs in AAF installations.

4. It is understood that since procurement responsibility is now a function of the Quartermaster Corps, specifications for this type equipment, although general in nature, are being prepared by that Arm of the Service. It is believed that the "Chore Boy" could be procured as a sole source item, but likewise would require a specification.

5. Standardization of the "Chore Boy" by the Army Air Forces would be out of line. In this connection, the Air Forces had standardized all the Clark

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O - Buda
Engr. Mtls. 9(3/3 ff.) 53

Memo for Major Gibson, 7 January 1944.

Light and Heavy Duty Towing Tractors which were fabricated in accordance with AAF Specifications 91-66 and 91-72, respectively. These units were used principally for towing trailers and handling supplies and the towing of aircraft on runways and aprons around as well as within the buildings. When the Quartermaster Corps assumed procurement responsibility of Materials Handling Equipment which was delegated in Adjutant General's Memorandum 55-39-43 dated 17 Feb 1943 and replaced by Memorandum 55-82-43 of 1 May 1943, the AAF Contracts were turned over for administration by the Quartermaster Corps, and in lieu of receiving all the tractors fabricated to the heretofore-mentioned specifications, the Army Air Forces were allocated Clark Mill 33 Tractors, Clark Mill 44 Tractors, Clark Mill 50 Tractors and Hebard Tractors. These tractors were not to the liking of the Army Air Forces as our maintenance responsibilities as defined in AAF Regulation 65-7 dated 30 April 1943 were greatly retarded by the loss of standardization and non-availability of parts.

6. It is very evident that the Buda Company is not cognizant of procurement regulations or Air Forces substantiation necessary to effect procurement. It is also evident that a sales campaign has been accomplished by the loan of equipment by the Buda Company to the San Bernardino Air Service Command, and although the Buda Company states that parts can be made available, they would experience the time element as all manufacturers do due to the CMP regulations. Inasmuch as several months have elapsed since procurement responsibility was delegated to the Quartermaster Corps and no parts have been received for stock in the AAF Specialized Depots for Materials Handling Equipment, it can only be assumed that the same situation would exist if a new type piece of equipment was procured.

7. A representative of the Buda Company has visited this Headquarters upon two (2) or three (3) occasions, attempting to effect sales promotion, and was advised on each occasion of the procedure of procurement and test by the Materiel Command and the School of Applied Tactics at Orlando, Florida, prior to any action on the part of this Headquarters. He apparently pressed the sales point at the San Bernardino Air Service Command for he, upon arrival at this Headquarters, inquired as to the status of the San Bernardino Requisition which requested a quantity of the "Chore Boys." He was advised in this instance that approval for procurement was not granted and that the requisition was cancelled in its entirety.

By H. S. MYSTER
Major, Air Corps

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C. Buda
Exec. No. 5-11

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C. Buda
Exec. No. 5-11

52

HEADQUARTERS ARMY AIR FORCES

ROUTING SLIP

TO: 1/11/44

Col. Moreland	

FOR:

	CONCURRENCE		INVESTIGATION		REC. ACTION
	INFORMATION		RECOMMENDATION		SIGNATURE
	FILE		REMARKS		

REMARKS:

Col. Moreland stated that he had called Col. Merrick, Depot Supply Officer at San Bernardino reference the Buda "Chore Boy" and he stated that they had expressed no preference for the Chore Boy and would rather keep what they had as they had a range of spare parts for them.

epc

FROM:

J W GESSOMS, JR., Col., AAF.		
PHONE	BUILDING	ROOM

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Corr. Buda
Ehrs. 1943-12

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Air Services Division
Attention: Col. Benner
Buda "Chore Boy"

11 Jan. 1944

1. Congressman White and Mr. Mulcahy of the above company have made several visits and phone calls to Gen. Echols' office on the matter of placing the Buda "Chore Boy" on the approved list for procurement. There have been many conflicting statements and reports furnished by the Air Service Command and its organizations, which have left Gen. Echols confused and unable to properly defend his position in his conversations with Congressman White and Mr. Mulcahy. As a result of a conference this morning between Gen. Echols, the two gentlemen and the undersigned, Gen. Echols directed that we obtain immediately the service history of the Buda "Chore Boy" Model "B" in -

a. Army Air Force activities
b. Navy Department
c. Army Ordnance Department

Information specifically desired is -

a. How many articles in operation and for how long?
b. Have they rendered satisfactory service and is maintenance low or high?
c. Is this handling equipment more economical than other standard equipment and what are the limitations of its use? (Concrete floors, no grades, tow provisions, and any other pertinent information)

2. In a telephone conversation this date between Col. Wilson, Air Service Command Liaison Officer and Mr. Hall, Air Service Command, Dayton, the following information was obtained -

a. San Bernardino requisitioned 10 articles Sept. 16, 1943
b. Warner-Robbins requisitioned 6 articles June 4, 1943 and forwarded follow-up letter October 27, 1943.
c. San Bernardino Planning Branch forwarded to the Chief of Supply a memorandum requesting authority to make local purchase of 50 articles on Dec. 15th.
d. The manufacturer states Spokane desires this equipment.

3. All the above requisitions have been disapproved by the Air Service Command on the basis that the equipment is non-standard.

4. It is understood that the Quartermaster Corps has handled the purchase of this article for the Army Service Forces and in conformance with War Department policy any future purchases by the Air Forces should also be through the Quartermaster Corps.

5. The furnishing of the above information should be expedited.

Colonel Sessums.

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Chairman
AAF Sent. 360-12 (2 pp.)

WAR DEPARTMENT
OFFICE OF THE UNDER SECRETARY
WASHINGTON 25, D. C.

11 January 1944

MEMORANDUM To Director, Material, Maintenance & Distribution, A. A. F.

Congressman Waite and Mr. Mulcahy of the Buda Company were in to see me today with reference to the Buda's half-ton industrial shop truck known as "Buda Chore Boy". I understand that they have seen you and that you are familiar with this product which is being used by the Navy and in certain places by the Ordnance Department.

Will you please let me know whether you think this truck would be usable for Air Forces.

ROBERT P. PATTERSON
Under Secretary of War

HQ. AAF
JAN 20 1944
WAR SECTION

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Telephone conversation, Colonel Seesums and Colonel Holloman
12 January 1944.

H. - .....Air Service Command forwarded to you yesterday - Col. Moreland. Those things were forwarded to you yesterday giving complete details as to why they were in Indianapolis. We asked for them to be shipped but they like them so well that they won't give them up.

S. - I'll tell you how it happened. In May of 1943 as a result of Army Service Forces trying to consolidate procurement of items used by the various branches of the Army it was decided that material handling equipment would all be purchased by the Quartermaster and if the Air Corps wants any of them they should be purchased by the Quartermaster as Ordnance is already using some and the Navy, Marines and industrial firms so when the Air Corps wanted some they had to be purchased through the Quartermaster. You apparently did give the Quartermaster shipping instructions and standard procedure was to ship all handling equipment to Indianapolis and distribute it from there.

H. - We bought these for experimental purposes out of experimental funds and we have given shipping instructions on them.

S. - Well they were purchased by the Quartermaster and in accordance with arrangements to ship all stuff to one distribution point which is Indianapolis, which they did and apparently Air Service Command went to sleep on the distributing end.

H. - Yeah, because of the fact that we have called, written and everything trying to get

S. - Well if we wanted to buy a service test quantity of the things, there's nothing to stop us, is there?

H. - Joe says its a controlled item and the Quartermaster has to buy it.

S. - We don't care who buys them, if we want a service test quantity, we can just tell the Quartermaster.

H. - Yeah, but Air Service Command don't want to buy them.

S. - That's right.

H. - The contractor's salesman tells us that ASC don't want to buy them. They say they've got plenty of other

S. - That's headquarters, but all the depots are trying to get them to buy them. They've brought a congressman in here to see Gen. Echols and they phone him every day and he is worn out with it. Yesterday he had me dig into it and I got Joe Wilson on it and I told Admiral about these experimental -

H. - We know where they were and have been trying to get them out of there.

S. - Well the thing is, George, if this Congressman raises hell it might get investigated and it would look bad if we didn't have a good story in writing of actually what happened from Air Service Command - that ~~Standards~~ Indianapolis were using them and didn't want to let them go. How much there is to that, I don't know. Of course I don't know what Indianapolis is. Is it Air Service Command?

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H. - There's an Air Service Command warehouse there.

S. - Well if Frank's running the thing there won't be any argument about it. Tell Air Service Command they belong to you. You purchased them for experimental test.

H. - We've already told them where we want them to go and they have issued orders to have them shipped to Middletown, San Antonio, Wright Field and Sacramento and we will get a report as soon as they are received. We're sending out a questionaire.

S. - George the only reason I told Admiral about it, I was afraid ~~xxxxxxxxxxx~~ it might wind up in an investigation and if you didn't know you might get the model and let it sit around for a month or two. This guy is pretty hot and you should get that thing and do whatever you told them you'de do.

H. - I'll keep Joe right on it.

S. - And keep your file up to date.

H. - I just wanted to give you the dope we had on it.

S. - Gen. Echols told me to see about the thing. This model B is being used by everybody but the Air Corps. The Navy, Ordnance, Marines and a bunch of factories, both aircraft and otherwise and they say it is very economical and from an economical standpoint we should look into it. Air Service Command comes back and says they want to use their standard tug, but I think we'll be pretty vulnerable unless we give them a test from an economy standpoint. Gen. Echols told me to find out from the people who have been using them about the serviceability, maintenance, economy, etc. and if the reports were favorable we would direct Air Service Command to buy a service test quantity.

H. - We'll keep our records straight.

S. - We'll be on the lookout for that thing. I just wanted to tip you off. It may never come to pass -

H. - On this experimental thing the reason for the test was for metal conservation. We can buy the model B just as it is. We don't need a service test. The only reason we were testing them was metal conservation and now they don't need that. Why don't you direct them to go ahead and buy the model B and we'll back you up. The things have been in use. Joe's seen them in use - seen them in every factory we got.

S. - I could just write to the Commanding General, Air Service Command. Maybe I better send you a teletype and ask Materiel Command's opinion on serviceability of the model B and you can give me a report and we can use that as ammunition against the Air Service Command.

H. - O.K.,

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Equipment Laboratories

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RIGINAL

Executive Office

Eng. Division

UP V CV AR > S

FROM ARNOLD WASHINGTON DC 1318312

TO CG MATERIAL COMMAND

WRIGHTFIELD DAYTON O

ATTN COLONEL J V HILLIARD

OR TO

1-17-44

AAFMAD 2920 PD

IT IS UNDERSTOOD BY THIS OFFICE THAT THE BUDA MODEL B CHORE BOY L... IN GENERAL USE IN MATERIAL HANDLING WORK FOR THE NAVY CNA MARINES CNA ARMY ORDNANCE AND INDUSTRIAL FACTORIES CNA BOTH AIRCRAFT AND OTHERWISE IF THIS OFFICE DESIRES ANY INFORMATION YOU MAY HAVE ON THE SERVICEABILITY CNA UTILITY CNA ECONOMY AND ANY COMMENTS YOU CARE TO MAKE WITH REFERENCE TO THE USE OF THIS ITEM IN MATERIAL HANDLING FOR THE AAF FORCES.

1-17-44

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O-Buda 56
Exec. #85-(4/17pp)

R DEPARTMENT - ARMY AIR FORCES WEB/abm/71775
Office, Asst. Chief of Air Staff, Materiel, Maintenance, and Distribution

Inter-Desk Memorandum

TO: Colonel Seesums Date 14 January 1944

SUBJECT: Buda "Chore Boy"

1. With reference to Inter-Desk Memorandum from your office dated 11 January 1944, same subject as above, this office has taken action to obtain information concerning the status of the Buda "Chore Boy" Model "B" within the Army and the Navy:

a. Captain Mustee, Ordnance Department, Field Services Division, advised that none of this equipment was presently used by the Ordnance, as far as warehouse operations within that Department were concerned.

b. Captain Rose, Ordnance Contracts Section, was contacted as regards privately operated facilities under Ordnance control. If such facilities are using this equipment they have procured it locally.

c. Mr. Ferrell, Navy Bureau of Aeronautics could furnish no information relative to use of this equipment by the Bureau of Aeronautics.

d. Ensign Polk, Bureau of Supplies and Accounts, reported that there were approximately fifty (50) each of referenced vehicles in use by the Navy, and that fifteen (15) had been procured during 1943. There presently is on procurement for the first quarter of 1944 a total of twenty-five (25) each "Chore Boys". He further stated that possibly some of these units have been procured locally without the knowledge of the Navy Department Headquarters. This unit is being used as a "Stock-Picker" and is being used at smaller activities.

e. Captain Conklin, Office of the Quartermaster General, stated that only five (5) each vehicles had been cited as a requirement for the entire Army during 1943.

f. Major Bergan, Army Service Forces, Production Division representative in the General Industrial Equipment Division, War Production Board, stated that there were presently none of these units scheduled for Army use.

2. This equipment has not been procured in sufficient quantities for any direct comment as to maintenance factors, and the general information per-

From

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M. M. & D.-A111

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3 DEPARTMENT - ARMY AIR FORCES WSB/abm/71775
Office, Asst. Chief of Air Staff, Materiel, Maintenance, and Distribution

Inter-Desk Memorandum

TO: Colonel Seesums Date 14 January 1944

SUBJECT: Buda "Chore Boy" (Cont'd)

taining to the unit was of such a sketchy nature that it appears nothing favorable or unfavorable is said about the unit. The fact that by its very nature Army Air Forces materiel is bulky, raises the question in line with normal operations, as to where this equipment could properly be utilized due to its small capacity. It is further of note that both Army and Navy appear to be receiving requests for this equipment mainly from the Southern California area (Navy's current requisitions are for San Diego, which is fairly near San Bernardino). For your information, there is considerable difficulty, from an operational standpoint, in realizing the contemplated use by San Bernardino Air Depot of fifty (50) of these units, particularly in view of the fact that San Bernardino is very well equipped with all types of Materials Handling Equipment normally supplied to AAF control depots. AAF experience in the field has inclined toward the use of a 4 cylinder engine in lieu of a 1 cylinder type, such as Buda, in view of the bulky materiel handled and the fact that standardization from a maintenance standpoint must be considered.

3. Under date of 15 October 1943, Supply Division, Air Service Command reported on the Buda unit as follows:

"a. Realizing the critical condition of industrial power equipment, this headquarters has given this equipment every consideration, but has decided against it's practicability for the following reasons:

(1) There are no provisions for using this truck as a towing tractor, and if same could be converted the towing capacity would not be great enough for practical use.

(2) The platform does not raise. The Army Air Forces has needed fork trucks and platform trucks with provisions for stacking and tiering material in lieu of stationary platform equipment. What limited use there is at Army Air Force installations for stationary platform equipment must necessarily have a capacity of 4000 lbs. or greater, and this truck has a capacity of only 1000 lbs.

(3) The load space is only 12.8 sq. ft. which is not large enough to handle Army Air Force supplies.

(4) In view of the above information it is requested that this type equipment not be allocated to the Army Air Forces."

From

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B - Buda
Gen. Recs. - 4/3/44

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R DEPARTMENT - ARMY AIR FORCES WSB/abm/71775
Office, Asst. Chief of Air Staff, Materiel, Maintenance, and Distribution

Inter-Desk Memorandum

TO: Colonel Seesums Date 14 January 1944

SUBJECT: Buda "Chore Boy"

4. The War Production Board advised that the Buda Model "B" is an aporoved model for procurement, if required.

H. B. BENEDICT
Lt. Colonel, Air Corps
Chief, Distribution Section
Office of the Asst. C/AS, M, M & D.

From

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U. S. Wright Field 5-4-43-50M

JCS:Imp:5h-5

TELETYPE MESSAGE

PRIORITY

DATE: 17 January 1944
2:30 PM

FROM: Engineering Division
For F. O. CARROLL,
Brig. General, U.S.A.

ATTENTION: COMMANDING GENERAL,
ARMY AIR FORCES.

ENG-4082....REFERENCE IS MADE TO YOUR TELETYPE AFMMaD 2928PD DATED 13 JANUARY 1944 CONCERNING BUDA MODEL B CHORE BOY. A MODEL C CHORE BOY DIFFERING FROM THE MODEL B IN THAT IT IS OF WOOD CONSTRUCTION IN LIEU OF STEEL WAS RECEIVED BY THE EQUIPMENT LABORATORY, ENGINEERING DIVISION OF THE MATERIEL COMMAND 12 JANUARY 1944. PROCUREMENT OF AN EXPERIMENTAL CHORE BOY OF WOOD CONSTRUCTION WAS INITIATED 12 JANUARY 1943 AT WHICH TIME METAL CONSERVATION WAS DIRECTED. SINCE THEN THE SITUATION HAS BEEN REVERSED CONCERNING MATERIAL CONSERVATION AND WOOD IS MORE CRITICAL. FROM EXAMINATION AND EXPERIMENTAL TESTS, IT IS THE OPINION OF THIS COMMAND: (1) THAT STEEL CONSTRUCTION OF THE MODEL B IS MORE DESIRABLE AS IT PROVIDES FOR GREATER STABILITY AND DURABILITY; (2) THAT THE TRACTOR IS AN ECONOMICAL MEANS OF TRANSPORTATION AS IT HAS A 1000 POUND PAYLOAD CAPACITY AND IS OF SIMPLIFIED CONSTRUCTION RESULTING IN LOW INITIAL AND OPERATING COST; (3) THAT THE TRACTOR IS EASILY SERVICED AS THE POWER TRAIN IS OF THE SIMPLEST FORM CONSISTING ONLY OF AN AIR-COOLED ENGINE, FRICTION CLUTCH AND CHAIN DRIVE; (4) THE TRACTOR WOULD BE SUITABLE FOR MOVING SMALL PARTS, TOTE BOXES IN DEPOT

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U.S.-Wright Field 5-4-39-50M

TELETYPE MESSAGE

DATE:

FROM:

ATTENTION:

COMMANDING GENERAL,
ARMY AIR FORCES.
ENG-4082
17 JANUARY 1944

SHOPS, BOXES AND CRATES IN RECEIVING AND SHIPPING DEPARTMENTS AND WAREHOUSES AND BAGGAGE AT AIRDROMES; (5) THE HEAVIER VEHICLES NOW AVAILABLE IN SERVICE COULD BE USED MORE EFFICIENTLY FOR MOVING HEAVIER LOADS BY USING THE CHORE BOY FOR THE LIGHTER LOADS.

THE ABOVE COMMENTS ARE BASED ON [illegible] TESTS. THE TRACTOR HAS BEEN DELIVERED TO FAIRFIELD AIR DEPOT FOR A PRACTICAL TEST AND THE RESULTS WILL BE FORWARDED YOUR OFFICE 21 JANUARY 1944. INFORMATION IS REQUESTED AS TO WHETHER THE TRACTOR SHOULD BE SUBMITTED TO THE EQUIPMENT DIVISION, ARMY AIR FORCES BOARD, FOR DETERMINATION OF REQUIREMENTS. END AFAMC

BRANSHAW, MATERIEL COMMAND

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Engineering Division

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G-Buda
Ltr. 1/18-15

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THE BUDA COMPANY

CABLE ADDRESS "BUDA"
WESTERN UNION CODE

(ESTABLISHED 1861)
GENERAL OFFICES AND WORKS
HARVEY, ILLINOIS
(CHICAGO SUBURB)

ADDRESS ALL COMMUNICATIONS TO THE COMPANY NOT TO INDIVIDUALS

January 18, 1944

IN REPLY REFER TO

Commanding General
Army Air Forces
Washington, D. C.

Attention: O. P. Echols, Major General, U.S.A.
Assistant Chief of Air Staff

Dear Sir:

Referring to our recent conversation in your office concerning the Buda "Chore Boy" warehouse truck, we wish to advise that we have knowledge of the fact that requests for various quantities of these trucks were sent to the Air Service Command, Patterson Field, Ohio by the following Air Service Command Depots:

San Bernardino Supply Depot, San Bernardino, California
Spokane Supply Depot, Spokane, Washington
Warner-Robbins Field, Macon, Georgia

We have been informed that each of the above entered a second requisition after the first one had not been acted upon, and that they have so far had no action on the second requisitions.

As explained to you in our letter of December 28th, the San Bernardino Supply Depot thoroughly tested a Standard Model B Chore Boy, which was loaned them, and have been very anxious to secure some for their use. The other Depots mentioned have seen this truck in operation and are also very anxious to secure some.

We realize your time is very valuable and greatly appreciate your splendid consideration of this request of ours to have the Buda Chore Boy, Model B, approved for use by the Army Air Forces.

Respectfully yours,

THE BUDA COMPANY

W. T. Mulcahy
Manager, Industrial Division

WTM:AMD

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Custom-Buda
AAF Sect. AGO-271 (1-44) 78

w/1/10/44

AAF #24

20 JAN 1944

XO2D

MEMORANDUM FOR: The Under Secretary of War

Subject: Buda "Chore Boy"

XO95

1. Regarding your memorandum of 11 January 1944, inquiring as to the possibility of the Buda Company's half ton "Chore Boy" by the Army Air Forces, I am having this item submitted to the Equipment Division of the Army Air Force Board for determination of the possible uses in the Army Air Forces.

2. Concurrently I am investigating the service history of this equipment in the hands of the Navy and other users with a view of waiving extensive tests by the Army Air Forces.

O. P. ECHOLS,
Major General, U.S.A.,
Asst. Chief of Air Staff,
Materiel, Maintenance &
Distribution.

HQ. AAF
JAN 20 1944
MAIL SECTION

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Eng. Div

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Executive Office

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Mat. Div. A. C. - Wrig. - Field 5-4-39-50M

TSK:lmp:54-A13266

TELETYPE MESSAGE

PRIORITY

DATE: 21 January 1944
3:00 P.M.

FROM: Engineering Division

F. O. CARROLL
Brig. General, U.S.A.

ATTENTION: COMMANDING GENERAL,
ARMY AIR FORCES.

ENG-4115....REFERENCE IS MADE TO YOUR TELETYPE AFDSD-2A 4573 DATED 20 JANUARY 1944 AND FURTHER REFERENCE IS MADE TO YOUR TELETYPE AFDSD&D 2928PD DATED 13 JANUARY 1944. THE ARMY AIR FORCES BOARD IS BEING CONTACTED BY WIRE AND TELEPHONE IN ORDER TO ASCERTAIN THE NUMBER OF BUDA CHOTE BOY MODEL B TRUCKS TO PURCHASE IN ORDER TO DETERMINE POSSIBLE USES OF THIS EQUIPMENT BY THE ARMY AIR FORCES. THE REPORT TO BE FORWARDED 21 JANUARY 1944 AS MENTIONED IN PARAGRAPH 3 OF SAID TELETYPE ENG-4092 DATED 17 JANUARY 1944 WILL NOT BE FORWARDED PENDING RECEIPT OF REPORTS FROM THE ARMY AIR FORCES BOARD. END ARAIC

BRANCH, MATERIEL COMMAND

Copy for: Engineering Div.

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A-11(1)(gg)

Maj att.

21 January 1943

Buda Company Model C Chore Boy and Trailer Project - Manufactured by The Buda Company, Harvey, Illinois, represented by Mr. Walter T. Mulcahy, Manager, Industrial Division.

TO WHOM IT MAY CONCERN.

1. Mr. Mulcahy called on Colonel Fink and Major Bishop, Equipment Laboratory, in January, 1943, and presented literature covering a 1/2-ton warehouse truck, Buda Company Model C Chore Boy equipped with sideboards, stake pockets, rear pintle hook, and windshield, together with a warehouse trailer, 1/2 ton, for use with the above truck, Buda Company Drawing No. CB-12-89-42, equipped with sideboards, stake pockets, and rear pintle hook.

2. The Model C. Chore Boy truck is a three wheel warehouse truck with a rated load of 1/2 ton, wheelbase 56", tread of rear wheel 32", overall length 98", overall width 37". The warehouse trailer is a three wheel trailer, rated load of 1/2 ton, wheelbase 56", tread of rear wheels 32", overall length 98", overall width 37".

3. This project was assigned to Captain R. H. Burke of the Miscellaneous Branch of Equipment Laboratory, Engineering Division, Material Command, who was instructed to enter an Authority for Purchase for 4 each trucks and 4 each trailers. Authority for Purchase No. 24,7628 was initiated by Captain R. H. Burke, 12 January 1943.

4. Reason for Development: The subject trucks and trailers were procured to determine if there was a military requirement for the subject equipment in connection with cargo handling in and around air freight terminals. Consideration was to be given with regard to the possibility of a need for this equipment as an airdrome utility truck and trailer for transporting air crews, baggage, and gear from operations hangar to airplanes on the field. Consideration was also to be given relative to a need for the subject truck and trailer in connection with transporting drums of oil, rigged as a fuel truck and trailer.

5. Copy of letter to The Quartermaster General, dated 11 February 1943, from Director of Base Services, subject: Wright Field Requisition No. (555) 43-295-AF, re: Trucks and Trailers, Warehouse, 1/2 ton, is attached, in which it is requested that trucks and trailers be procured. A copy of procurement directive No. W-ZN-278(43)(AF) covering procurement of items referred to in letter from the Director of Base Services is inclosed with the attached copy of 1st Indorsement dated 25 February 1943 to said letter.

B

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2-1(2)(pp.)

To Whom It May Concern.
"Buda Company Model C Chore Boy
and Trailer Project."

6. Mr. Mulcahy called the Equipment Laboratory approximately 10 November 1943 and said that he had been told verbally by Air Service Command that the Chore Boy and trailer covered by Wright Field Procurement Authority has been delivered to the Indianapolis Depot. A telephone call was made by Captain R. N. Burks to Major Allen, Ground Equipment Branch, Supply Division, Air Service Command, asking if the Chore Boy and trailer had gotten into their possession by mistake. He stated that he had the trucks and trailers but did not know why shipping instructions contained in Wright Field Requisition (535) 43-295-AF had not been complied with. Captain R. N. Burks called his attention to shipping instructions on the subject requisition and requested that they be complied with by his office. Major Allen stated that action would be taken accordingly.

7. A second call was made to Major Allen approximately 1 December 1943, at which time his attention was called to the subject requisition. A request was made that he follow up this matter and get trailers and trucks shipped in accordance with Wright Field Requisition (535) 43-295-AF.

8. Representative of Buda Company called the Equipment Laboratory approximately 28 December 1943 and asked if we had received the trucks and trailers, and what action had been taken toward testing them. He was advised that they had not been received, and that a call would be made to Air Service Command and the matter followed up. He stated he would visit the Ground Equipment Branch, Supply Division, Air Service Command, and discuss the matter with them. Mr. Kunk, Ground Equipment Branch, was contacted on this day and was instructed to get this equipment shipped out immediately in accordance with Wright Field Requisition No. (535) 43-295-AF.

9. One Buda Chore Boy was received at the Equipment Laboratory on 13 January 1944. Captain J. C. Scott was instructed by Major J. H. Bishop to investigate the possibilities of this equipment.

R. N. BURKS,
Captain, Air Corps.

1 Incl.
Cy ltr dtd 11 Feb. 1943
to The Quartermaster General
fr Director of Base Services
w/3 Inds. and cy Procurement
Directive No. W-EM-278(43)(AF)

cc. Major J. H. Bishop
Major R. E. Kuhn
Capt. R.H. Burks

-2-

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(2-A)

ORIGINAL

Legal Branch

No. 385381

Authority for Purchase

VENDOR The Buda Co.

CONTRACT No.

PURCHASE ORDER No. (33-038) ac-4638-F

DELIVERY 20 days

METHOD

PROPOSAL Letter & Attachments

TERMS

THE ABOVE SPACE TO BE USED BY THE PURCHASE BRANCH ONLY

Item	Quantity	Unit	Estimated Unit Price	DESCRIPTION OF MATERIAL OR SERVICES TO BE PURCHASED.	Unit Price	Total Price
1	3	ea.	$595.00	Truck, shop, 1/2-ton, Buda Company "Chore Boy" Model B. with "jeep hitch" per capt. Scott 2-4-44 RCd.	$600	1800 00

NEGOTIATIONS COMPLETED

COMPLETED

Engineering Data: Van Dyke copies of manufacturer's assembly and detail drawing and 15 copies of commercial handbook of instructions with parts catalog. Outline Drawings and maintenance and repair bulletins. 15 copies of per Capt Scott letter dated 2-21-44 RCd

No License Right Necessary.

Total Actual Cost 1800 00

Estimated Cost $1785.00

CLASSIFICATION CL-19B

B—FUNDS			A—FUNDS		C—FUNDS			F. O. CARROLL, Brig. General, U.S.A. Chief, Engineering Command
	Project No.	Item No.	Project No.	Item No.	Project No.	Class No.	Item No.	
(19B)	611-4	656-4						Chief-Division

SHIP TO Equipment Laboratory WANTED NOT LATER THAN 15 February 1944 (Date)

SHIP TO (see reverse side)

DATE FURNISHED

Expenditure Control Officer

F. L. KOHLRIESER Lt. Col. A. C.

Remarks on the following matter marked with "X" appear in the space below: 1. Recommended Sources of Supply X 2. Government furnished material 3. Tools, patterns, etc. loaned by Government 4. Should Serial Number be assigned 5. Point of Inspection X 6. Increase Existing Orders 7. General Remarks X

1. The Buda Company, Harvey (Chicago Suburb) Illinois. (Sole source for comparative test. See attached copy of teletype AFMMD-2A 4573 dated 20 January 1944 authorizing procurement.) (Harvey 500) phone but attached
5. At source.
7. a. The truck is a 3-wheel warehouse truck, front wheel steer, rear wheel drive. The truck is powered by a 7.7 horsepower air-cooled engine. The drive is a friction drive type - with 1 speed forward, 1 speed reverse and neutral. Brakes are of the internal expanding type. Brake is automatically applied when operator leaves seat. The frame is welded steel and covered with anti-skid steel sheet.
b. The quantity is required for test at Wright Field, Eglin Field, and Equipment Division, AAF Board. Test was requested by Commanding General, Material, (over)

Maintenance and distribution.

The supplies and services to be obtained by this instrument are authorized by, are for the purpose set forth in and are chargeable to allotment number(s): Controlled Materials are involved and are expected to be available. In the absence of manufacturers inventory, mill capacity may delay the delivery schedule.

P A 4244 2-1005 611-09 P A 212740705

Upon due investigation made it was found that the articles enumerated hereon could not be procured from any other branch of the Government without transfer of funds, or the immediate need of these supplies or the remoteness of this station from point of supply precludes their purchase from any other branch of the Government.

Date 24 JAN 1944

Signature J. C. Scott, Captain, A. C.

Signature G. V. HOLLOMAN, Colonel, Air Corps

Signature and Designation of Initiating Officer G. H. WINDSOR, Capt. A. C. F. O. CARROLL, Brig. General, U.S.A. Chief, Engineering Command

Estimated by: 1 Day Lacas 1-28-44 Spec. Dr. CLEARED

Coordinated by:

Approved—Exp. Control B. F. O. JAN 31 1944

F. L. KOHLRIESER Lt. Colonel, A. C.

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7. (cont'd)

c. New.
d. An economical truck will be made available for materials handling.

Material Estimate - $900.00
This item contains controlled materials.
This item requires rubber for the tires and tubes.
This item is not listed on the AAF Stock List.

Shipping Instructions:

1 ea. AAF Supply Officer
Wright Field, Dayton, Ohio
Mark for: Department 5[illegible]

1 Supply Officer,
85th Sub-Depot,
Orlando, Army Air Base
Orlando, Florida
Mark for: AAF Board, Equipment Division

1 ea. Supply Officer
27th Sub-Depot
Eglin Field, Florida
Mark for: AAF Proving Ground Command,
Proof Department

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E-2

AAFMD-2A P-9-2-42-500 M

INTER-OFFICE MEMORANDUM

ARMY AIR FORCES

MATERIEL CENTERx Command

Office of The Commanding General

JCS:lmp:54-5

Wright Field, Dayton, Ohio

Date 24 JAN 1944

TO: Chief, Procurement Division, Wright Field.

SUBJECT: Authority for Purchase No. 385381 - Truck, Shop, 1/2-ton.

1. It is requested that sole source procurement of 3 each truck, shop, 1/2-ton, be made on the subject Authority for Purchase. The trucks are required for comparative tests with existing shop trucks and scooters as directed in teletype message AFMMD-2A 4573 dated 20 January 1944.

2. It is further requested that direct procurement be made by Wright Field General Procurement Branch in order to obtain these trucks as soon as practicable. Authority for this action is contained in teletype message AFMMD-2A 4573, a copy of which is attached. Captain J. C. Scott, Miscellaneous Branch of Equipment Laboratory of this office, telephone extension 2-3242, should be notified when the order has been placed in order that necessary action may be taken to carry this project to completion most expeditiously.

F. O. CARROLL,
Brig. General, U.S.A.,
Chief, Engineering Division.

1 Incl.
Cy teletype AFMMD-2A 4573
dtd 20 January 1944.

Signature

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HEADQUARTERS OF THE ARMY AIR FORCES
WAR DEPARTMENT
WASHINGTON, D. C.

WAR DEPARTMENT
HEADQUARTERS OF THE ARMY AIR FORCES
WASHINGTON

SUBJECT: Buda Company "Chore Boy", Model B

TO: Commanding General,
Air Service Command,
Patterson Field, Fairfield, Ohio

1. Attached is a copy of a letter to General [illegible] from the subject company which is self-explanatory.

2. The Under Secretary of War has asked the Assistant Chief of Air Staff, M. M. & D. what uses this item can be put to in the Army Air Forces. As a result of this letter the Materiel Command will furnish the Army Air Forces Board a test quantity of the [illegible] and obtain a report.

3. It is requested that you furnish this office a report of the San Bernardino Supply Depot's experience with the Model B "Chore Boy" mentioned in the attached letter.

By Command of General ARNOLD:

J. E. Hull
Colonel, Air Corps
Exec. Liv. Office,
AC/AS, MMD

Incls.
1-cy ltr fr Mr. Mahaffey,
Buda Co. to Gen. Echols.

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A-14051 Chore Boy

2 - 2

B-TE

Signal Corps, United States Army

Radiogram
Received at Exp. Engineering Sec.

71 PM 5 50

RF V WAR NR 54

FROM EUBANK AAF BOARD ORLANDO FLA 312053Z

TO CG MATERIEL COMMAND WRIGHT FIELD DAYTON OHIO

GR 83

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768

Equip. Lab.

AFBJ1193 PD ATTN DEPARTMENT 54-5 RE YOUR TWX ENG-41Ø9 DATED 27 JAN 44 YOU ARE ADVISED THAT THE NUMBER BUDA COMPANY CHORE BOY MODEL B TRUCKS REQUIRED FOR REVIEW BY AAF BOARD IS TWO PD REQUEST THAT ONE BE SHIPPED DIRECTLY TO AAF PROVING GROUND COMMAND EGLIN FIELD FLORIDA AND ONE SHIPPED DIRECTLY TO EQUIPMENT DIVISION AAF BOARD ORLANDO FLORIDA PD ALSO REQUEST NOTIFICATION BY RETURN TWX OF DATE OF SHIPMENT AND DATE WHEN LETTER DIRECTIVE FOR THIS PROJECT WILL BE MAILED END

COLLN: AFBJ1193 54-5 ENG-41Ø9 27 44

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AAFMC-14A-WF-8-15-42-200M sets of 3

PRIORITY

TELEGRAM

OFFICIAL BUSINESS—GOVERNMENT RATES

FROM: WAR DEPARTMENT
AAF Materiel Command
BUREAU— Wright Field, Dayton, Ohio

RBK:lmp:54-A13266

21 January 1944 3:00 PM

F. O. CARROLL
Brig. General, U.S.A.

ARMY AIR FORCES BOARD
ARMY AIR FORCES TACTICAL CENTER
ORLANDO, FLORIDA
ATTENTION: PRESIDENT, EQUIPMENT DIVISION

ENG-4109...THE FOLLOWING TELETYPE FROM ARNOLD, WASHINGTON D. C. TO COMMANDING GENERAL, MATERIEL COMMAND, DATED 20 JANUARY 1944, IS QUOTED FOR YOUR INFORMATION:

"IT IS REQUESTED THAT YOU CONTACT THE EQUIPMENT DIVISION, ARMY AIR FORCES BOARD, TO ASCERTAIN THE NUMBER OF BUDA COMPANY CHORE BOY MODEL B HALF TON TRUCKS NECESSARY TO DETERMINE THE POSSIBLE USES OF THIS EQUIPMENT BY THE ARMY AIR FORCES IN DEPOTS, OTHER AIR SERVICE COMMAND ACTIVITIES, POSTS, CAMPS OR STATIONS, EVALUATING IT FROM THE STANDPOINT OF ECONOMICAL ADVANTAGES OVER STANDARD MATERIAL HANDLING EQUIPMENT, TRAILER TOWING ABILITY, CAPABILITY ON SURFACES OTHER THAN PAVED, AIRBORNE USE, ETC. YOU ARE AUTHORIZED TO PROCURE AND FURNISH THE NECESSARY EQUIPMENT FOR THE ARMY AIR FORCES BOARD DETERMINATION." IT IS REQUESTED THAT THE MATERIEL COMMAND, USA Segment 54-5, BE NOTIFIED BY RETURN WIRE THE NUMBER OF BUDA COMPANY CHORE BOY MODEL B TRUCKS TO PURCHASE. END AFAMC

BRAMSHAW, MATERIEL COMMAND

cc. Proof and Tactical
Testing Liaison Br.,
Tech. Staff, Engr. Div.

COORDINATION

Adm.	Budget	Contract	Exp. Eng.	A. F. S.	Insp.	I. P. S.	Prod. Eng	Exec
			Sept					

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Cir. Ltr. Bulk
AC/AS-A-4S-2A

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2 FEB 1944

Mr. E. T. Maloney,
Manager, Industrial Division,
The Bush Company,
Harvey, Illinois.

Dear Mr. Maloney:

Thank you for your letter of January 18th furnishing additional information on the "Chore Boy".

As explained to you at our recent meeting, I am now obtaining the service history from users of the "Chore Boy" and studying the possible uses within the Army Air Forces for this item. As soon as this study is complete, I will advise you.

Very truly yours,

O. P. NICHOLS,
Major General, U.S.A.,
Asst. Chief of Air Staff,
Materiel, Maintenance & Distribution.

Be retd by
Col Lawrence
for signature
Hdq Army Air Forces
1/18 Sta.

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Copy Bonds Ltr. 9-4-45 (1 p pp)

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Telephone Conversation, Colonel Sessums and Col. Holloman, 8 February 1944.

H. - .....I guess you know what I'm talking about. Did the Old Man go down?

S. - He's going down Saturday. ..... George, the reason I called was on these "Chore Boys". What's the status of those things?

H. - The status of them right now is that we're buying a bunch of them and people are extremely pleased with the treatment that we've been giving them.

S. - You mean the Chore Boy people are?

H. - That's right.

S. - How many are you buying and have they been placed on order? This Congressman's calling Gen. Echols and Gen. Echols is calling me and I've got to have something to tell him.

H. - Hold everything. I've got Joe right here. (thru inter-office communication system - "Say Joe, Col. Sessums is on the phone and he wants to know the latest status of the Chore Boy. Have we bought any, where they are, etc. Joe - Deliveries to be made on the 20th of Febr. That's the last information we got. Holloman - How many did we buy? Joe - We bought three of the B type. Standard production type.) Did you get that?

S. - Yeah, three of the standard production type.

H. - Wait just a minute, John? (To be delivered when? Joe - The 20th of Febr.) 20th of February they'll be delivered.

S. - To you or to Orlando?

H. - We're going to send them to Orlando and Eglin.

S. - Orlando and Eglin - three each?

H. - No. (How many will we send to Orlando and how many to Eglin? Joe - One to each place and in addition to that we're sending some additional shipment to be used ----For your information, it looks like the Chore Boy is a definite answer to a requirement). Did you get that? He said that he is sending one to Orlando and one to Eglin and they'll keep one here. Now in the meantime they've been running more or less a blitz service test over at Fairfield Air Depot with one or two of them and the people that use them think they're swell. They think they are the best thing that they have seen for a medium powered vehicle of that type. However, the people who procure don't seem to be very enthusiastic about procuring them. That's the status right now. That undoubtedly is the reason thatJoe is sending these to Eglin and Orlando to get some commitment out of them. Then you see a directive can come from OC&R through youall to procure and the allotment. .....Now insofar as we are concerned, its a swell job. Its a swell piece of equipment. Insofar as the people at Air Service Command its a swell piece of equipment, but it has to be selected by Air Service Command as to whether they're going to buy it or not.

S. - What are we going to get out of this Orlando test?

H. - Joe, can you explain what we're going to get out of this Orlando test? (Joe -

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Copy-Bell
Pub. 9-15-76 (2 pp)

Yes. We proof test the equipment itself. The allocation of it they're going to have to fight between themselves and Air Service Command on that, but we will definitely proof test the equipment to determine its quality in price range, weight, maneuverability -

S. - George, Gen. Echols is waiting on me. I've got to go. I've got the story.

H. - (Joe - .....)in my opinion its a good piece of equipment. Insofar as I think as far as that's concerned, any plan that you-all would make in Washington would be perfectly all right. Whatever you can do there. Is that all right?

S. - Yeah.

H. - All right, now just a second. Is that all right, Joe.

S. - Air Service Command may not like that.

H. - I know that. What did you say Joe? (Joe - The only thing to tie in that is providing the Air Service Command has got a requirement. In other words, we don't .....and find out the Air Service Command is loaded up with vehicles and wouldn't have any use for them.). That's between Washington and Air Service Command, not us..... ...

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Basic Ltr fr HAAF dtd 25 Jan 44 subj: "Buda Co. "Chore Boy", [illegible]
incl.

ASC 451.2 (25 Jan 44) 1st Ind.

AAF HQ ASC Patterson Field, Ohio.

FEB 11 1944

TO: Commanding General, Army Air Forces, [illegible] D. C. Attention:
Ass't. C/AS, MMAD, Supply & Maintenance Branch.

1. In order to comply with Paragraph 3 of basic communication, the San Bernardino Air Service Command was requested to forward this [illegible] necessary report.

2. The following information furnished in teletype [illegible] is quoted below:

"Ten Day Service Test of Buda Company Chore Boy Sweep [illegible] equipment satisfactory. Maneuverability and stability proven satisfactory. Fuel load capacity was drawn thru [illegible] without stalling. [illegible] averaged thirty (30) miles per gallon. Non-skid steel deck [illegible] sity for flat rack. Automatic brake separates when driver [illegible] from seat which is very desirable safety factor. Second [illegible] purchase was initiated under Class 19C, 15 [illegible] type SBASCMD3-139 was submitted to Lt. Col. [illegible] enance Control, ASC. Signed Production Control [illegible]."

For the Commanding General:

[illegible]
Lt. Col., Air [illegible]
Asst. C/AS, [illegible]
Supply & Maintenance

Incl: n/c

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1944 FEB 15 PM 12 48

Eng. Div.

Equipment Laboratory

ORIGINAL

Execution Office

FEB 15 2 40 PM 1944

REPLY DUE 2-19-44

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MDAC-5-WF-3-5-42-500M

TELETYPE MESSAGE

JCS:mh:54-A-15773

PRIORITY

DATE 16 February 1944
2:00 PM

FROM Engineering Division
G. H. WINDSOR, Capt., A. C.
For F. O. CARROLL,
Brig.General, U.S.A.

ATTENTION: ASST C/AS, MAD

END-4292.....REFERENCE TELETYPE MESSAGE AFDMA-1 3652D, DATED 15 FEBRUARY 1944. AUTHORITY FOR PURCHASE WAS INITIATED 22 JANUARY, TELEGRAPHIC BID WAS OBTAINED FROM BUDA COMPANY 2 FEBRUARY AND AN ADVANCE ORDER NUMBER AND PRIORITY WAS ASSIGNED 3 FEBRUARY. DELIVERY OF BUDA TRUCKS IS HELD UP PENDING RELEASE BY WPB. REQUEST FOR RELEASE WAS MADE BY LONG DISTANCE TELEPHONE TO MR. DARLING. RELEASE IS EXPECTED 16 FEBRUARY AND BUDA COMPANY WILL BE ADVISED TO SHIP THE TRUCK IMMEDIATELY. THE TRUCKS SHOULD ARRIVE AT EGLIN FIELD AND ORLANDO APPROXIMATELY 24 FEBRUARY AND TESTS WILL BE INITIATED IMMEDIATELY. THE TESTS WILL BE COMPLETED APPROXIMATELY 15 MARCH. ADVANCE REPORTS SHOULD BE AVAILABLE AT THAT TIME END AFAMC

ENGINEERING DIVISION

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E-4

THE BUDA COMPANY

(ESTABLISHED 1881)

CABLE ADDRESS "BUDA"
WESTERN UNION CODE

GENERAL OFFICES AND WORKS

HARVEY, ILLINOIS
(CHICAGO SUBURB)

ADDRESS ALL COMMUNICATIONS TO THE COMPANY NOT TO INDIVIDUALS

February 21, 1944

IN REPLY REFER TO

Army Air Forces
Headquarters of the Materiel Command
Wright Field, Dayton, Ohio

Forms retd for sign.
2-24-44 by Mrs. W. S. Hartley
Phone 21195

ATTENTION: N. C. Smith,
Captain, Air Corps
Contracting Officer

Gentlemen:

SUBJECT: Truck, Shop, Buda "Chore Boy"
Quotation letter 7 February 1944
Reference: 82-H:REA:rpl

This will acknowledge receipt of your letter, wherein you enclosed Limitation Order L-112 WPB-1319 form to us for signature.

This is to advise that it is not necessary for the Buda Company to sign subject form. You will note on the original copy we have added in pencil, information that should be included and under section four, the form should be signed by the proper authorities at your base.

Upon completion and signing of the form, forward the same to the War Production Board in care of the General Industrial Equipment Division, Washington, D. C.

No signature by the manufacturer is necessary on these forms and they should be forwarded direct by yourselves to the War Production Board.

Trusting that you find the above information satisfactory and that you will find the above explanation satisfactory, we are

Yours very truly,

THE BUDA COMPANY

K. Preisel

K. Preisel,
Industrial Division

KP:lf

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Commanding General
AAF Materiel Command
Engineering Division
Reference: JCS:lmp:54-5
Wright Field, Dayton, Ohio

2-17

21 FEB 1944

COM. GEN.
TECH. EXC.
ADM. EXC.
C. O.
BUD. OFF.
ENG.
CONTRACT
INSP.
PROD. DIV.
PROD. ENG.
PROD. CONT.
I. P. S.
A. S. C.
TECH. DATA
CIV. PERS.
OTHERS

Truck, Materials Handling, 1/2-ton, 3-wheel, (Buda "Chore Boy" Model B).

Army Air Forces Board,
Army Air Forces Tactical Center,
Orlando, Florida.

1. In accordance with authorization contained in teletype message AFMJ1195TD dated 31 January 1944, there are being shipped two each truck, materials handling, 1/2-ton, 3-wheel, (Buda "Chore Boy" Model B) direct from the manufacturer's plant at Harvey, Illinois:

1 each - Supply Officer,
85th Sub-Depot,
Orlando Army Air Base,
Orlando, Florida.
Marked for: Army Air Forces Board, Equipment Division

1 each - Supply Officer,
27th Sub-Depot,
Eglin Field, Florida.
Marked for: AAF Proving Ground Command,
Proof Department

The materials handling truck is a platform type having a capacity of 1000 pounds. It is equipped with three wheels, the front wheel being the steering wheel and the left rear wheel, the driver. The general characteristics of the truck are as follows:

Engine: Brigge & Stratton - Model ZZP
Cylinders - one, 4 cycle
Bore and Stroke - 3" x 3-1/4"
Displacement - 22.97 cu. in.
Horsepower - 7.7 at 3200 R.P.M.
Ignition - magneto
Cooling - air

Power Transmission: From dry cone clutch, integral with engine, to forward or reverse friction drive cones, then by chain to rear axle.

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Army Air Forces Board,
Army Air Forces Tactical Center.
"Truck, Materials Handling, 1/2-ton,
3-wheel, (Buda "Chore Boy" Model B.)
21 FEB 1944

Axle Bearings: Rear - ball-bearings, mounted in pillow blocks.
Front - Timken.

Brakes: Internal expansion - Foot control; locked whel driver leaves seat.

Wheels: Double disc steel; 4.00/8" - 6 ply pneumatic tires - 85 pounds pressure.

Frame: Welded steel.

Net weight: 845 pounds.

Dimensions:

Overall length	91 inches
Overall width	37-1/4 inches
Overall height (steering handle)	46 inches
Turning radius	87 inches
Wheelbase	56 inches

Maximum Speed: 15 miles per hour

2. There is no vehicle of this type which is now standard. The following tractors with warehouse trailers are used for materials handling by the Army Air Forces:

a. Tractor, heavy-duty (Clark)
b. Tractor, light-duty (Clark)
c. Tug, ("Clarkat")
d. Tractor, (Mercury)
e. Tractor, (Easton)

The above tractors are used for towing only as they are not provided with a body or loading platform. The minimum weight of any of the above listed vehicles is 5000 pounds. The weight of the Buda platform truck is 845 pounds.

3. The materials handling truck was procured for test to determine possible uses of this equipment by the Army Air Forces in depots, other Air Service Command activities, posts, camps, or stations, evaluating it from the standpoint of economical advantages over standard material handling equipment, trailer towing ability, operation on surfaces other than paved, and airborne use for its delivery to air freight terminals. Suggested uses of the truck are as follows:

a. Depots: to transport parts, tools, pre-fabricated assemblies, lengthy materials, and bulky objects.

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B-1(3/5 Typ.)

b. Warehouses: to transport boxes, shipping crates, and cartons and parts to and from shipping and receiving departments, especially in confined areas and narrow aisles.

c. Air Terminals: to transport mail, baggage, and air freight.

d. Posts, Camps, and Stations: to transport bulky objects and parts between supply rooms and hangars or technical sites and for stock chasing.

The materials handling truck is not limited to the above uses as others may be suggested, such as carrying personnel by installation of seats.

4. The advantages of the 1/2-ton materials handling truck are as follows:

a. Economical handling of bulky materials, finished parts, tote boxes and baggage.

b. Low first cost and maintenance.

c. Economical operation (averages 35 miles per gallon of gasoline).

d. Engine, drive mechanism, and running gear are readily accessible for maintenance and repair.

e. Simplicity of design makes it easy to service and operate by unskilled labor.

f. Easily maneuvered in confined spaces and narrow aisles.

g. Its lightness makes it suitable for air transport and for operation in temporary buildings.

5. It is expected that the materials handling truck will provide the Army Air Forces with economical transportation for rapid handling of loads in depots, warehouses and store-rooms, handling baggage and mail at air terminals, messenger service and short haul deliveries at post, camps, and stations. The acquisition of this type of shop truck will relieve the heavier tractors of this light service and allow them to be used more economically in handling heavier loads.

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Army Air Forces Board,
Army Air Forces Tactical Center.
"Truck, Materials Handling, 1/2-ton,
3-wheel, (Buda "Chore Boy" Model B.)
21 FEB 1944

6. This type truck has been giving satisfactory service in shipyards, railroads, warehouses, aircraft factories, and industrial plants. In addition, it is used by the Navy Department at various installations. Properly operated and serviced, the repair costs should not exceed ten dollars in two years.

7. The engine installed in the truck is the Briggs & Stratton Model ZZP, which is the same make and model engine used on the Type C-1B electric power plant. (Technical Order No. 19-45-1 covers the Type C-1B electric power plant.) As spare parts are available for this engine, a minimum additional amount of spare parts will be required for the complete truck.

8. Photographs in duplicate, furnished by the Buda Company, are inclosed.

9. A questionnaire for testing personnel to accomplish is attached. The accomplished questionnaire should be made a part of the final report.

10. A vehicle operator will be required for servicing the vehicle and preparing the engine for operation. A number of vehicle operators should be used during the tests to obtain an average consensus of opinion concerning the merits of this type of vehicle.

11. No equipment other than the truck and tools, which accompany it, will be furnished by the Materiel Command.

12. The materials handling truck will be available for test approximately 1 March 1944.

13. The duration of the test should be approximately 15 days, as the vehicle is a proven commercial item.

14. It is requested that a No. 2 priority be assigned this project, as this test has been requested by Headquarters, Army Air Forces.

15. The project engineer is Captain J. C. Scott, telephone extension 2-3242.

16. Upon completion of the test, the truck should be retained for such use as may be desired, or transferred to the Supply Officer for re-issue.

17. The materials handling trucks can be manufactured at an approximate rate of 100 per month without any additional manufacturing facilities.

-4-

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T-115/5-4)

Army Air Forces Board,
Army Air Forces Tactical Center.
"Truck, Materials Handling, 1/2-ton, 3-wheel, (Buda "Chore Boy" Model B.)
21 FEB 1944

18. Two copies each of "Instructions for Care and Operation" and "Repair Parts Price Lists" are inclosed.

19. It is requested that this letter be made an exhibit to the final report.

For the Commanding General:

C. E. Burnham 2D LT., AC
F. O. CARROLL,
Brig. General, U.S.A.,
Chief, Engineering Division.

5 Incls.
Incl. 1- Questionnaire
Incls.2 and 3 - Unnumbered photos. (in dupl.)
Incl. 4- Instructions for Care and Operation (in dupl.)
Incl. 5- Repair Parts Price List (in dupl.)

Distribution:

1 original - AAF Board
2 copies - AAF Board
3 copies - Proving Ground Command Liaison Office, Wright Field, Dayton, Ohio
1 copy - Commanding General, AAF Assistant Chief of Air Staff, Operations, Commitments, and Requirements, Requirements Division, Washington, D. C.
Attention: Requirements Liaison Branch

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E-1(1) pp.

WAR DEPARTMENT
ARMY AIR FORCES
Materiel Command, Procurement Div.

PURCHASE ORDER

WRIGHT FIELD
Dayton, Ohio

ORDER No. (33-033) 44-4833-R

To insure prompt payment, show this Order Number on all Packages, Bills, and Correspondence.

To: THE BUDA COMPANY
Harvey, Illinois

Date: 29 February 1944

Ship to: See "Shipping Instructions"

Govt. B/L (See Art. 18(b)(5) page 2b

Delivery within ... 30 ... days from date of this order.

Terms: ... Net

44-4833

ALL ARTICLES MUST BE DELIVERED F. O. B. Cars and/or Frt. Station Harvey, Illinois

As requested per Letter ... proposal dated 7 February 1944 and subject to all conditions contained therein, and to all advertisements, circulars, signed specifications, and samples expressly described or referred to herein, except as hereby modified, the following articles at the prices stated and at the time, place, and in the manner herein specified.

No.	Quantity	Unit	ARTICLE	Unit Price	Total Price
			Class. 19B		
1.	5	ea.	TRUCK, shop, 1/2 ton, Buda Company "Chore Boy", Model "B" with jeep hitch.	600.00	$1,800.00

ONLY ONE PAYMENT WILL BE MADE UNDER THIS PURCHASE ORDER.

SPECIAL PROVISIONS

1. TAX EXEMPTION CERTIFICATES: Application for Tax Exemption Certificates shall be made to the District Supervisor, Mid-Central Procurement District, AAF Materiel Command, 111 W. Jackson Blvd., Chicago 4, Ill.

2. REPRODUCTION AND LICENSE RIGHTS:

The Reproduction and License Rights Clause, set forth on Page 2(h), is hereby made applicable to this purchase order.

C/2
ANMB Preference AA-1

Acknowledge this order and state definitely when shipment will be made. (Cont'd on page 1a)

Final inspection and acceptance at Contractor's Plant, The Buda Company, Harvey, Ill.

When ready for inspection, or, if practicable, ten days in advance thereof, notify Dist. Supervisor, Mid Central Procurement Dist., AAF Materiel Command, 111 W. Jackson Blvd., Chicago 4, Ill., with Form 54 attached to purchase order. (Request for an inspector will not be made until Contractor has on hand the necessary Government B/L.

The supplies and/or services to be obtained by this instrument are authorized by, are for the purposes set forth in, and are chargeable to,

Allotment ACA 1942-44, 2-4005 P 611-09 A 212/40705 to cover the cost of same, the available balance of which is sufficient

The Finance Officer, U. S. Army, American Nat'l Bank Bldg. 33 N. LaSalle St., Chicago, Illinois is hereby designated to make payment for such supplies and/or services.

Equip. Lab.
DEPT. No. (Scott)

CHARGE No. 658-168 (19B); 611-4; 658-4

A. F. P. NO. 385361

John L. Gushman
Contracting Officer

JOHN L. GUSHMAN, 1st Lt., A.C.

CONDITIONS ON REVERSE SIDE ARE MADE PART OF THIS ORDER TO WHICH VENDOR AGREES BY ACCEPTANCE OF THIS ORDER.

W.P.-1-25-44-1000M-(A)

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3. SHIPPING INSTRUCTIONS:

Wright Field
Dayton, Ohio
Mark for: Department 54-5

Item 1 - 1 each

Supply Officer
85th Sub-Depot
Orlando Army Air Base
Orlando, Florida
Mark for: AAF Board, Equipment Division

Item 1 - 1 each

Supply Officer
27th Sub-Depot
Eglin Field, Florida
Mark for: AAF Proving Ground Command, Proof Department

Item 1 - 1 each

4. PACKING AND MARKING: (See Art. 19, page 2b)

Pack for Domestic Shipment as follows:

Exterior Packing in accordance with Consolidated Freight Classification. If corrugated Fiberboard is used must be minimum 200# Mullen Test. Maximum gross weight 200# wherever practicable.

Prices above stated include cost of packing for Domestic shipment.

5. ENGINEERING DATA: (See Art. 39, page 2f)

The Contractor shall furnish to the Government the following Engineering Data:

Outline Drawings and 15 copies of maintenance and repair bulletins.

The above data shall be furnished and delivered prior to completion of Purchase Order at the expense of the Contractor, addressed to Army Air Forces Supply Officer, Wright Field, Dayton, Ohio, Attention: Equipment Laboratory.

(Cont'd on page 2)

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K-1 1-

AAFMC-167-A-WF-1-26-44-50M

ARMY AIR FORCES, MATERIEL COMMAND
WRIGHT FIELD, DAYTON, OHIO

Change No. 1

87-15 CEG:lk
Date 16 March 1944

AMENDMENT No. 8021
Contract
Purchase Order (33-038) 44-4833-E

CONTRACTOR: The Pudu Company
Harvey, Illinois

PRICE changed from - - - - **to** - - - -

The subject Purchase Order, covering Truck, is hereby amended to provide for the deletion of Note 2, under "Special Provisions," entitled "Reproduction and License Rights", page 1.

NOTE: The above change does not affect the unit or total price.

NOTE: This Amendment was negotiated under the authority of the First War Powers Act, 1941, and Executive Order No. 9001, 27 December 1941.

NOTE: Except as amended, either expressly or by necessary implication, all the terms, covenants and conditions of the subject Purchase Order shall continue in full force and effect.

Class 19-p A.F.P.30-381 (New A.F.P. not issued).
Initiated by Equip. Lab. (T.C. Chicago).

The supplies and/or services to be obtained by this instrument are authorized by, are for the purpose set forth in, and are chargeable to the following Allotment Number, the available balance of which is sufficient to cover cost of same.

- - - -

XXX [illegible] XXX XXX XXXXXX XXX XXXX to

[illegible] STUART, Captain, A. C.,
Contracting Officer

(Contractor)

APPROVED:

(Signature of Official with Office held)

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E-3(1/2 pp)

THE BUDA COMPANY

Harvey, Illinois

February 7, 1944

UU-0833
pg 1 page 1 of 1 pages

War Department
Dept. 82-H
Materiel Command
Wright Field
Dayton, Ohio

Gentlemen: Attn: Charles K. Jones, Capt.

SUBJECT: A.F.P. 385381
Ref. 82-H:REA:rpl
dated 2/4/44

We are attaching hereto in duplicate our quotation covering three Buda Chore Boy industrial shop trucks together with bulletins #1155 illustrating the material on which we are quoting.

The attached quotation covers three Buda Chore Boy industrial shop trucks, model "B", with a jeep hitch on which we have quoted a unit price of $600.00 each net, F.O.B. Harvey, Illinois, packed for domestic shipment.

Delivery on subject material can be made immediately upon receipt of purchase order together with approved copy of WPB-1319 Form as required under limitation order L-112. This delivery promise is, of course, subject to prompt acceptance, and prior sale. (30 days after receipt of order per phone 2/24 RGS

For your reference there is included herewith a copy of the Limitation order L-112 together with five(5) copies of the WPB-1319 form on which application for approval is to be submitted in quintuplicate.

We should like to amend item 12 on page two to read as follows:

"To the best of our knowledge, information, and belief, prices listed herein do not exceed any maximum price prescribed by the O.P.A."

In regard to the comparative price information form, we wish to make the following statement:

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The prices quoted herein on the material specified are not in excess to the lowest prices currently being charged by the bidder for substantially the same or similar articles to other branches of the Government or to any war contractor.

As requested in this inquiry, we are forwarding to your attention under separate cover 15 copies each of operating manual, repair parts book and 15 copies of an outline drawing covering the ChoreBoy.

We regret tha we do not have available for distribution the type of drawing specified, but feel that with the drawing we have included together with the maintenance and repair bulletin you will have received all the information necessary for the proper maintenance and operation of these units.

This letter outlining conditions, prices and delivery is to be made a part of our quotation under subject reference.

Yours very truly,

THE BUDA COMPANY

signed by

K. PREISEL
Industrial Divn.

KP:RS

P.S.--Inregard to the repair parts books being forwarded you under special cover, wisht to advise that this is a temporary parts list. Within about 10 days we will receive new illustrated parts books from the printer and will forward copy with each truck shipped of this new parts list.--K.P.

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A-8

Equipment Laboratory

Engineering Section

WF V CU 11 1.

FROM ARMCOM WASH DC 21945Z

[2 March 1944]

TO COMMANDING GENERAL MATERIEL COMMAND

WRIGHT FIELD DAYTON OHIO

ATTENTION COL C V HOLLOMAN ENGINEERING DIVISION

AFMA-1 302 TO TWINJET AIRCRAFT YOU TELETYPE ENGINEER DATED 17 FEBRUARY CONCERNING ZUDA SCHOOL BOY.

CONGRESSMAN WHITE HAS BEEN IN TO SEE GENERAL ECHOLS CONCERNING THE STATUS OF THE BELLYFIELD AND CLIMAX TESTS. HAVE ADVISED THAT THESE TESTS WILL BE COMPLETED APPROXIMATELY 15 MARCH AS INDICATED IN YOUR ABOVE REFERENCED TELETYPE. GENERAL ECHOLS WOULD LIKE TO KNOW IF THIS EQUIPMENT HAS ARRIVED EGLIN AND DESIRES A... THE LATEST ESTIMATES OF COMPLETION DATE OF TESTS.

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Mat. Div. A. C. S-Wright Field 4-19-50M

A-1

TELETYPE MESSAGE

PRIORITY

DATE: 4 March 1944
3:00 P.M.

FROM: Engineering Division

ATTENTION: ASST C/AS, A-4

L. C. CARROLL,
Brig. General, U.S.A.

FRANCIS D. CRINKLEY

ENG-4415...REFERENCE TELETYPE MESSAGE A-1-2 372, DATED 2 MARCH 1944, DELIVERY OF MODEL B CHORE BOY HAS BEEN DELAYED DUE TO DIFFICULTIES BEING EXPERIENCED BY MATERIEL COMMAND IN COMPLIANCE WITH MESSAGE. LT. COL. [illegible], ASSISTANT CHIEF OF AIR STAFF, MATERIEL, MAINTENANCE AND DISTRIBUTION, HAS BEEN ASKED BY TELEPHONE 4 MARCH 1944, OF THE STATUS OF THIS PROJECT AND HAS AGREED TO ASSIST IN OBTAINING A RELEASE FROM WPB. [illegible] RECEIPT AT [illegible] AND ADVISING.

Copy for
Engineering Division

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4-3

Take Buda Chore Boys

THE BUDA COMPANY

(ESTABLISHED 1881)

GENERAL OFFICES AND WORKS

HARVEY, ILLINOIS
(CHICAGO SUBURB)

CABLE ADDRESS "BUDA"
WESTERN UNION CODE

ADDRESS ALL COMMUNICATIONS TO THE COMPANY NOT TO INDIVIDUALS

March 10, 1944

IN REPLY REFER TO

Capt. J. C. Scott
Equipment Laboratory
Army Air Forces Materiel Command
Wright Field
Dayton, Ohio

Dear Captain:

Herewith copy of our letter of March 9th to your General Procurement Branch, together with copy of our letter of today to Mr. R. E. Adams, both of which, we believe, are self-explanatory.

As explained to Mr. Adams, our Washington representative informs us that your WPB-1319 application was approved March 7th and should be in your Procurement Department by the time you receive this. As soon as we receive the original copy of the approved 1319 form, and the letter we request agreeing to the deletion of the "Reproduction and License Rights" provision, we shall make immediate shipment of the three Chore Boys.

It is the writer's thought that you can help expedite the cancellation of the "Reproduction and License Rights" provision, and your help in this connection will again be greatly appreciated.

With the writer's very best wishes and kindest regards, we are

Yours very truly,

THE BUDA COMPANY

W. T. Mulcahy
Manager, Industrial Division

13 March 1944
Patent Branch Re
deleting license rights
JCS

WTM:AMD
Attachs.

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E-6

THE BUDA COMPANY

(ESTABLISHED 1881)

ABLE ADDRESS "BUDA" WESTERN UNION CODE

GENERAL OFFICES AND WORKS

ADDRESS ALL COMMUNICATIONS TO THE COMPANY NOT TO INDIVIDUALS

HARVEY, ILLINOIS
(CHICAGO SUBURB)

March 10, 1944

IN REPLY REFER TO 44-4833

Army Air Forces Materiel Command
Wright Field
Dayton, Ohio

Attention: Mr. R. E. Adams
Department ~~60-H~~
General Procurement Branch

Dear Sir:

Referring to our telephone conversation of March 8th, in which we advised that we had received your order for three (3) Model B Chore Boy shop trucks, which order contained a special provision concerning Reproduction and License Rights to the effect that "The Reproduction and License Rights Clause set forth on Page 2 (h), is hereby made applicable to this purchase order", - we attach hereto copy of our letter of March 9th to your Procurement Department which is self-explanatory.

In view of the urgency of this matter, we shall greatly appreciate your assistance in expediting the transmission to us of a letter agreeing to the deletion of this special provision.

We understand from our Washington representative that your WPB-1319 application was approved on March 7th and it should, therefore, be in your hands by now. Upon receipt of the original approved 1319 form and the requested letter deleting the special "Reproduction and License Rights" clause set forth in your order, we shall be able to make immediate shipment of the three trucks.

In this connection, the order we have indicates that shipment is to be made on Government Bill of Lading. It is our understanding that you will want speedier delivery than is usually accomplished through the use of Government Bill of Lading.

See Brems 3/11/44 Yours very truly,
Re

The Buda Company

W. T. Mulcahy
Manager, Industrial Division

WTM:AMD
Attache.

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E-5 3-11-44

THE BUDA COMPANY

(ESTABLISHED 1881)

ABLE ADDRESS "BUDA" WESTERN UNION CODE

GENERAL OFFICES AND WORKS

HARVEY, ILLINOIS
(CHICAGO SUBURB)

ADDRESS ALL COMMUNICATIONS TO THE COMPANY NOT TO INDIVIDUALS

March 9, 1944

IN REPLY REFER TO

Army Air Force Materiel Command
Wright Field
Dayton, Ohio

RC Adams
27128

Attention: Department 62-M
General Procurement Branch

Subject : Your Order (33-038) 44-4833-M
3 each Truck, Shop, Red-T-Ton
Buda Co. "Chore Boy" Model B
with Jeep Hitch

Gentlemen:

We acknowledge receipt of and thank you for the subject order.

We wish to call your attention, however, to Item No. 2 of the Special Provisions shown on the purchase order as follows:

"REPRODUCTION AND LICENSE RIGHTS:

The Reproduction and License Rights Clause set forth on Page 2 (h), is hereby made applicable to this purchase order".

Our quotation did not contemplate the inclusion of this provision. The Model B Chore Boys specified in subject order are our standard design throughout, and are, and have been, manufactured on a production basis in our plant for years. We are capable of furnishing them in quantities.

In view of the above, the subject order is being accepted on a basis of deletion from this order of the clause designated as Item No. 2, Reproduction and License Rights, as set forth on Page 2(h) of your purchase order.

We therefore ask that you kindly acknowledge receipt of this letter and your agreement to deletion of the special provisions of Item No. 2, in order that we may schedule these trucks for immediate shipment.

Ltr rec'd 3/11/44 Very truly yours,
cc

THE BUDA COMPANY

R. B. Fisher
Vice President

LK:avd

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D-5(1/2 ltr.)

THE BUDA COMPANY

(ESTABLISHED 1881)

GENERAL OFFICES AND WORKS

HARVEY, ILLINOIS
(CHICAGO SUBURB)

CABLE ADDRESS "BUDA"
WESTERN UNION CODE

ADDRESS ALL COMMUNICATIONS
TO THE COMPANY
NOT TO INDIVIDUALS

D-o/ Holloman
Pls. return to
Misc Ppr. JMG

March 16, 1944

IN REPLY
REFER TO

AIRMAIL-SPECIAL DELIVERY

Col. Joseph H. Bishop
Army Air Forces Materiel Command
Department 54-5
Wright Field
Dayton, Ohio

Dear Sir:

We quote below from a letter the writer addressed to Congressman Compton I. White, House of Representatives, Washington, D. C., on March 10th:

> "It is very evident that those individuals at Wright Field who have this matter in hand are endeavoring to rush it through as fast as possible and, as mentioned above, I feel sure we have their full cooperation. It would be my suggestion, therefore, that you permit the Washington end of it to remain as is until you hear further from me. In other words, I am convinced that Wright Field are doing all they can to follow General Echols' instructions. I am told that Orlando, Elgin and Wright Field will be instructed to make their report on the adaptability of the Chore Boy within fifteen days after delivery of the trucks, so as to expedite the matter and eliminate the possibility of the test being prolonged indefinitely."

We are this morning in receipt of a reply to the above letter, dated March 13th, in which the Congressman writes as follows:

> "It is encouraging to learn from your letter of March 10th of the progress that has been made in placing the Buda "CHORE BOY" on the approved list of the War Department. No doubt the enclosed memorandum placed on my desk by one of my secretaries as a result of a call to Colonel Sessums while I was on the

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D-5(2 pp.)

"Floor of the House will be of interest. In this connection, I am following the suggestion made in your letter in which you state -

'It would be my suggestion, therefore, that you permit the Washington end of it to remain as is until you hear further from me.'

For your guidance, we are attaching exact copy of the memorandum mentioned by Mr. White.

Since talking to you this morning, we have received our copy of the approved W.P.B.-1319 authorization. Your AAF inspector, assigned to our generating plant here, is inspecting the trucks today.

We have not, however, as yet received your Legal Department's authorization to delete the Reproduction and License Rights clause in your order, but in view of your verbal assurance that your Legal Department has authorized such deletion and is so notifying us in writing, we will make shipment of the three trucks immediately your inspector has approved them and the finished coat of paint applied.

Yours very truly,

THE BUDA COMPANY

W. T. Mulcahy
Manager, Industrial Division

WTM:AMD
Attach.

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B-4

C
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P
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3/10/44

Mr. White:

Colonel Sessums called regarding "Chore Boy" and stated:

"On 17th of February was advised that they had issued a procurement request on the 22nd of January to the Buda Company to buy these for test.

The delivery as a result of this procurement authority was held pending release by War Production Board. Request for release was made by long distance to W.P.B. Release expected 16th of February, in which case Buda Company would ship immediately - and in which case receipt would be made by the test organizations on about the 24th.

We followed up Wright Field to see how they were getting along on March 2nd. Reply received March 7th advised deliveries delayed due to difficulties with compliance W.P.B. orders.

On March 4th materiel came in requesting assistance our office getting clearance W.P.B. On March 9th advised W.P.B. authorized same, approved that date and forwarded. Anticipated to be accomplished on March 10th - today.

If immediate shipment is made on the Buda Company as soon as they get authorization, "Chore Boys" should arrive test organization about 13th and test will take approximately two weeks.

VM

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AAFMC-14-A-WF-6-18-42-500M

A-10

PRIORITY

TELEGRAM

OFFICIAL BUSINESS—GOVERNMENT RATES

FROM: WAR DEPARTMENT
AAF Materiel Command
BUREAU Wright Field, Dayton, Ohio

JCS:lmp:54-5

17 March 1944 9:30 A.M.

for F. O. CARROLL
Brig. General, U.S.A.

ARMY AIR FORCES BOARD
ARMY AIR FORCES TACTICAL CENTER
ORLANDO, FLORIDA

451.2

ENG-4534....REFERENCE MATERIEL COMMAND LETTER DATED 21 FEBRUARY 1944, SUBJECT: TRUCK, MATERIALS HANDLING, 1/2-TON, 3-WHEEL (BUDA "CHORE BOY" MODEL B), TRUCKS ARE BEING SHIPPED FROM MANUFACTURER'S PLANT AT HARVEY, ILLINOIS 17 MARCH VIA COMMERCIAL TRUCK. IT IS REQUESTED THAT TESTS BE INITIATED IMMEDIATELY UPON RECEIPT OF VEHICLES. IF REQUIRED, MANUFACTURER WILL FURNISH SERVICE REPRESENTATIVE FOR TESTS. IT IS REQUESTED THAT THIS COMMAND BE ADVISED WHEN EQUIPMENT ARRIVES AT ROLIN FIELD AND ORLANDO AND WHETHER SERVICE REPRESENTATIVE IS DESIRED FOR TESTS. END AFAMC

BRANSHAW, MATERIEL COMMAND

Bt

Distribution:
1 original - AAF Board
2 copies - AAF Board
3 copies - Proving Ground Command Liaison Officer, Wright Field
1 copy - C.O., AAF, Asst C/AS, OCAC, Attn: Requirements Division

COORDINATION	Armd. Br.	Contract	Exp. Eng.	A. F. S.	Insp.	I. P. S.	Prod. Eng.	Exec.

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A-11

Equipment Laboratory

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ORIGINAL

ENG. DIV.

1944 MAR 18 PM

Executive Office

09 1436

UF W CY NR 21

FROM ARNOLD WASHINGTONDC 1811372

TO COMMANDING GENERAL MATERIEL COMMAND WRIGHTFLD DAYTON O

ATTN ENGINEERING DIV

SECRET

4 3c

AFDSA-1 4281 PD REFERENCE ENG-4419 INTER MARCH CONCERNING MODEL B CWORE BOY NE RUNNING AIR SERVICES DIVISION WM&D ADVISED THAT WPB AUTHORIZATION NO P420 WAS APPROVED 4 MARCH AND WOULD BE FORWARDED TO BRIGHTFIELD 10 MARCH REQUEST INFORMATION ON DATE OF ARRIVAL TEST MODELS AT EGLIN AND ORLANDO AND WHEN TESTS WILL BE COMPLETED CONGRESSMAN WHITE HAS AGAIN PHONED GENERAL ARNOLD REQUESTING STATUS OF TESTS AND WILL UNDOUBTEDLY INQUIRE AGAIN FIRST OF NEXT WEEK

2030Z

EX 2

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CENTRAL FILES
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JGS:mhs:5k-09267

21 March 1944
1:00 PM
Engineering Division

PRIORITY

ASST C/AS MMD

F. O. CARROLL,
Brig. General, U.S.A.

MMD-4965.....REURTEL AFDMA-1 4861 DATED 20 MARCH 1944, BUDA COMPANY NOTIFIED ENGINEERING DIVISION, MATERIEL COMMAND, THAT MODEL B CHORE BOY TRUCKS WERE SHIPPED 17 MARCH 1944 BY COMMERCIAL TRUCK. TELEPHONE CALL TO MOLIN FIELD AND ORLANDO MADE 20 MARCH 1944 AND INFORMATION OBTAINED THAT TRUCK HAD NOT ARRIVED. INSTRUCTIONS WERE GIVEN TO MOLIN FIELD AND ORLANDO THAT THIS COMMAND BE ADVISED UPON ARRIVAL OF CHORE BOYS. IT IS SUGGESTED THAT ASST C/AS OCAR BE REQUESTED TO HAVE PROOF DEPARTMENT NOTIFY YOUR OFFICE DIRECTLY UPON ARRIVAL OF EQUIPMENT. THE TESTS WILL LAST 15 DAYS AFTER ARRIVAL OF TRUCKS MMD AFAMC

ENGINEERING DIVISION

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RESTRICTED

PROOF DEPARTMENT
ARMY AIR FORCES PROVING GROUND COMMAND (34)
EGLIN FIELD, FLORIDA

1 April 1944.

SUBJECT: Program for Test of Truck, 1/2 Ton, Buda Company "Chore Boy" Model B- Requirements for Replacements of Standard Material Handling Vehicles (S.T. 3-44-46), AAF Board Project No. (M-4) 479.

TO: Commanding Officer, 1st Proving Ground Group, AAFPGC, Eglin Field, Florida, and
Commanding Officer, 27th Sub-Depot, AAFPGC, Eglin Field, Florida.

1. GENERAL:

a. One (1) each truck, material handling, 1/2 ton, 3-wheel (Buda "Chore Boy" Model B) has been furnished this command for test. The material handling truck is a platform type having a capacity of one thousand (1,000) pounds. It is equipped with three (3) wheels, the front wheel being the steering wheel and the left rear wheel, the driver. The overall length is ninety-one (91) inches, the overall width is thirty-seven and one-fourth (37-1/4) inches, and the overall height (steering handle) is forty-six (46) inches. The net weight is eight hundred forty-five (845) pounds and the maximum speed is fifteen (15) miles per hour. It is powered with a one (1) cylinder, four (4) cycle Briggs and Stratton, Model ZZP gasoline engine.

b. This is a FOURTH PRIORITY service test.

c. This test was requested in a letter from the Commanding General, AAF Material Command, Wright Field, Dayton, Ohio, dated 21 February 1944, to the Army Air Forces Board, Army Air Forces Tactical Center, Orlando, Florida, subject: "Truck Materials Handling, 1/2-ton, 3-wheel, (Buda "Chore Boy" Model B)," copy of which was received at this station 1 March 1944. The test was activated by telephone conversation from the Army Air Forces Board on 2 February 1944.

d. 1st Lt. C. G. Hoyl is designated as the Miscellaneous Section Project Officer for this test.

e. 1st Lt. G. R. Bailey has been designated as the 1st Proving Ground Group, AAFPGC, Test Officer for this test.

Inclosure 1.

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f. At the conclusion of this test, which should be conducted for a period of fifteen (15) days, the equipment will be returned to the Miscellaneous Section Laboratory for final inspection by the Project Officer. The equipment will then be retained for such use as may be required, or transferred to the Supply Officer for re-issue.

2. OBJECT:

a. To determine possible uses of the subject equipment and its limitations.

b. To evaluate the material handling truck from the standpoint of economical advantages in comparison with the present material handling trucks.

c. To road test the vehicle on other than paved surfaces and to determine its trailer towing ability on paved and unpaved surfaces.

3. METHOD OF CONDUCTING TEST:

a. Preliminary Phase.

(1) Upon arrival at the Miscellaneous Section Laboratory the subject equipment will be examined for completeness and any damage caused in shipping.

(2) The overall dimensions of the vehicle will be checked and photographs will be taken.

(3) The vehicle will then be serviced by Miscellaneous Section personnel.

(4) All operators will be properly instructed as to the proper handling and care of the equipment.

b. Main Phase.

(1) The vehicle will be assigned to the 27th Sub-Depot for a period of four (4) days. It will be tested for economical handling of bulky objects and materials, transporting boxes, shipping crates, cartons and parts to and from shipping and receiving departments, especially in confined spaces and narrow aisles. The advantages or disadvantages of this vehicle in comparison with other material handling equipment used for similar types of work will be assessed. A questionnaire will be completed by all using personnel. At the end of four (4)

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days the vehicle will be returned to the Miscellaneous Section Laboratory.

(2) The vehicle will then be assigned to the Technical Supply of the 1st Proving Ground Group for four (4) days. It will be tested with regard to transporting parts, tools, prefabricated assemblies, lengthy material, and bulky objects. At the end of this test period the equipment will be returned to the Miscellaneous Section Laboratory.

(3) The vehicle will then be tested for a period of seven (7) days by the Miscellaneous Section personnel. During this time it will be road tested carrying a one thousand (1,000) pound load. It will also be tested carrying a one thousand (1,000) pound load and towing a trailer carrying a one thousand (1,000) and a two thousand (2,000) pound load, over paved and unpaved surfaces. During this test the equipment will be tested for its grade climbing ability and speed when loaded and empty.

(4) Road tests will be conducted over a fifty (50) mile course to determine the gasoline consumption and performance of the subject equipment. The vehicle will be driven over the course at an average speed of fifteen (15) miles per hour under the following conditions:

(a) Empty.

(b) Loaded with a one thousand (1,000) pound payload.

(c) Towing a trailer with a one thousand (1,000) pound load and the vehicle empty.

(d) Towing a trailer with a one thousand (1,000) pound load and a one thousand (1,000) pound payload on the vehicle.

c. Final phase.

(1) At the conclusion of this test the equipment will be examined thoroughly for damage and wear.

(2) Photographs will be taken by personnel from the Photographic Section of the 1st Proving Ground Group of any damages or wear that may occur.

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4. RECORDS:

a. A questionnaire, Inclosure 1, will be furnished by the Project Officer for completion by using personnel and will be forwarded with the Final Report.

b. Photographs will be taken by personnel from the Photographic Section of the 1st Proving Ground Group of the equipment before use, while in operation, and of any constructional failures that may occur.

5. REPORTS:

a. A daily progress report will be maintained by the Project Officer in the office of the Chief of the Miscellaneous Section, Proof Department, and will be accessible at all times to the Chiefs of the Testing Branch and Proof Department.

b. A final report will be prepared by the Project Officer, after a conference with all participating personnel and submitted to the Chief of the Proof Department, through the Chiefs of the Testing Branch and the Miscellaneous Section, immediately upon completion of the test.

By order of Colonel SELZER:

/s/ Alvin E. Hebert, Lt. Col., AC
for C. B. OVERACKER,
Colonel, Air Corps,
Chief, Proof Department.

1 Inclosure - Questionnaire. (Not Included)

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Prepared by: /s/ C.G. Heyl
C.G. HEYL,
1st Lt., Air Corps,
Project Officer.

Concurred in: /s/ G. R. Bailey
G. R. BAILEY,
1st Lt., Air Corps,
Group Test Officer.

Approved by: /s/
for H. W. RANDALL, JR.,
Lt. Col., Air Corps,
Chief, Miscellaneous Section.

Approved by: /s/ Alvin E. Hobert
for LEE B. COMTS,
Colonel, Air Corps,
Chief, Testing Branch.

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ENG DIV

18 April 1944

Equipment & Laboratory Sec

ORIGINAL

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Executive Office

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FROM ARNOLD WASH DC 082236Z

TO COMMANDING GENERAL MATERIEL COMMAND WRIGHT FIELD DAYTON OHIO

ATTENTION ENGINEERING DIVISION

GR53

AFDMA-1 2385 PD BUDA CHORE BOY IS THE SUBJECT. REUR ENG-4565 DATED 22 MARCH TODAY MAJOR CALHOUN OC&R ADVISES TEST TRUCKS HAVE ARRIVED ORLANDO NO INFORMATION ON STATUS OF TESTS NOR ANY INFORMATION AS TO AARIVAL OF TEST TRUCKS AT EGLINFIELD HAVE YOU ANY CURRENT INFORMATION AS TO WHEN TESTS WILL BE COMPLETED

2330Z

APR 10 10 07 AM 1944

REPLY DUE 4-13-44

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DEPARTMENT - ARMY AIR FORCE
Office, Asst. Chief of Air Staff, Materiel, Maintenance, and Distribution

Inter-Desk Memorandum

TO: Colonel Spaatz Date 8 April 1944

SUBJECT: Buda Chore Boy.

1. OCAR, Major Calhoun (Ext. 5443) advises Buda Chore Boy test trucks have arrived Orlando. No information as yet concerning test trucks arrival at Eglin. Major Calhoun is inquiring of both Eglin and Orlando concerning status of tests.

2. Have teletyped Wright Field this date for any additional information they may have.

3. Colonel Joe Bishop, Miscellaneous Equipment Branch, Engineering Division, Wright Field, advised the "pressure" for Government purchase of Buda Chore Boys was primarily the result of the activities of Mr. Bulosky of the Buda Company (who has been a frequent visitor to Wright Field.)

4. He is anxious to have his equipment listed in the Materiel Command catalog as being approved equipment available for purchase for Air Service Command use, not only in this country, but also overseas. Also he feels their Company is at some competitive disadvantage when manufacturers of similar type trucks show in their trade MAGAZINE advertising that their equipment is being extensively used by Army Air Forces both in this country and overseas.

5. Colonel Bishop is of the opinion that the tests at Orlando will not be favorable to the Buda Chore Boy except for the limited usage for which it is designed; namely, limited loads over paved areas, and for that reason probably will be not recommended for general Air Force use.

6. Colonel Bishop suggests when conclusions of Eglin and Orlando are known, if these are unfavorable, to check with him (Colonel Bishop's) office before communicating with Congressman White.

A. P. TAPPAN,
Lt. Colonel, Air Corps.

From

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R DEPARTMENT - ARMY AIR FORCE
Office, Asst. Chief of Air Staff, Materiel, Maintenance, and Distribution

Inter-Desk Memorandum

TO: Colonel Seaman

Date

SUBJECT: Data Chore #27

1. Phone call from Colonel Hinds, [illegible] Materiel Command, advised that [illegible] 2 April, and Orlando, 11 April.

2. Phoned Colonel Hoskins, OC&R, that [illegible] report within two weeks after the arrival of [illegible]. Colonel Hoskins says he would not be [illegible] report within that time. However he would get us some [illegible] informal report.

[signature]
[illegible], Lt. Colonel, Air Corps.

From

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WAR DEPARTMENT - ARMY AIR FORCES
Office, Asst. [illegible] of Air Staff, Materiel, Maintenance, and Distribution

Inter-Desk Memorandum

To: Colonel Bergamo Date 12 April 1944

Subject: Duda Chore Boy

Colonel Macklin, OCAR, advised by 'phone today that tests were proceeding at Eglin Field on the above mentioned equipment.

Test so far indicate that the Chore Boy truck is an acceptable piece of equipment for depot use on paved areas. He advised that his statements were quite informal and were not final, but all indications were that it would be eventually listed as an approved piece of equipment for use within the load limits for which it has been designed (approximately 1,000 lbs. capacity).

Colonel Macklin further advised that it would be approximately 6 weeks before completion of the tests, processing through OCAR, Air Service Command and Materiel Command to the final listing of the Duda Chore Boy as approved.

LT. COL. A. [illegible] USAS,
Executive, Materiel Division, ACAS, M&D

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Address reply & ENVELOPE to:

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Commanding General
AAF Materiel Command
Engineering Division
Reference:JCS:cd:54-5
Wright Field, Dayton, Ohio

11 MAY 1944

COM. GEN.
TECH. EXC.
ADM. EXC.
C. O.
BUD. OFF.
EXP./ENG.
CONTRACT
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C.P.S.
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TECH. DATA
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OTHERS

Truck, Materials Handling, (Duda "Chore Boy")
Reference No. 545R103.

Commanding General
Army Air Forces
Washington 25, D. C.

Attention: Asst. C/AS, MMAT

1. It is requested that the following information be transmitted to the Office of Assistant Chief of Air Staff, Operations, Commitments, and Requirements.

"Mr. Welcahy of the Duda Company, visited the [illegible] Materiel Command, 5 May 1944. He stated that the Sacramento and Spokane Depots desire [illegible] which are being tested at Eglin Field and [illegible] Project No. (M-4) 479."

For the Commanding General:

ENGINEERING DIVISION
MAY 12 10 58 AM

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R E S T R I C T E D

PROOF DEPARTMENT
ARMY AIR FORCES PROVING GROUND COMMAND
EGLIN FIELD, FLORIDA

FINAL REPORT

ON

TEST OF TRUCK, 1/2 TON, BUDA COMPANY "CHORE BOY" MODEL B - REQUIREMENTS FOR REPLACEMENTS OF STANDARD MATERIAL HANDLING VEHICLES

Serial No.: 3-44-46 No. of Pages: 7 Date: 20 May 1944.

AAF Board Project No.: (M-4) 479

/s/ C. B. Overacker
C. B. OVERACKER
Colonel, Air Corps,
Director, Proof Division

APPROVED: /s/ C. B. Overacker
for GRANDISON GARDNER,
Brigadier General, U. S. Army,
Commanding.

Incl. 2

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1. OBJECT:

a. To determine possible uses of the subject equipment and its limitations.

b. To evaluate the material handling truck from the standpoint of economical advantages in comparison with the present material handling trucks.

c. To road test the vehicle on other than paved surfaces and to determine its trailer towing ability on paved and unpaved surfaces.

2. INFORMATION:

This test was requested in a letter from the Commanding General, AAF Material Command, Wright Field, Dayton, Ohio, dated 21 February 1944, to the Army Air Forces Board, Army Air Forces Tactical Center, Orlando, Florida, subject: "Truck, Materials Handling, 1/2-ton, 3-wheel, (Buda "Chore Boy" Model B)," copy of which was received at this station 10 March 1944. The test was activated by telephone conversation from the Army Air Forces Board on 2 February 1944.

a. Description. One (1) each truck, material handling, 1/2-ton, 3-wheel (Buda "Chore Boy" Model B) has been tested at this station. The following description is quoted from the letter received from the Material Command:

"The materials handling truck is a platform type having a capacity of 1000 pounds. It is equipped with three wheels, the front wheel being the steering wheel and the left rear wheel, the driver. The general characteristics of the truck are as follows:

Engine: Briggs & Stratton - Model ZZP
Cylinders - one, 4 cycle
Bore and Stroke -3" x 3-1/4"
Displacement - 22.97 cu. in.
Horsepower - 7.7 at 3200 RPM
Ignition - magneto
Cooling - air

Power Transmission: From dry cone clutch, integral with engine, to forward or reverse friction drive cones, then by chain to rear axle.

Axle Bearings: Rear - ball-bearings, mounted in pillow blocks.
Front - Timken.

Brakes: Internal expansion - Foot control; locked wheel driver leaves seat.

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Wheels: Double disc steel; 4.00/8" - 6 ply pneumatic tires - 85 pounds pressure.

Frame: Welded steel.

Tare weight: 845 pounds.

Dimensions:

Overall length	91 inches
Overall width	37-1/4 inches
Overall height (steering handle)	46 inches
Turning radius	87 inches
Wheelbase	56 inches

Maximum speed: 15 miles per hour"

3. CONCLUSIONS.--It is concluded that:

a. When incorporating the changes recommended in paragraph 4 and eliminating the deficiencies noted in paragraph 6, the subject truck "Chore Boy", 1/2-ton, will be functionally satisfactory for light cargo hauling over hard surfaced roads or areas for short distances and for use in depots, warehouses, and air terminals, where the presence of carbon monoxide gas is not objectionable.

b. The subject equipment is not satisfactory for other than short hauls because of its slow speed and limited capacity.

c. The 1/2-ton truck, material handling, has no distinct economical advantage over the present material handling vehicles used at this field.

d. The simplicity of design makes it easy to service and operate by unskilled personnel.

e. The truck is easily maneuvered in confined spaces and narrow aisles.

f. The subject equipment is not satisfactory for operation over loose sand and mud roads.

g. The installation of the motor stop control is not satisfactory.

4. RECOMMENDATION.--It is recommended that:

If the truck, 1/2-ton, "Chore Boy" Model B, is given further consideration for standardization, the following changes be incorporated:

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a. The mounting of the engine be redesigned to absorb vibration better.

b. The steering handle be replaced with a steering wheel.

c. A motor stop control with a direct "push" against the spark plug be installed.

d. A horn and lights be installed on the vehicle.

5. RECORD OF TEST:

The truck, material handling, 1/2-ton, was tested in accordance with the procedure set forth in the test program dated 1 April 1944, subject: "Program for Test of Truck, 1/2 Ton, Buda Company "Chore Boy" Model B- Requirements for Repalcements of Standard Material Handling Vehicles (S.T.3-44-46), AAF Board Project No. (M-4) 479", copy of which is attached as Inclosure 1. Copy of questionnaire, completed by the Project Officer, is attached as Inclosure 2.

6. DISCUSSION:

a. The Buda "Chore Boy" Model B was received at the Equipment Section Laboratory on 4 April 1944. It was examined for completeness and for any damage caused in shipping and none was discovered. The truck was photographed and the overall dimensions were checked. (See Inclosure 3A.) It was then fully serviced and given a preliminary road test to ascertain that it was performing properly.

b. After determining that the truck was performing satisfactorily, operators were instructed in the operation and maintenance of the unit as prescribed in the instruction book furnished. The truck was assigned to the Maintenance Division for a period of four (4) days, during which time it was used by stock chasers to transport parts and materials. Within this test period eight (8) different drivers operated the truck, each of whom commented favorably on its maneuverability, but objected to its slow speed, especially when making distant hauls. The truck was driven a total of four (4) hours and thirty-five (35) minutes during this test. Upon completion of this 4-day period the truck was returned to the Equipment Section Laboratory. The truck was again inspected by the Equipment Section mechanics.

c. It was then assigned to the Technical Supply Section of the Proof Testing Section for a period of four (4) days, during which time it was used for transporting lengthy materials, prefabricated assemblies and bulky objects. On several instances a trailer was towed to provide additional carrying space for transporting lengthy and bulky objects.

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d. The motor stop control failed during this phase of the testing. It was determined that the wire from the control button to the spark plug ground plate had broken. The original location of the motor stop control necessitated a sharp bend in the control wire after passing around the gasoline tank. (See Inclosure 4A.) Because of this bend there was excessive strain on the wire which apparently caused it to break. The motor stop control was moved approximately one (1) inch to eliminate this bend. (See Inclosure 4B.) Throughout the test no further breakage of the wire occurred. Also, within this period of testing, the "Chore Boy" picked up a nail in the left rear tire. It was repaired and the test was continued. During this test period two (2) different drivers operated the truck, each of whom commented on the vibration within the steering handle and also remarked that comfortable seating was difficult due to the long steering handle, which caused the driver to bend far forward when negotiating turns. The truck was driven ten (10) hours and fifteen (15) minutes during this test. Upon completion of this 4-day test, the truck was returned to the Equipment Section Laboratory. The truck was again inspected and serviced by Equipment Section mechanics. During this inspection it was discovered that a leak had developed in the seam of the gasoline tank. It was repaired and no future trouble was encountered. (See Inclosure 4A.)

e. A 7-day durability test was then conducted by personnel of the Equipment Section Laboratory. During this test the truck was road tested as follows:

(1) Empty (approximately 150 miles).

(2) Carrying a 1,000-pound payload (approximately 500 miles). (See Inclosure 5A.)

(3) Towing a trailer with a 1,000-pound load and the truck empty (approximately 150 miles).

(4) Towing a trailer with a 1,000 pound and 2,000 pound load and a 1,000 pound payload on the truck (approximately 180 miles). (See Inclosure 5B.)

During this phase of the test the truck was driven one hundred two (102) hours and five (5) minutes or approximately nine hundred eighty (980) miles, using approximately sixty (60) gallons of gasoline and nine (9) pints of oil. During this road testing the left rear tube, which was previously patched, developed a slight leak, causing the tire to be run while underinflated. For this reason the left rear tire and tube had to be replaced. There was no further tire difficulty encountered.

f. A test to determine the gasoline consumption of the 4 x 4 Jeep towing a 1/2-ton trailer, motor scooter with package carrier, Clark lightweight tractor towing 1/2-ton trailer, and the "Chore Boy" Model B was

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conducted. The vehicles were driven until their gasoline supply was completely exhausted. At this point exactly one (1) gallon of gasoline was put into the tank of each vehicle. The vehicles were started and driven continually over hard surfaced roads until each had run out of gasoline. The mileage was checked by the speedometer, mileage indicator, of a jeep which closely followed these vehicles during this test. The distance each vehicle traveled before running out of gasoline was: "Chore Boy" - 10 miles; Jeep - 15.16 miles; Motor scooter - 34.4 miles; and the lightweight [illegible] 6.1 miles. While the 4 x 4 jeep, motor scooter and lightweight [illegible] compare with the "Chore Boy" in maneuverability in confined spaces, they do travel considerably faster and do have traveling ability on other than level, unpaved surfaces. At the present time there is no material [illegible] vehicle on this field available for a more suitable comparison.

g. The truck, with full acceleration, took one (1) hour and [illegible] (5) minutes to travel a distance of ten (10) miles. Throughout the test, records were kept regarding the time to travel marked distances and at no time did the speed exceed ten (10) miles per hours.

h. During the test to determine the grade climbing ability of the subject truck, it was discovered that the truck while empty successfully climbed a fourteen (14) percent grade. This was the steepest paved grade available. The truck while carrying a 1,000 pound payload has a maximum grade ability of 9.2 percent. The truck carrying a 1,000-pound load and towing a trailer carrying a 1,100-pound load has a maximum grade ability of four (4) percent.

i. After several unsuccessful attempts to travel over sandy and muddy roads it was determined that the truck would not negotiate other than hard surfaced roads. (See Inclosure 3B).

j. A test was conducted to determine the diameter of the smallest circle in which the "Chore Boy" could make a complete turn. It was determined that the diameter of the turning circle, when turning to the left, is one hundred eighty-nine (189) inches and that the diameter of the turning circle, when turning to the right, is one hundred seventy-one (171) inches.

k. During the time the "Chore Boy" was not being tested to determine the special data mentioned in preceding paragraphs it was driven over a level, hard surfaced course. This was done to maintain a 16-hour daily operating schedule. During this period of testing the engine failed. The driver reported that the truck had stopped and that he could not start it because the motor had frozen. The truck was towed to the Equipment Section Laboratory where the truck was inspected and the driver's report verified. The engine was carefully disassembled and it was discovered that the crank shaft had broken (see Inclosure 6B), causing the following damages: two (2) teeth were broken from the cam gear (see Inclosure 7A), the connecting rod was bent (see Inclosure 7B) and the magneto plate was damaged. (See

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Enclosure (4).) From all indications this breakage was caused by crystallization and the excessive vibration. Other breakages also were noted, these were the [illegible] shield mounting legs and the spark plug terminal (see Enclosure (3)).

2. During this period nine (9) different drivers operated the truck, each of whom commented unfavorably on its slow speed and excessive vibration.

3. [redacted]

Inclosure 1 - Test Program.
Inclosure 2 - Completed Questionnaire.
Inclosure 3 - Photographs.
Inclosure 4 - Photographs.
Inclosure 5 - Photographs.
Inclosure 6 - Photographs.
Inclosure 7 - Photographs.
Inclosure 8 - Photographs.

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Prepared by: /s/ C. G. Heyl
C. G. HEYL
1st Lt., Air Corps,
Project Officer.

Concurred in: /s/ G. R. Bailey
G. R. BAILEY
1st Lt., Air Corps,
Proof Testing Section Test Officer.

Approved by : /s/ H. W. Randall Jr.,
H. W. RANDALL, JR.,
Lt. Colonel, Air Corps,
Chief, Equipment Section.

Approved by: /s/ Alvin E. Hebert
ALVIN E. HEBERT,
Lt. Colonel, Air Corps,
Actg. Chief, Testing Branch.

DISTRIBUTION:

3 cys - Executive Director, AAF Board, Orlando, Florida.
1 cy - Permanent File.

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QUESTIONNAIRE
(S.T. 3-44-46)

TRUCK, MATERIALS HANDLING, 1/2-TON, 3-WHEEL

1. The truck should be tested to determine its material handling ability and trailer towing ability on paved and unpaved surfaces.

   a. Does the truck satisfactorily transport a load of 1000 pounds on paved surfaces? Yes

   on unpaved surfaces? Hard unpaved surfaces, yes. Loose sand and mud, no.

   b. Does the truck loaded to its maximum capacity and towing a trailer carrying a load of 1000 pounds operate satisfactorily --on paved surfaces? Yes.

   on unpaved surfaces? Level hard unpaved surfaces, yes.

2. The turning radius of the truck is 87 inches.

   a. Is the turning radius satisfactory for operation in confined spaces and narrow aisles? Yes.

   b. Can a complete turn be made between walls spaced at 14 feet 6 inches? When turning to the right, yes; left, no.

   c. Is the truck easily maneuvered in making these close turns? Yes.

3. The truck, carrying its maximum load, possesses a 20 percent grade ability.

   a. Is this grade ability sufficient to negotiate ramps at warehouses and loading and unloading docks? Yes.

   b. What was the maximum grade which the tractor negotiated during the tests? 14 percent.

   c. What is the maximum grade that can be negotiated with the truck, fully loaded, towing a trailer with a gross load of 2000 pounds? 0 percent.

   1500 pounds? 0 percent.

4. The materials handling truck is designed for all types of uses. Enumerate the purposes for which the vehicle was used. It was tested in accordance with test program attached.

5. The simplicity of design and easy accessiblity of the engine and drive mechanism makes the truck easy to service, operate and repair.

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a. Was any difficulty encountered in the servicing of the vehicle? No.

b. What was the approximate length of time required for the operator to familiarize himself with its operation? 5 minutes.

c. Did any failure occur during the test? Gas tank leaks, motor stop control failed, 2 flat tires.

d. Was any difficulty encountered in making repairs? No.

If not, is it reasonable to assume that repairs could be easily accomplished? Yes.

6. The materials handling truck should be suitable for transporting bulky objects, cartons, tools; parts and assemblies.

a. Is the truck a suitable replacement for the standard hevier tractors, such as the Clark and Mercury, for lighter tasks? The "Chore Boy" is more suitable for transporting light materials over paved and hard level unpaved surfaces, but does not have the pulling power.

b. Is this truck a more satisfactory vehicle than the 3-wheel motor scooter for the use of stock chasers, due to its greater load carrying capacity? It has greater carrying capacity, but less speed than the motor scooter w/package carrier.

7. Heavy duty tractors are often used for carrying baggage, mail, and air parcels to and from airplanes.

a. Would the materials handling truck be more economical and suitable for this purpose? Yes.

b. Should consideration be given to the design of a readily detachable seat for installation on the truck for transporting personnel? No, it is too slow.

8. The truck was designed for simplicity and all non-essential items were eliminated.

a. Would a warning signal be of sufficient value for installation? Yes. A horn should be installed.

b. Would installation of a driving lamp increase its usefulness at night? Yes. Lamps in front and rear.

c. If not, should reflectors be installed?

c. Should tire size be increased to obtain better flotation on the ground? Installation of larger tires and springs would give better flotation.

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d. Should stakes and racks be furnished? Yes, for use when hauling light articles.

9. Remarks and Recommendations: - (This paragraph should include such additional information not covered in the above paragraphs, as well as comments and recommendations of testing personnel.)

1st Lt. C. G. Hoyl, A.C.
Name and Rank

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B-3

Maj. H.F. Marshall:wm
90-C-10 Tel. 2-5233
MFM:wm

90-C-10

29 May 1944

COM. GEN.
TECH. EXC.
ADM. EXC.
C.C.
BUD. OFF.
EXP. ENG.
CONTRACT
INSP.
PROD. DIV.
PROD. ENG.
PROD. CONT.
I.P.S.
A.S.C.
TECH. DATA
CIV. PERS.
OTHERS

SUBJECT: Production Data for: Truck, 2½ Ton, Buda Company, "Shore Boy" Model B. 451.2

TO: The Executive Director
Army Air Forces Board
Orlando, Florida

Attn: Equipment Division

1. Information from Buda Company, Harvey, Illinois indicates that production data regarding subject item is as follows based upon 500 items:

a. Availability of materials: Materials can be made available under standard AA-1 priority.

b. Reason for using any critical materials which may be involved: Engines and bearings are somewhat critical but otherwise the minimum of critical material is involved.

c. Availability of manufacturing facilities: Buda state that they have ample facilities for manufacturing from 100 to 200 per month. This is a standard item of production sold to other customers.

d. Estimated date when deliveries could commence: Buda state that they can ship 25 within one week from receipt of order.

e. Estimated maximum delivery schedules: Buda state they can ship 50 per month and after 90 days (the time necessary to obtain materials) and increase from 100 to 200 per month.

f. Approximate estimated cost per item: $995.00 F.O.B. Cars, Harvey, Illinois.

NOTE: Production data is based on furnishing of standard Model "B" as per attached bulletin.

For the Commanding General:

H. F. Marshall
H. F. MARSHALL
Major, Air Corps
Production Division Liaison
Officer for AAF Board

cc: Capt. J.C. Scott
Misc. Branch
Equip. Lab.
Incls: 1 Bulletin

53

AAFEC-194-Buda-Harvey-Ill

CENTRAL FILES

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B-2

90-C-50

Maj.H.F.Marshall
2-5233
HFM:FK:mg

29 April 1944

COM. GEN.
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ADM. EXC.
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I. P. &
A. & C.
TECH. DATA
CIV. PERS.
OTHERS

Subject: Production Data for: Truck, 1/2 Ton, "Chore Boy" Model B /451.2

To: Budd Company
Harvey, Illinois

Attn: Mr. Mulchay

1. Subject equipment consists of a materials handling platform type truck, having a capacity of 1,000 pounds. It is equipped with three wheels the front wheel being the steering wheel and the left rear wheel, the drive. This truck is powered by a Briggs & Stratton-Model XNF, Air Cooled Engine, developing 7.7 horsepower at 3200 R.P.M. This truck can be used in warehouses to transport boxes, shipping crates, and cartons and parts to and from shipping & receiving departments, especially in confined areas & narrow aisles.

2. In order that the Production Division may comply with the request from Army Air Forces Board for production data, it is requested that you furnish the following information based on a quantity of 500 items.

a. Availability of materials.
b. Reason for using any critical materials.
c. Availability of manufacturing facilities.
d. Estimated date when deliveries can commence.
e. Estimated maximum delivery schedules.
f. Approximate estimated cost per item.

3. It is desired to emphasize that this request is for preliminary production data and that the information given will not be used as a basis for actual procurement. After the Army Air Forces Board has completed its tests and received this production data, if a decision is reached requiring purchase of subject item in production quantities, procurement action will be taken in the usual manner.

4. It is requested that reply be made to Resources Control Section, Components Branch, Department 90-C-50.

For the Commanding General:

H. W. HARLINGS
Colonel, Air Corps
Chief, Resources
Control Section

cc: Chicago, Ill. Area
Attn: ASCLR
MCFD, Attn: ASCLO

MC-100-WP-12-17-43-500M CENTRAL FILES

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T-8(1)(p)

Colonel J. W. Sessums 31 May 1944

Duda Chore Boy

1. Major F. B. Johnston and Captain J. C. Scott, Miscellaneous Equipment Branch, Equipment Laboratory, Materiel Command, stopped in today to discuss the status of the Duda Chore Boy. Captain Scott was at Orlando on 25 May, at which time a report from Eglin Field concerning test on Duda Chore Boy was made. Captain Scott was permitted to review this report.

2. In brief the report recommends approval for standardization as an item of materials handling equipment for Army Air Forces use within the continental limits for AFC and ASC. However this approval is based upon an extensive list of modifications. It was Captain Scott's opinion that modifications required are so extensive that the manufacturer will not choose to include them in his product in order to qualify for A.A.F. business.

3. For example, some of the modifications are as follows:

Two cylinder engine instead of one cylinder
Steering wheel instead of the bar type
Warning horns
Lights, and
Arrangements to remove wheels for tire changing.

4. Due to the fact that these reports are all printed at Orlando it will probably be two weeks before the formal report is received in Washington.

5. The main reason for the length of time required to run the test at Eglin and secure the report was due to the fact that the A.A.F. Board assigned a number four priority. This is the lowest priority. A.A.F. Board priorities are assigned on the importance of projects in the opinion of the A.A.F. Board as to its immediate benefit to winning the war.

6. A brief cronological history of the Duda Chore Boy is as follows:

On 21 January inquiry was made by teletype of five manufacturing companies using this equipment.

On 22 January A for P was initiated.

On 2 February a telegraphic bid was obtained from Duda Company.

On 3 February advance order number and priority was assigned.

Delivery of Duda trucks for test purposes was held up pending release by WPB.

WPB Authorization No. 9420 was approved 9 March.

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83-8(2)4p.

Colonel J. W. Seesums 31 May 1944

Buda Chore Boy (Continued)

Chore Boy trucks were shipped 17 March via freight.

Trucks arrived Orlando 31 March and Eglin Field 3 April.

7. Congressman White called General Echols and was referred to Colonel Baldwin 20 May with reference to status of the Buda Chore Boy. Contacted Major Calhoun, Liaison Officer for Eglin Field, who advised that the report would go forward to Orlando the latter part of the following week. Major Calhoun advised Colonel Baldwin on the 29 May that he had received a copy of a report forwarded to Orlando. Congressman White was advised of this and upon inquiry of the status of this report was notified that the Chore Boy was acceptable for standardization providing certain modifications were made. Colonel Baldwin advised Congressman White that it would probably be an additional three weeks before the report would be received from Orlando, and further, that he (Congressman White) would be advised as soon as the report is received.

8. A.A.F. Board indicated to the Material Command representative that the final report recommending standarization with the above-mentioned modifications would recommend no specific allocation. The Chore Boy would be available on requisition.

9. It is quite apparent that two major factors have been responsible for the time required to secure the results of this test:

First, the difficulty in getting WPB clearances and time in transit to Eglin and Orlando.

Second, the fact that Eglin assigned their lowest priority to the project. Colonel Pinkney, Liaison Officer for A.A.F. Board is endeavoring to secure an advance copy of the final report. A copy of this memorandum is being sent to Colonel Bishop at Material Command this date to see if Colonel Bishop has any suggestions as to procedure to be followed in the next steps to be taken by Mr. Maloney of the Buda Company and Congressman White.

10. If Colonel Bishop has no particular suggestions, it is recommended that Colonel Bishop explain the circumstances to Mr. Maloney for such further action as his Company may want to make. In addition, that someone from this office take the advance copy of the A.A.F. Board report to Congressman White with as much of the above chronological history as may seem appropriate. It is suggested that Colonel Baldwin make the visit to Congressman White. Colonel Baldwin's conversations to date with Congressman White have been on a very pleasant basis. Material Command will send us a chronological history of their participation in events leading up to these tests.

Colonel J. F. Phillips
Chief, Materiel Div.

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[redacted] reply to [redacted]

[redacted]
Engineering Division
Reference: MCD:ed:54-5
Wright Field, Dayton, Ohio

B-5

451.2

6-7

10 JUN 1944

"Buda Chore Boy" Project

Commanding General
Army Air Forces
Washington 25, D. C.

Attention: Asst C/AS, MCD

1. There is inclosed a complete file of all correspondence pertaining to the "Buda Chore Boy" project. A copy of the files of the Engineering Division of this Command was requested by Lieut. Col. Pepper of your Office, in Teletype AFMSC-1 1123 dated 6 June 1944.

For the Commanding General:

[redacted]
Colonel, Air Corps
Acting Chief
Engineering Division

1 Incl.
Complete file pertaining to "Buda Chore Boy" Project

13 JUN 1944

Cy of ref. teletype already fwd. to Central File

ENGINEERING DIVISION
JUN 10 11 00 AM

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B-4

COPY

WF V OV WP 17

FROM ARNOLD WASHINGTON DC 0519257

June 6-44

TO CG MATERIEL COMMAND WRIGHTFIELD OHIO ATTN COL JOSEPH BISHOP MISCELLANEOUS EQUIP LAB

GR55

AFDWA-1 1123 PD SUBJECT QUOTE BUDA CHORE BOY QUOTE REFERENCE IS MADE TO INTER DESK MEMO OF THIS OFFICE TO COLONEL J W SESSUMS DATED THIRTY ONE MAY COPY WHICH WAS DELIVERED TO YOU ONE JUNE BY CAPTAIN SCOTT OF YOUR OFFICE PD PLEASE FURNISH US WITH YOUR COMMENT ON PARAGRAPHS NINE AND TEN

"1940Z

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JCS:cd:[illegible]8272

TELETYPE MESSAGE

ROUTINE

DATE: 7 June 1944
3:00 P.M.

FROM Engineering Division
[illegible]
H. Z. BOGERT
Colonel, Air Corps

ATTENTION: ASST C/AS, MMD

ENG-4446.....REFERENCE TELETYPE MESSAGE AFDMA-1 1123 DATED 5 JUNE 1944, FURTHER COMMENTS ON THE "BUDA CHORE BOY" PROJECT CANNOT BE MADE PRIOR TO RECEIPT OF TEST REPORTS FROM THE AAF BOARD. A COMPLETE CHRONOLOGICAL FILE OF CORRESPONDENCE PERTAINING TO THIS PROJECT HAS BEEN MAILED UNDER SEPARATE COVER. END AFAMC

ENGINEERING DIVISION

Copy for
Engineering Division

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THE ARMY AIR FORCES BOARD
Orlando, Florida

23 June 1944

AAF BOARD PROJECT NO. (M-4) 479

TRUCK, 1/2 TON, [illegible] COMPANY "CHORE BOY" MODEL
B-REQUIREMENTS FOR REPLACEMENT OF STANDARD
MATERIAL HANDLING VEHICLES

I. OBJECT:

a. To review the military requirements for subject equipment.

b. To service test subject equipment with respect to design, construction, and ability to perform the functions for which designed.

II. FACTUAL ELEMENTS OF THE PROJECT:

a. For description of subject equipment, see paragraph 2a of attached AAF Proving Ground Command report.

b. Subject vehicle was proposed as an economical substitute for heavier and costlier vehicles now in use for handling material.

c. Material handling vehicles now standard in the AAF can be roughly classified as follows:

(1) Tractors (Light and heavy duty used with warehouse trailers).

(2) Fork trucks (Both gasoline and electric, high lift, ranging in capacity from 2,000 lbs. to 15,000 lbs).

(3) Platform trucks (Both gasoline and electric, lift and fixed, ranging in capacity from 4,000 lbs. to 10,000 lbs.)

d. In addition to the above AAF equipment, three wheel scooters are also available for messenger service and delivery of small items. Also, the "Clerkat", a small tug for towing trailers, is available from the Quartermaster.

III. CONCLUSIONS:

There is no present military requirement for subject vehicle.

IV. RECOMMENDATIONS:

That subject vehicle be dropped from further consideration at this time.

V. DISCUSSION:

a. The inability of the "Chore Boy" to operate on unsurfaced

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roads renders it impractical for use by tactical organizations.

b. A wide range of material handling vehicles is now available to Control Depots, Specialized Depots, Inter-Transit Depots, and Freight terminals. The "Chore Boy" does not have sufficient merit over these vehicles to warrant its adoption as a new item of equipment. Attached AAF Proving Ground Command report, paragraph 3a, states, "The ½-ton truck, material handling, has no distinct economical advantage over the present material handling vehicles used at this field." While it is true, subject vehicle travels on less fuel and requires less maintenance than most vehicles, it must also be considered that it hauls less, travels at a slower speed, and is limited to small items due to its small platform space of 37" x 39".

c. For quick delivery of small parts and supplies, the present scooter, 3 wheel, now issued and in use at AAF installations, is the most economical and suitable from an operational standpoint.

d. The present tractors, light duty, specification 91-72, with trailers, are suitable for outdoor transportation of all AAF supplies, equipment, and parts that cannot be transported by the 3 wheel scooter. The "Core Boy's" slow speed, excessive vibration, and small capacity eliminates it as a reasonable substitute for light duty tractors for outdoor work.

e. For the movement of bulk supplies in and about warehouses, a variety of fork and platform trucks are available. Although the initial cost of such trucks is considerably higher than the cost of the "Chore Boy", the saving in time and labor, in bulk handling of material made possible by the use of these trucks definitely make them the most economical vehicles available.

f. The only remaining function which has not been considered is the moving of small lots of supplies within a warehouse or other building. The adoption of a special vehicle for these small jobs would not materially decrease the quantity of larger vehicles required and the saving in operating cost made possible by such a vehicle would hardly justify the initial cost of procuring a new vehicle which would have such limited utility.

VI. INCLOSURES:

Incl 1 - Directive ltr MC dtd 21 Feb 1944

Incl 2 - AAFPGC Final Report Serial No. 3-44-46, dtd 20 May 44.

Incl 3 - Production Factors.

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PREPARED BY:

Robert L. Nelson, Major, AC, Equip. Div., AAF Bd.

CONCURRED IN BY:

Osburn C. Wilson, Lt. Col., AC, Chief, Dev. & Test Br Equip Div. AAF Bd.
Glen R. Johnson, Lt. Col., AC, Chief, Tech. Order Br. Equip Div. AAF Bd.
A. J. O'Callaghan, Major, AC, Air Service Command Rep., AAF Bd.
D. E. Thomas, Major, AC, Materiel Command Rep., AAF Bd.
Eugene H. Rice, Colonel, AC, Chief, Equip. Div., AAF Bd.
George W. McGregor, Colonel, AC, Executive, AAF Bd.

APPROVED:

For the Army Air Forces Board:

E. L. EUBANK
Brigadier General, U. S. Army
President

GUSTAV A. NEUBERG
Lt. Col., AGD
Recorder

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D-1

TELEPHONE - CONFERENCE RECORD SHEET

DATE 30 June 1944

Name and Location of Activity: Buda Company, Harvey, Illinois

Report on:
( ) Conference
(X) Telephone Call
Government Paid (X) Incoming ( )
Contractor Paid ( ) Outgoing (X)

Coordination:
Unit Chief
Asst Branch Chief
Branch Chief
Return to Captain J. C. Scott

Approved by

SUBJECT Telephone Call to Buda Company

PERSONNEL INVOLVED:

SUMMARY: A telephone call was made to contact Mr. Mulcahey who could not be contacted and would not be available until approximately 3 July 1944. Colonel Bishop talked with Mr. Dempsey, President of the Company, who assured him that his office would call Mr. Fisher, Vice-President of Buda, now in Washington, requesting that he personally get in touch with Lt. Col. Baldwin and assure him that the Army Air Forces are expediting tests to determine the military requirements of their equipment known as the "Buda Chore Boy." This call was made as per request of Lt. Col. Baldwin of General Echols' office.

ACTION REQUIRED:

(SIGNED)

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S-10 FDS

TELEPHONE - CONFERENCE RECORD SHEET

DATE 1 July 1944

Name and Location of Activity: Mr. Mulcahey, representative of the Buda Company, Harvey, Illinois

Report on:
( ) Conference
(X) Telephone Call
Government Paid ( ) Incoming ( )
Contractor Paid ( ) Outgoing ( )

Coordination:
Unit Chief
Asst Branch Chief
Branch Chief
Return to

Approved by

SUBJECT Buda "Chore Boy"

PERSONNEL INVOLVED:

Lt. Colonel J. H. Bishop
Mr. Mulcahey

SUMMARY: Mr. Mulcahey made the statement that he was perfectly satisfied with the courtesy and method of expediting their product and presenting it to the Army Air Forces Board.

Colonel Bishop stated we had done everything we could to expedite production.
Mr. Mulcahey said, "That's right."
Colonel Bishop said that there was a question in Washington as to whether or not we were. Colonel Baldwin had called and asked that we make sure everything was 100%.
Mr. Mulcahey, "Absolutely." "I made that statement to Col. Baldwin's office. and when I talked with General Echols yesterday afternoon. General Echols said it was not a confirmed statement but that Colonel Baldwin had talked with Orlando and they said the Chore Boy was out."
Colonel Bishop, "We have no control over that - we presented it to the proper people."

ACTION REQUIRED:

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TELEPHONE - CONFERENCE RECORD SHEET

DATE 5 July 1944

Name and Location of Activity: Misc. Equip. Branch

Report on:

(✓) Conference

( ) Telephone Call

Government Paid ( ) Incoming ( )

Contractor Paid ( ) Outgoing ( )

Co-ordination:

Unit Chief .....

Asst. Branch Chief .....

Branch Chief .....

Return to Capt. J. L. Scott

Approved by .....

SUBJECT Buda "Chore Boy"

PERSONNEL INVOLVED: Lt. Col. J. H. Bishop, Capt. J. L. Scott
Mr. Mulcahy, Buda Co.

SUMMARY:

Mr. Mulcahy reported on conference held with Gen. Echols' Depot (Lambert) at M. M. & D. from Orlando stated that no requirement at present. He was informed that if we receive such a report, specifications will be prepared. No reports have been received from Board to this date.

ACTION REQUIRED:

Tear down engine on Buda Chore Boy to determine cause of crankshaft failure, particularly to check whether engine was properly serviced. Notify Mr. Mulcahy when reports are received.

Engine was properly serviced as indicated by examination. JLS

SIGNED J. L. Scott, Capt. A.C. 59.

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O. Buda
AEAS-8-15-23(1-44)

ARMY AIR FORCES
HEADQUARTERS
AIR SERVICE COMMAND

IN REPLY REFER TO: ASCSR1A

Patterson Field, Fairfield, Ohio
8 JAN 1944

Subject: Buda "Chore Boy" Trucks

To: Commanding General
Army Air Forces
Washington, 25, D. C.

Attn: Asst Ch/AS, M&AD
(Major Gen. O. P. Echols)

1. Reference is made to recent telephone conversations between Major General O. P. Echols and Major General D. H. Dunton concerning the subject trucks. The Air Service Command has definitely accorded full and complete consideration to the possible initiation of procurement of a quantity of the subject trucks. The following is a brief chronological history of the case surrounding the Buda "Chore Boy" Trucks.

a. Prior to 7 January 1944. The Air Service Command had received a few requisitions for the subject trucks, but supply of same was not effected since the trucks had never been standardized for procurement or issue by the Army Air Forces and it was not definite whether or not a genuine need actually existed for these trucks. These trucks were tried out at the San Bernardino Air Depot, at the request of the contractor, and it was verbally stated at the time that the trucks were too small for the required work.

b. 7 January 1944. Inasmuch as the Air Service Command definitely desired to determine whether or not a military requirement existed for these trucks, a letter (subject, "Buda Company 'Chore Boy'") was forwarded to the Headquarters, Army Air Forces, on 7 January 1944 recommending the following actions:

(1) That it be determined which Arm or Service was responsible for procurement and issue of subject trucks.

(2) That the Service responsible for procurement conduct service tests to determine whether a military requirement existed for subject trucks.

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AC/AS (5-28/2/44) 71

Ltr frm ASC dtd July 1944, sub, Buda "Chore Boy" Trucks (cont'd)

(3) That if the Army Air Forces was responsible for procurement of the item, the test be conducted at Orlando, Florida, by the Army Air Forces Equipment Board."

No answer was ever received to this letter although the Materiel Command did secure one of the subject trucks which was forwarded to the Army Air Forces Equipment Board for test purposes.

c. 23 June 1944. The Army Air Forces Equipment Board Project No. M-4-479, dated 23 June 1944, concerning the Buda "Chore Boy" truck, states definitely on the first page of the report that:

(1) "There is no present military requirement for subject vehicles."

(2) "Subject vehicle be dropped from further consideration at this time."

In view of the above Board report, no further action is contemplated by the Air Service Command.

d. 5 July 1944. In response to a specific request to the San Bernardino Air Service Command to submit an estimate of utility of the subject trucks, the following communication was received:

> "Experience, this depot, with Buda "Chore Boy" indicates this vehicle suitable for limited use only. Will not handle heavy duty in Supply and Maintenance Division. Operators report vehicle has dangerous tendency to tip on single front wheel. Procurement of this equipment for general use in Air Service Command is not recommended."

2. It is the belief of the Air Service Command that every consideration has been accorded by the entire Army Air Forces to the subject trucks. On several occasions, the entire matter has been explained to the Buda Company. The course of action followed by this Command was in exact accordance with established procedures pertaining to new items of equipment.

3. In the event any further information is desired on this subject from the Air Service Command, same will be furnished immediately upon request.

For the Commanding General:

D. H. Dunton

D. H. DUNTON
Major General, U.S.A.,
Deputy Commander

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13-11

THE BUDA COMPANY

CABLE ADDRESS "BUDA"
WESTERN UNION CODE

ADDRESS ALL COMMUNICATIONS
TO THE COMPANY
NOT TO INDIVIDUALS

GENERAL OFFICES AND WORKS

HARVEY, ILLINOIS
(CHICAGO SUBURB)

CHICAGO
NEW YORK
ST. LOUIS
SAN FRANCISCO
LONDON

IN REPLY
REFER TO

July 8, 1944

Col. P. A. Baldwin
Army Air Forces
Room 4-C-865
Pentagon Building
Washington, D. C.

Dear Sir:

The writer was in Washington Saturday and endeavored to reach you at the suggestion of Col. Bishop of Wright Field.

The writer's reason for wanting to contact you is to assure you that insofar as the tests being made of the Buda Shave Boy, Model B, at Orlando are concerned, we have had excellent cooperation from both Col. Bishop and Capt. Scott of Wright Field in their efforts to expedite matters and advise us of any developments. In fact, if we had had as good cooperation from Orlando, we believe this matter would have been brought to a conclusion quite some time ago.

Respectfully yours,

THE BUDA COMPANY

W. T. Bulesky
Manager, Industrial Division

WTB:AMD

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Comm. Bldg.
AC/AS-M13-24

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AFMMD-1
Maj.Gen.O.P.Echols/jj/2128

7 July 1944

Mr. E. T. Sulcoby,
The Buda Company,
Harvey, Illinois.

Subject: Truck, One-Half Ton Buda Company
"Chore Boy" model B.

Dear Mr. Sulcoby:

Based on your complaint that the Air Service Command at Patterson Field had refused to give proper consideration to your one-half ton truck, known as the Buda "Chore Boy", steps were taken to have a test made of your equipment by the Army Air Forces Board at Orlando, Florida. The object of this test was to review the military requirements for equipment of this nature and to service test your equipment with respect to design, construction and ability to perform the functions for which it might be required by the Army Air Forces.

This equipment was subjected to tests in comparison with the material handling vehicles now in use in the Army Air Forces. The Board appointed to conduct this test stated that a wide range of material handling vehicles is now available to control depots, specialized depots, intermediate depots and freight terminals, and that the "Chore Boy" does not have sufficient merit over these vehicles to warrant its adoption as a new item of equipment. This Board concluded that there is no present military requirement for this vehicle and recommends that it be given no further consideration at this time.

For your further information, in regard to your statement that the San Bernardino Air Depot was desirous of purchasing a quantity of the Buda "Chore Boys" and that the Air Service Command Headquarters at Patterson Field refused to permit the procurement of this equipment, report from the Air Service Command at Patterson Field states that the San Bernardino Depot has submitted a report to that office which states that correspondence at that depot with the Buda "Chore Boy" indicates that this vehicle is suitable for limited use only, and that procurement of this equipment for general use in the Air Service Command is not recommended.

In view of the above, the Army Air Forces has no requirement for the Buda "Chore Boy" at this time.

Very truly yours,

AFMMD-1 Contract AC-886

O. P. ECHOLS
Maj General, U. S. A.
Asst Chief of Air Staff

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Compton - Buda
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AFMMD-1
Maj.Gen.O.P.Echols/jj/2128
(wrtn 7 July 1942)

Tm 112-4

Honorable Compton I. White,
House of Representatives,
Washington 25, D.C.

Dear Mr. White:

With reference to your several requests to Major General O. P. Echols of this office, in connection with the placing of the Buda "Chore Boy" on the approved list for procurement for the Army Air Forces, there is inclosed herewith for your information copy of letter to Mr. Mulcahy of The Buda Company.

As stated in this letter, steps were taken to have this equipment tested by the Army Air Forces Board to determine its suitability for Air Force use. This Board has concluded that there is no Air Force requirement for this vehicle at this time.

Sincerely yours,

Incl.
cc ltr to Mr.Mulcahy

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SIGNATURE OF RESPONSIBLE OFFICER	OTE					
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B-14

THE BUDA COMPANY

CABLE ADDRESS "BUDA"
WESTERN UNION CODE

(ESTABLISHED 1881)
GENERAL OFFICES AND WORKS

HARVEY, ILLINOIS
(CHICAGO SUBURB)

ADDRESS ALL COMMUNICATIONS
TO THE COMPANY
NOT TO INDIVIDUALS

IN REPLY
REFER TO

July 12, 1944

Capt. J. C. Scott
Army Air Forces
Equipment Laboratory
Wright Field
Dayton, Ohio

Dear Captain:

Herewith copy of letter we have received from Gen. Echols formally advising us of the rejection of the Chore Boy. No doubt you have already received copy of this letter.

Have you as yet been informed of the structural changes recommended by the Orlando Proving Grounds? Should you wish to discuss these changes with our Engineering Department, please advise me and we will make arrangements accordingly.

With kindest personal regards, I am

Yours very truly,

THE BUDA COMPANY

W. T. Mulcahy
Manager, Industrial Division

WTM:AMD
Attach.

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A-13

HEADQUARTERS, ARMY AIR FORCES

WASHINGTON

W. T. Mulcahy
The Buda Company
Harvey, Illinois

SUBJECT: Truck, One-Half Ton Buda Company "Chore Boy" Model B.

Dear Mr. Mulcahy:

Based on your complaint that the Air Service Command at Patterson Field has refused to give proper consideration to your one-half ton truck, known as the Buda "Chore Boy", steps were taken to have a test made of your equipment by the Army Air Forces Board at Orlando, Florida. The object of this test was to review the military requirements for equipment of this nature and to service test your equipment with respect to design, construction and ability to perform the functions for which it might be required by the Army Air Forces.

This equipment was subjected to tests in comparison with the material handling vehicles now in use in the Army Air Forces. The Board appointed to conduct this test stated that a wide range of material handling vehicles is is now available to control depots, specialized depots, intertransit depots and freight terminals, and that the "Chore Boy" does not have sufficient merit over these vehicles to warrant its adoption as a new item of equipment. This Board concluded that there is no present military requirement for this vehicle and recommends that it be given no further consideration at this time.

For your further information, in regard to your statement that the San Bernardino Air Depot was desirous of purchasing a quantity of the Buda "Chore Boys" and that the Air Service Command Headquarters at Patterson Field refused to permit the procurement of this equipment, report from the Air Service Command at Patterson Field states that the San Bernardino Depot has submitted a report to that office which states that experience at that depot with the Buda "Chore Boy" indicates that this vehicle is suitable for limited use only, and that procurement of this equipment for general use in the Air Serive Command is not recommended.

In view of the above, the Army Air Forces has no requirement for the Buda "Chore Boy" at this time.

Yours very truly,

O. P. [illegible]
Maj. General U. S. A.
Asst. Chief of Air Staff
Material, Maintenance & Distribution

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P-Boats Planes: AAF-30(12-8-43)

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SEVENTY-EIGHTH CONGRESS

JOHN MURDOCK, CLERK

HOUSE OF REPRESENTATIVES

COMMITTEE ON
IRRIGATION AND RECLAMATION

WASHINGTON, D.C.

COMPTON I. WHITE

August 17, 1944

Maj. General O. P. Echols
Asst. Chief of Air Staff
Material, Maintenance & Distribution
Army Air Force Division
Washington, D. C.

Dear General Echols:

Answering a letter recently received from Col. Warren S. Ege, Chief, Legislative Services, with reference to the approval of the utility truck "Chore Boy" manufactured by The Buda Company of Chicago, the subject of previous correspondence and certain military tests, I note your statement to Mr. Walshy, "Procurement of this equipment for general use in the Air Service Command is not recommended."

I believe it has been repeatedly explained in our several conferences that what was sought from your office was not an outright sale, but to have this equipment, which is in general use as an airbase facility, in other departments, and also in use in private industry, placed on the Army approved list so that when the air forces in any field found the "Chore Boy" useful and placed an order, that that order could be filled with the Army's approval.

In view of the rules and regulations of the War Department in procuring equipment for the Army use on a competitive basis, it is difficult to understand the attitude taken by your department as stated in your letter.

Sincerely yours,

Compton I. White

Compton I. White, M. C.

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AFDPR-3/2
HAS/hvd/5043
28 August 1944

Honorable Compton I. White
House of Representatives
Washington 25, D. C.

AUG 28 1944

Dear Mr. White:

Your letter, dated 17 August 1944, addressed to General O. P. Echols, and in further regard to the Buda "Chore Boy", has been referred to this office for reply.

As stated in my letter to you of 8 July 1944 and in General Echols' letter to Mr. W. T. Mulcahy of the Buda Company, dated 7 July 1944, the Buda "Chore Boy" was tested and the conclusion was reached that there is no present requirement for this vehicle by the Army Air Forces.

The Buda "Chore Boy" comes within the classification of materials handling equipment. Materials handling equipment is now procured for the Army Air Forces by the Quartermaster Corps to which service procurement responsibility was assigned on 20 May 1944. No local purchases of materials handling equipment are made at Army Air Bases. The Army Air Forces, therefore, has no approved list of suppliers of this type of equipment. Such a list would be maintained by the Quartermaster Corps which writes the specifications and awards the contracts.

In the interest of efficiency and economy the Army has standardized the various types of materials handling equipment. These present standard types of such equipment are entirely adequate for the needs of the Army Air Forces and many problems of supply and maintenance have thus been avoided.

Your interest in this phase of Army Air Forces supply has been greatly appreciated.

Very truly yours,

HARRIS S. HOE
Colonel, Air Corps
Chief, Legislative Services

Copy to:
General Echols
Chief, Legislative Services

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Barton Baker
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HOUSE OF REPRESENTATIVES

September 7, 1944

Warren S. Ege
Colonel, Air Corps
Chief, Legislative Services
Washington, D. C.

Dear Colonel Ege:

In answering your letter of August 28 with reference to the Buda "Chore Boy", first, let me compliment the Army on having a Chief of Legislative Services who is adroit in evading an issue and in protecting an untenable position when it comes to conforming to the established policy of the Government in procuring the supplies of its several departments by open competition.

You say, "The Buda "Chore Boy" comes within the classification of materials handling equipment. Materials handling equipment is now procured for the Army Air Forces by the Quartermaster Corps to which service procurement responsibility was assigned on 20 May 1944. No local purchases of materials handling equipment are made at Army Air Bases. The Army Air Forces, therefore, has no approved list of suppliers of this type of equipment. Such a list would be maintained by the Quartermaster Corps which writes the specifications and awards the contracts."

This being the case, why did the Army Air Corps make a series of tests of the air base transport facilities of the "Chore Boy" and, if this is the case, why did the Army Air Corps exclude the "Chore Boy" from the list of air base transport equipment that the local fields are authorized to procure and use? And why does the Army Air Corps prevent the competition of the Buda Company in supplying this class of material handling equipment when Army tests have demonstrated its adaptability and usefulness.

It is apparent that the Army Procurement policy as announced in your statement, "In the interest of efficiency and economy the Army has standardized the various types of materials handling equipment. These present standard types of such equipment are entirely adequate for the needs of the Army Air Forces and many problems of supply and maintenance have thus been avoided," definitely eliminates competition and nullifies the long established government policy of procuring supplies and equipment by open competition.

I submit that the procurement policy of the Army Air Corps as evidenced by the statement made in your letter merits a thorough investigation.

Thanking you, I am

Sincerely yours,

COMPTON I. WHITE, M.C.

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AFDFR-3/2
HAS/hvd/5043
12 September 1944

Honorable Compton I. White
House of Representatives
Washington 25, D. C.

SEP 18 1944

Dear Mr. White:

Receipt of your letter dated 7 September 1944 in regard to the Buda "Chore Boy" is herewith acknowledged.

Because of your visit to General Echols and your special interest in the matter, the Army Air Forces did procure three Buda "Chore Boys", on 29 February 1944 for test purposes. It was thought that, if the "Chore Boy" was particularly adaptable to Army Air Forces operations, its purchase in quantity could be made at such times as required. However, a very thorough test of the Buda truck revealed the following factors which made it unsuitable for Air Corps use:

a. Its inability to operate on unsurfaced roads renders it impractical for use by tactical organizations.

b. Although the "Chore Boy" travels on less fuel and requires less maintenance than most vehicles, it hauls less, travels at a slower speed, and is limited to carrying small items due to its small platform space of thirty-seven by thirty-nine inches.

c. It is inferior to the three wheeled scooter now issued for deliveries of small parts and supplies.

d. The "Chore Boy's" slow speed, excessive vibration, and small capacity eliminates it as a reasonable substitute for light duty tractors for outdoor work.

e. For the movement of bulk supplies in and about warehouses a variety of fork and platform trucks are presently in use. These fork and platform trucks are definitely more saving in time and labor in bulk handling of material than the Buda truck.

f. The adoption of a special vehicle (like the "Chore Boy") for moving small lots of supplies within a warehouse would

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not materially decrease the quantity of larger vehicles required and the limited utility of the "Chore Boy" would not justify its cost to the Government.

Army Air Forces Stations do not make local procurement of materials handling equipment. Field agencies of the Air Corps requisition such equipment from a stock catalog. This catalog of Quartermaster purchased equipment does not include the names of the various manufacturers. The equipment is referred to only by type, size, and power, thereby insuring competition and preventing sole source supplying such as the purchasing of the Auda vehicle to the exclusion of other makes.

As stated in my letter of 28 August 1944, the Quartermaster Corps now has the responsibility for the Army of specifying and procuring materials handling equipment for use at Army Stations. If you desire further consideration of the Auda "Chore Boy" by the War Department, it is suggested that you contact the Quartermaster General.

Very truly yours,

WARREN S. EGE
Colonel, Air Corps
Chief, Legislative Services

Copy to: Colonel Warren S. Ege
General O. P. Echols

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by authority of AMC Letter (Ind)
By: Catherine B. Cross, CI
date JUN 8 1956
by [redacted]

TO BE RETURNED TO THE [redacted] ARCHIVES (AFL) THE AAF HISTORICAL OFFICE
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Classification changed to [redacted]
By auth. of AMC 23 Feb. 54
8 MAR 1954 Donald R. Smith, Capt USAF

CLASSIFICATION CHANGED TO [redacted]
By authority of the Commanding General, [redacted]
By [redacted] WP Attn dtd 8 Nov 50
Date 4 Nov 1950.
EB Stevenson
Lt Col USAF

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Date: 30 AUGUST 1945

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CASE HISTORY

of

HIGGINS AIRCRAFT, INC.

NEW ORLEANS, LA.

A facility consisting of an airplane factory, a plywood plant, and an airport, built originally for the purpose of building C-76 (plywood) airplanes.

Documents in this case history were obtained from the files of Air Technical Service Command, Wright Field, and Headquarters, Army Air Forces, Washington, D.C.

Classified documents are included herein and, therefore, compliance with pertinent sections of AR 380-5 is necessary.

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Compiled by
Historical Office
Air Technical Service Command
Wright Field
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SUMMARY

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SUMMARY OF HIGGINS AIRCRAFT, INC.

In the course of a telephone conversation with Lieutenant General Somervell on 5 October 1942, Mr. Andrew J. Higgins of Higgins Industries, Inc., New Orleans, Louisiana, said that he was in Washington "at the request of Roosevelt," to bring to the attention of the Army Air Forces a plywood cargo plane that he wanted to build. He described the airplane as a large land plane that could carry "60 tons of cargo; go 4,000 miles and have enough fuel to get back." It could land at 50 m.p.h. without "dig[ging] a hole in the ground... [could] land in a ploughed field or...on a desert...even in stumps if you're lucky." The President, he said, "was very, very enthusiastic about it." Mr. Higgins declared that he could have the first airplane ready in four or five months--at no cost to the Government--and as for
*(1) engines, he was developing a 3,000 h.p. airplane engine himself.

Apparently these plans did not materialize, for three weeks later (31 October 1942) an Authority for Purchase, in the amount of $167,601,600.00, initiated action for the procurement from Higgins of 1200 Model C-76 plywood airplanes which were to be identical with those being built by Curtiss-Wright. The above amount included twenty
(2) per cent money value of airplanes in spare parts, and a fixed fee not to exceed three per cent. The resulting contract AC-34484 was
(14) approved 17 December 1942.

Negotiations were begun immediately to provide Higgins Aircraft, Inc. (the subsidiary of Higgins Industries, Inc.) with a Defense Plant Corporation lease agreement, and on 27 November 1942 the War Department
(13) approved the facilities project at a cost of $23,735,000.00. The Defense Plant Corporation lease agreement was signed on 4 December
(95) 1942. As originally planned, the facility was to consist of an aircraft plant, a plastic plant, a parts plant and manufacturing
(3) laboratory, and an airfield with three runways. The parts plant and manufacturing laboratory was not built, however, because existing
(8) ordnance facilities were considered adequate to supply Higgins with
(52) components. The layout was planned by Albert Kahn, Associated Archi-
(27) tects and Engineers, Inc., and work was begun on 13 January 1943.

The site is a triangular area of approximately 1,000 acres, situated about twelve miles east of New Orleans. It is bounded on the south by the Intracoastal Canal, on the east by Wolfe Canal, and on the northwest by a highway and a bayou. It had been acquired by the Maritime Commission for the use of Higgins Industries, Inc. in the production of Liberty ships. Construction of a facility for this project was begun 9 March 1942 by placing a hydraulic fill approxi-

* The numbers placed in parentheses in the margin refer to the documents found in the Document File attached.

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mately six feet deep over the site. When the contract for Liberty ships was cancelled (18 July 1942), War Production Board halted construction. Approximately sixty per cent of the site had been filled, (37,81) and the estimated value of the facility at that time was $4,000,000.00. This property was leased from the Maritime Commission by Defense Plant Corporation for Higgins Aircraft, Inc. for a period of twenty-five (15) years, at a rental of one dollar a year. (The Maritime site is known as the Michaud Site, and is hereinafter referred to as the Michaud Site.)

Materiel Command, Washington, did not consider the location a desirable one. The land was swampy, they wrote, and would require hydraulic fill; the buildings would have to be built on piling; runways would be expensive, and probably, because of the triangular shape of the area, only two could be built, neither of which would (7) be in the direction of the prevailing wind. Major Bowling, Facilities Unit, Wright Field, investigated conditions at the Site, and (10,12) at several other locations that had been suggested, and reported that the Michaud Site was the most desirable of them all: the terrain was dry and usable at once; three 5300 foot runways could be built without interfering with buildings; one runway would be usable seven months of the year, and the other two for the other (12) five months; and transportation, electricity, housing, etc., were (7) readily available. Real estate dealers in New Orleans proposed two other sites, but Colonel Rawlings, Production Resources Section, Wright Field, stated that the Michaud Site was "most desirable" as (26) far as the Government was concerned.

In the meantime, Higgins had requested sizeable quantities of material for the production of plywood and veneer. Lumber and Lumber Products Division, War Production Board, denied the request (20 March 1943) because existing facilities were more than adequate (30) to satisfy Higgins' demands. Mr. Higgins, thereupon, sent an eleven page telegram to Major General Echols, in which he deplored the criticisms of prospective competitors, and gave reasons why a ply- (32) wood plant should be built at Higgins Aircraft, Inc. Mr. Wilson, Executive Vice-Chairman of War Production Board, had already indicated that Higgins would be given a plant, not for capacity production, but to supply their own needs, and Brigadier General Hopkins stated that "his [Wilson's] decision in view of his responsibilities (31) [would] be respected."

The question of humidity control in the airplane factory then arose. Materials Laboratory, Wright Field, pointed out that while New Orleans relative humidity was higher than the optimum for aircraft plywood manufacture, satisfactory results could be obtained (29) by increasing temperature in the working area. They also suggested

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that it would be more economical to have wood brought into the factory at the desired moisture content, and to have only enough (34) air conditioning equipment to maintain that content. War Produc- (42) tion Board, however, considered moisture control necessary for the manufacture of plywood airplanes; Production Resources Section, (47,51) Wright Field, and Mid-Western Procurement District, Wichita, Kansas, recommended its installation, and Major General Echols approved. (54) The project was approved by War Production Board on 30 June 1943, at a cost of $2,313,564.00, and the lease agreement between Defense Plant Corporation and Higgins was executed by a "take-out letter" (96) dated 21 August 1943.

While work on the factory and office buildings was progressing satisfactorily, the prospect for manufacturing C-76's was not bright. Brigadier General Hopkins had visited the plant and reported, on 23 April 1943, that there seemed to be "an absolute lack of engineering staff as yet." He did not think that Higgins could make an airplane before the summer of 1944, and doubted if the facility was going to (35) pay for itself. In connection with the request for air condition- ing, War Production Board suggested that the entire wooden airships program be thoroughly reviewed before getting more deeply involved (45) with Higgins. Early in June, General Arnold decided that the C-76 (49) program was to go forward, both at Higgins and at Curtiss-Wright, but a month later War Production Board again questioned the desira- bility of proceeding. The wooden airplane, they stated, had been proposed at the time of an aluminum shortage; by the summer of 1943 that situation was appreciably better, and they believed it would (57) be more feasible to build cargo airplanes that had been tried rather than the uncertain wooden ones. The entire C-76 program (contract (65) AC-34484) at Higgins was cancelled on 5 August 1943. Change Order #3 to contract AC-34484, dated 27 November 1943, provided that total payments to Higgins under this contract would not exceed $7,601,600.00-- (83) a reduction of $160,000,000.00.

Plans had already been made for the utilization of the expensive facilities. On 31 July 1943, Curtiss-Wright signed a letter of in- (96) tent with Higgins for the production of C-46 wing panels, and on 2 August 1943, a letter of intent was issued by the Government for the procurement of 500 Army Air Forces Type C-46 airplanes, identical with those being built by Curtiss-Wright. The estimated cost of the (64) airplanes was $130,000,000.00, exclusive of a fixed fee not to ex- ceed three per cent. The resulting contract AC-298 was approved (80) 2 December 1943.

By arrangement between the Government, Curtiss-Wright, and Higgins, Curtiss was to furnish data and engineering assistance to

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(74) Higgins. The plan did not work smoothly, and on 8 December 1943, Higgins received a letter from the Truman Committee asking for de-
(84) tails concerning the agreement. Colonel Irvine, Materiel, Maintenance and Distribution, Washington, thought that this letter was inspired by Mr. Higgins himself, since the request correlated with
(85) Higgins' complaints regarding Curtiss. Colonel O'Dwyer of the Special Advisory Group, Materiel, Maintenance and Distribution, called several conferences during December 1944 to adjust these differences, and, although Curtiss felt that Higgins' complaints were not justified, Curtiss promised to furnish Higgins the neces-
(88) sary information concerning construction of the C-46.

Due to the cancellation of the C-76 project, it was doubtful if the woodworking facilities and the proposed air conditioning system in the factory would be useful. Higgins declared that it was in the interest of national defense to keep the plywood plant
(70) in operation--to relieve the packing box shortage, for development
(73) of aircraft rescue boats, etc.--but, Brigadier General Hopkins
(78) stated that the facility was not needed by the Army Air Forces. In the end, the Government-furnished facility was sub-leased (12 January 1944) by Higgins Aircraft, Inc. to the newly formed Higgins Plastics Corporation, on a rental basis. The Plastics Corporation
(95) was to furnish Higgins with plywood for use in PT boats, sawed lum-
(103) ber, molded products, and general woodworking material. When the
(104) Plastics Corporation asked for $448,000.00 to expand the facility
(101) (February 1944), Resources Control Section, Wright Field, did not recommend approval because from seventy to ninety-five per cent of the plant's output was being used by the Navy.

The necessity for an air processing system having been removed by cancellation of the C-76 contract, War Production Board revoked
(67) its previous approval of the project. On the same day (6 August
(68) 1943), however, the War Department, by letter agreement, amended its agreement with Defense Plant Corporation, allowing $2,313,564.00 for air processing. War Production Board then concurred in the de-
(71) cision, stating that the plywood plant was so near completion that there was nothing to be gained by withholding equipment, and the lease agreement between Defense Plant Corporation and Higgins was
(96) executed by a "take-out letter" dated 21 August 1943.

The original $23,735,000.00 which had been allotted for facility construction was thus increased by $2,313,564.00 for air conditioning, and was later (19 January 1944) further increased by $3,731,469.00
(89,94) for overruns, modifications, and conversion from the C-76 to the C-46
(96) project. The major phases of the Higgins facility had been completed by the middle of October 1943, and Mr. Higgins made elaborate plans
(79) for the dedication, which he had set at 24 October.

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Concurrently with the building of the factory and the plywood plant, with the installation of air conditioning and the shift in airplane programs, ran the problem of the airport. There seemed to be no agreement as to whether three runways could, or should, be built on the Michaud Site. The Corps of Engineers, United States Army, in a preliminary report (27 April 1943), stated that the location was "one of the worst sites for runway construction of the many swamp and marsh areas in coastal Louisiana." They found the top soil composed of silt and humus "so soft that a cane fishing pole or small steel rod [could] be pushed in by hand for a depth of
(36) 15 to 20 feet." They estimated that three 7,000 foot runways would cost from $8,000,000.00 to $22,000,000.00.

In the long, detailed report that the Corps of Engineers submitted to the Division Engineer, Southwestern Division, in May 1943, the estimated costs were substantially the same. The very large cost figures were due to the fact that the Michaud Site could accommodate only one 7,000 foot runway, and it would be necessary, in order to build three, to change the course of the Intracoastal Canal, and fill the old bed. The Corps of Engineers recommended, in the event shorter runways could be used--one 7,000 foot, one 6,000 foot, and
(37) one 5,200 foot--that they be built on the Site, thus eliminating considerable expense.

Major General Robins, Acting Chief of Engineers, Washington, recommended that, because of large costs, because of the length of time it would take for construction, and because of the excessive maintenance that would be involved, no consideration be given to
(39) building runways, unless military necessity demanded it, and costs and completion dates were negligible factors. Reports from other sources were not in accordance with those submitted by the Corps of Engineers and by Major General Robins. Production Resources Section, Wright Field, had had reports from several engineering companies and concluded from them that the Engineers' estimated costs
(41) were "entirely out-of-line with the known facts." They saw no reason why the airport should be abandoned at that site and moved to another. Mr. A.L. Wilcox, Chief Engineer of the New Orleans District, stated "without hesitancy" that successful runways could be
(46) built, and cited, as proof, highways and runways that were in use at the New Orleans airport.

In view of these investigations, Resources Division, Washington, recommended (21 June 1943) that two 5,500 foot runways be built on
(53) the Michaud Site, the entire cost of the airport not to exceed the $3,700,000.00 originally allotted. This was approved by Production Division, Washington, on 1 July, but on 12 July, the Aircraft Pro-

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duction Board ordered the construction of the airport held in abeyance for sixty to ninety days, pending a decision as to whether Higgins would build a complete airplane.

In the fall, agitation was begun again for the building of runways. Resources Division, Washington, instructed Defense Plant Corporation not to begin construction, stating that a flight strip could be made ready in the spring of 1944 in time to test the first airplanes, and it was not until February of 1944 that the Defense Plant Corporation was authorized to proceed. One runway was to be built immediately and plans were to be made for a second. In the month of May 1944, the first flight strip was nearing completion, at a total cost of approximately $1,750,000.00.

An appraisal of C-46 production was prepared in February 1944 by the Deputy Chief of Air Staff in reply to questions submitted by the Truman Committee. The report stated that the C-46 Production Committee was functioning effectively to insure satisfactory coordination of production at the Curtiss and Higgins plants. On 27 June 1944 Aircraft Resources Control Office, Washington, reported that Dr. A.E. Lombard of that office had visited the Higgins plant and found that Higgins would probably complete the assembly of two C-46's from Curtiss-supplied parts in November. It was doubtful, however, if the first "all Higgins ship" would be produced by March 1945. Dr. Lombard discovered that the Higgins management was "alert and aggressive" but it was "going to take a long time" to give them the "know-how" to produce complete airplanes. On July AC/AS, Materiel, Maintenance and Distribution announced that Higgins was "experiencing difficulties in getting started in production of the C-46 airplane" and asked the Joint Aircraft Committee to approve a revised schedule of deliveries. On 31 July the Aircraft Requirements Board recommended a sharp cut in C-46 production; the reduction would eliminate Higgins from the C-46 program. By 14 August Higgins was discharging employees, and on 19 August 1944 all but two of the 500 C-46's on the Higgins contract were cancelled.

Meanwhile the Higgins subcontract with Curtiss for C-46 outer wing panels had run into difficulty. Curtiss engineering data "was in poor condition" and Higgins complained of a lack of cooperation on the part of the Curtiss organization. Higgins' dissatisfaction with conditions was noted by Colonel William O'Dwyer of the Special Advisory Group, Materiel, Maintenance and Distribution. Colonel O'Dwyer visited the Higgins plant and reported that "Mr. [Andrew] Higgins' reliance on his ability to use high political influence to gain his point was belligerently stated by him without any attempt to conceal his antagonism toward the aircraft industry as a whole and 'high officers of the Army.'" By January 1944, however, Higgins agreed that efforts of Air Forces personnel and Curtiss and Higgins management had resulted in satisfactory performance by the prime contractor. In June 1944 Dr. Lombard noted that Higgins was "in moderate production" on the wings. In June 1945 Air Technical Service Command, Wright Field, reported that the wing contract was completed and would not be renewed.

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Higgins facilities were also employed in the manufacture of type A-1 airborne life boats. A contract for 600 of the boats at an estimated cost of $1,800,000 was approved 27 May 1944. On 19 December (113) (144,169) 300 were cancelled, but the termination notice was rescinded in May 1945.

In September 1944 the Defense Plant Corporation and the Air Forces approved Higgins' plans to use part of the plant in the manufacture of (130,131, 132) machined carbon parts for the Tennessee-Eastman Corporation. When Higgins facilities were declared excess in July 1945 the War Department (176,178) recommended continuation of the carbon contract.

The Higgins facilities were also used in work for Ordnance. In October 1944 Brigadier General O.R. Cook, Wright Field, said he understood Higgins had a contract for the repair of 10,000 jeeps, and in December Air Technical Service Command approved release of floor space (138,141) at Higgins for the manufacture of 105 mm. shells. The contract for repair of jeeps was later supplemented by a contract for the rehabilitation of trucks, while in April 1945 the shell contract was in process (159,161, 178) of termination.

In June 1945 AC/AS, Materiel and Services announced that Higgins had been given a letter contract for the production of 172,678 solar (169) still kits.

Since productive activity did not require utilization of the entire facility, some of the floor space in the Higgins plant was used for storage. Consolidated Vultee Aircraft Corporation, New Orleans, used some 98,000 square feet, and in September 1944 the Air Forces (106,133) approved that company's request for an additional 100,000 square feet. The following month AC/AS, Materiel and Services turned down a request for 1,000,000 square feet submitted by the Office of the Fiscal Director, Washington. Programs planned by the Air Forces were expected to (135,137) "utilize all available floor space for production." In December the Air Forces refused a request for space for a Reconstruction Finance Corporation Disposal Center at Higgins, claiming that the plant was to (145) "be held in reserve for stand-by ... until after V-J Day." Two weeks later the Air Forces reversed its stand and granted the RFC 875,000 (152) square feet of floor space at Higgins. On 18 January 1945 the Air Forces withdrew consent for both the RFC and Consolidated Vultee to use space, since "all the main manufacturing area in the Higgins plant (156,157) is to be utilized for immediate production needs." On 5 June, however, AC/AS, M&S, notified the Production Division, Army Service Forces, that some 1,000,000 square feet of floor space at Higgins was "excess to Army Air Forces requirements" and was therefore available to the RFC for (167) storage use if declared surplus by the War Department.

Development of the Higgins facilities in 1944 and 1945 was closely linked with production undertaken at the plant. Early in 1944 the Aircraft Production Board approved construction of the airport and AC/AS,

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(99) MMAD authorized DPC to build one runway and plan for a second. On 7 March the Materiel Command asked DPC to freeze $1,607,000 for airport construction. In May and June 1944, the War Department approved increases in funds for Higgins facilities totalling $1,300,000. A Higgins proposal to further increase the lease agreement by some $448,000 for expansion of the Higgins Plastics Corporation was referred to the Bureau of Ships, Navy Department, since most of the work to be done by the expanded facility would be for the Navy. The Navy reported that existing woodworking capacity was in excess of requirements for wooden boats and in April 1944 AC/AS, MMAD notified Higgins that the proposed increase was not approved. On 20 June 1944 Andrew Higgins told representatives of the Transportation Corps and the Readjustment Division, Army Service Forces, that the Higgins plant was built in five months instead of the twenty-one months estimated by "the smart boys." Higgins also said the AAF had approved the runways "only two weeks previously" and some 40 planes would be completed before the runways were ready. These statements, and others of similar nature, resulted in an investigation by the Office of the Air Inspector, Materiel Command. The Air Inspector's report contained detailed refutation of Higgins' assertions.

(102)

(109,110, 115)

(101,103, 107)

(125)

(128,129) When Higgins asked DPC for a new long term lease agreement in August 1944, Resources Control Section, Wright Field, approved the plan but recommended that no further AAF funds be expended "for any new equipment or plant conversion of any kind whatsoever." In December the Air Forces agreed to amend Plancor 1569 to provide $500,000 for alterations at Higgins Plastics in connection with the Higgins shell contract with Ordnance. The Ordnance contract was subsequently cancelled and in April 1945 the Air Forces cancelled its authorization of funds. On 23 April Higgins' attorneys notified Air Technical Service Command that it was proposed to terminate the DPC lease agreement, Plancor 1569, and to arrange for Higgins to lease the woodworking facilities and selected machine tools from DPC on a commercial basis. Resources Control Section approved this plan. On 30 June the Air Forces asked the Office of the Under Secretary of War to approve release of $258,456 by the DPC for facilities expansion at Higgins in connection with the AAF's solar still contract. In the meantime the Air Forces had notified Higgins that after 1 June 1945 only that proportion of plant overhead cost allocable to termination work on the C-46 wing contract would be borne by the Army Air Forces.

(143,147, 150,153)

(159)

(161)

(172)

(174)

In July 1945 Resources Control Section declared the complete Higgins plant excess, and on 28 July the War Department consented to the "sale, lease, or other disposition" by RFC of all the Higgins facilities except those required for the following contracts: solar still kits, airborne rescue boats, C-46 wing termination inventory, molded carbon, and truck rehabilitation.

(176,178)

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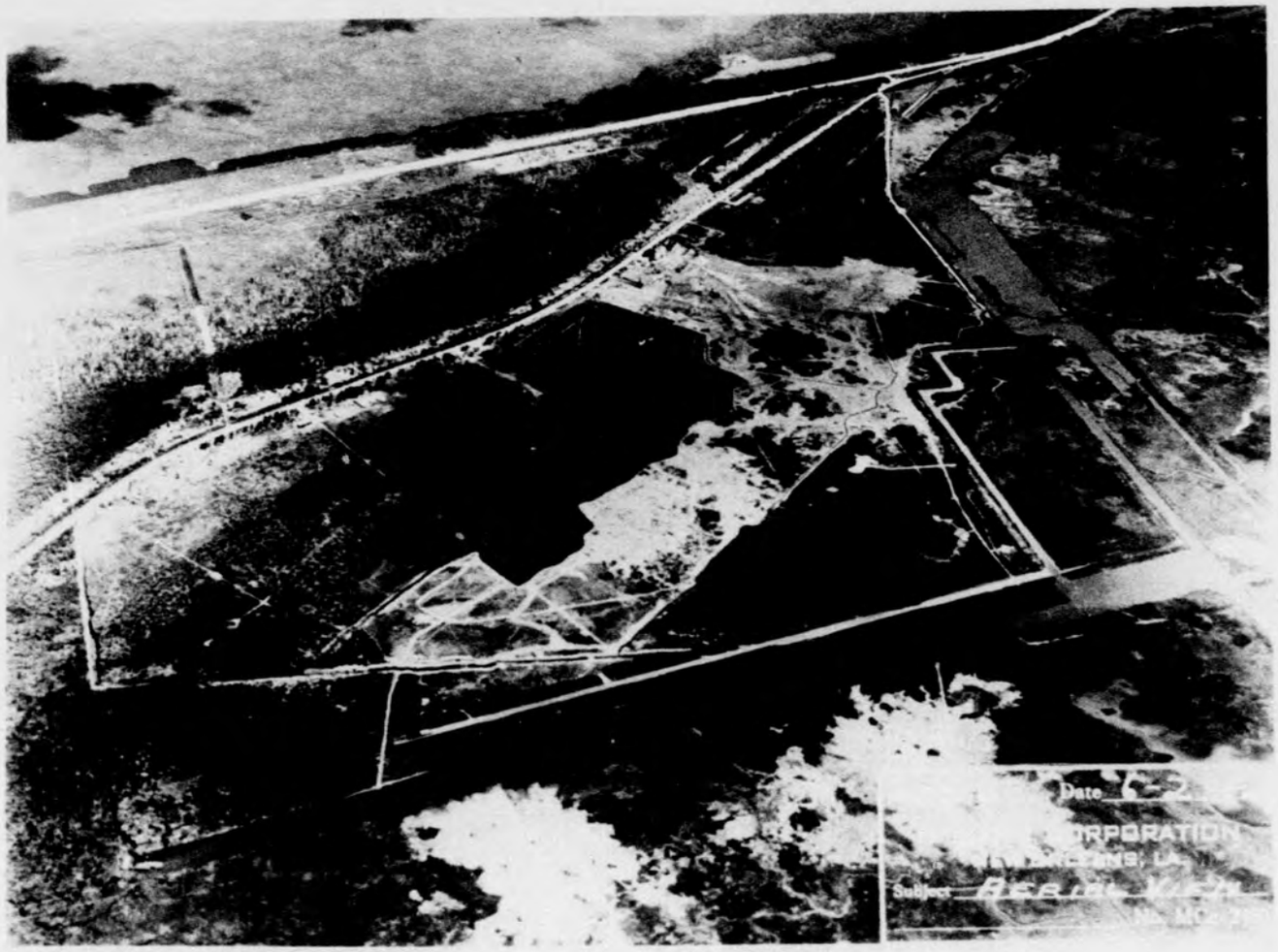

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HIGGINS CORPORATION
New Orleans, La.

Site, shortly after operations were commenced.

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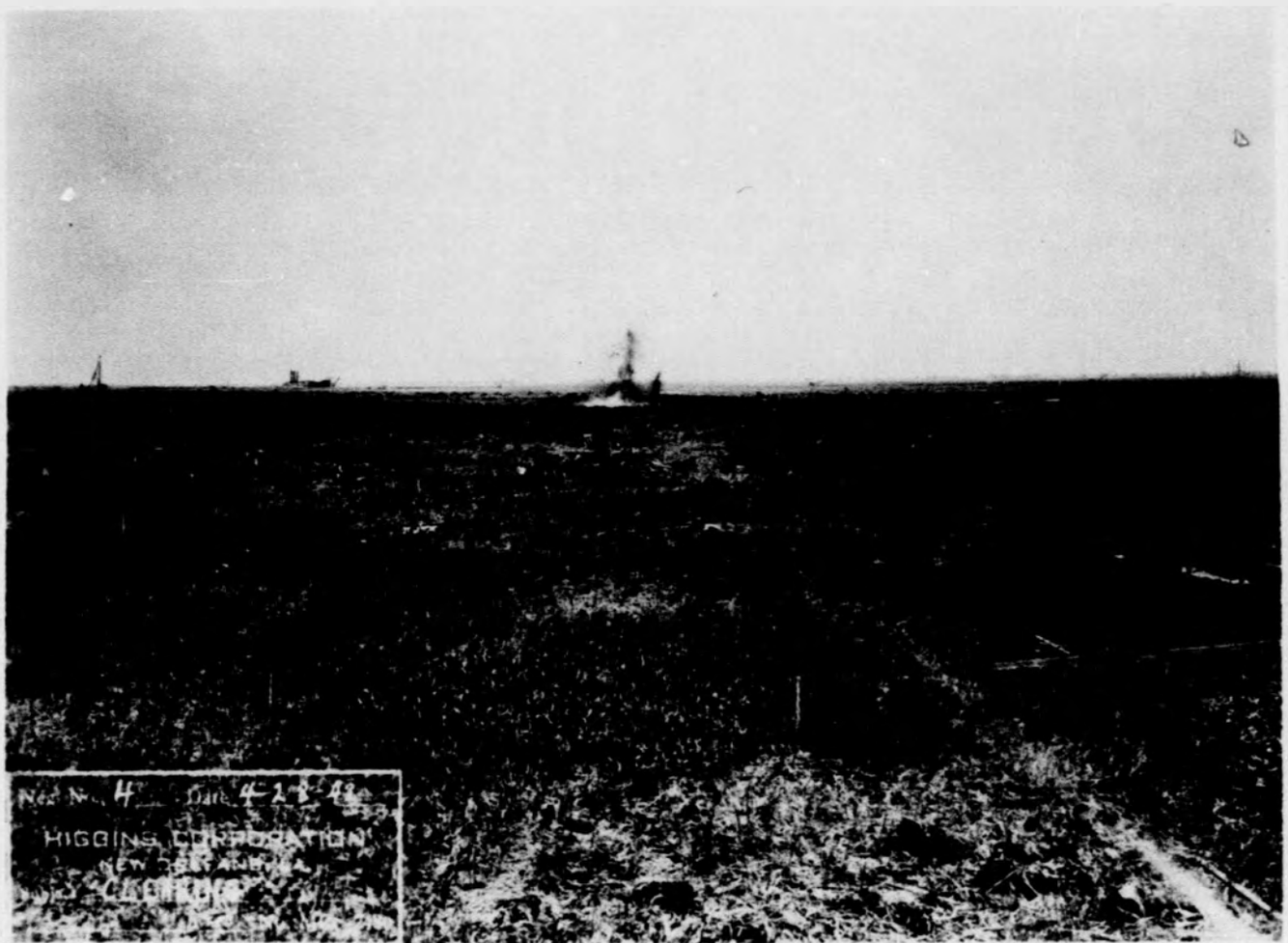

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HIGGINS CORPORATION
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Site After Clearing for Proceeding with Maritime Commission Contract.

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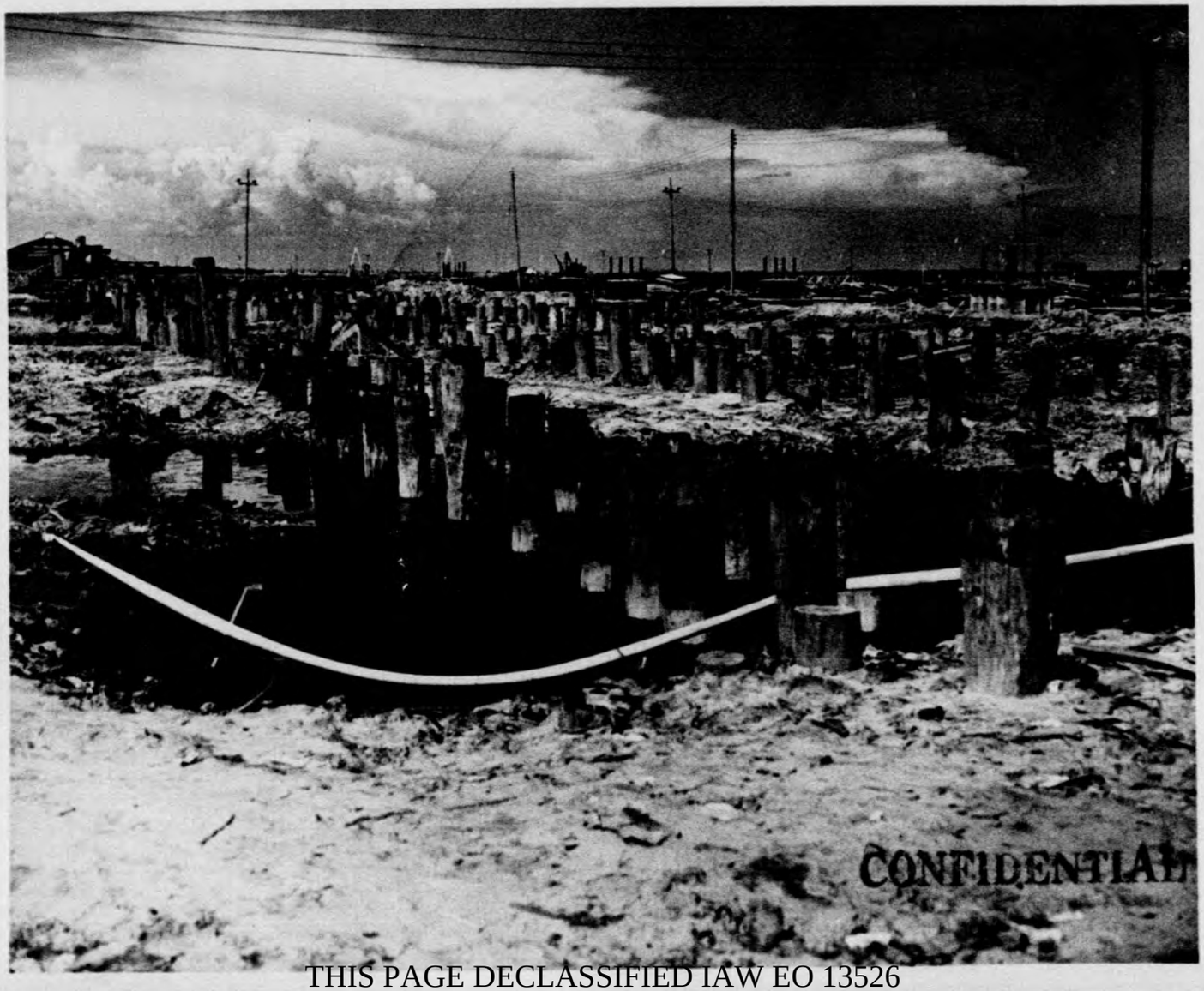

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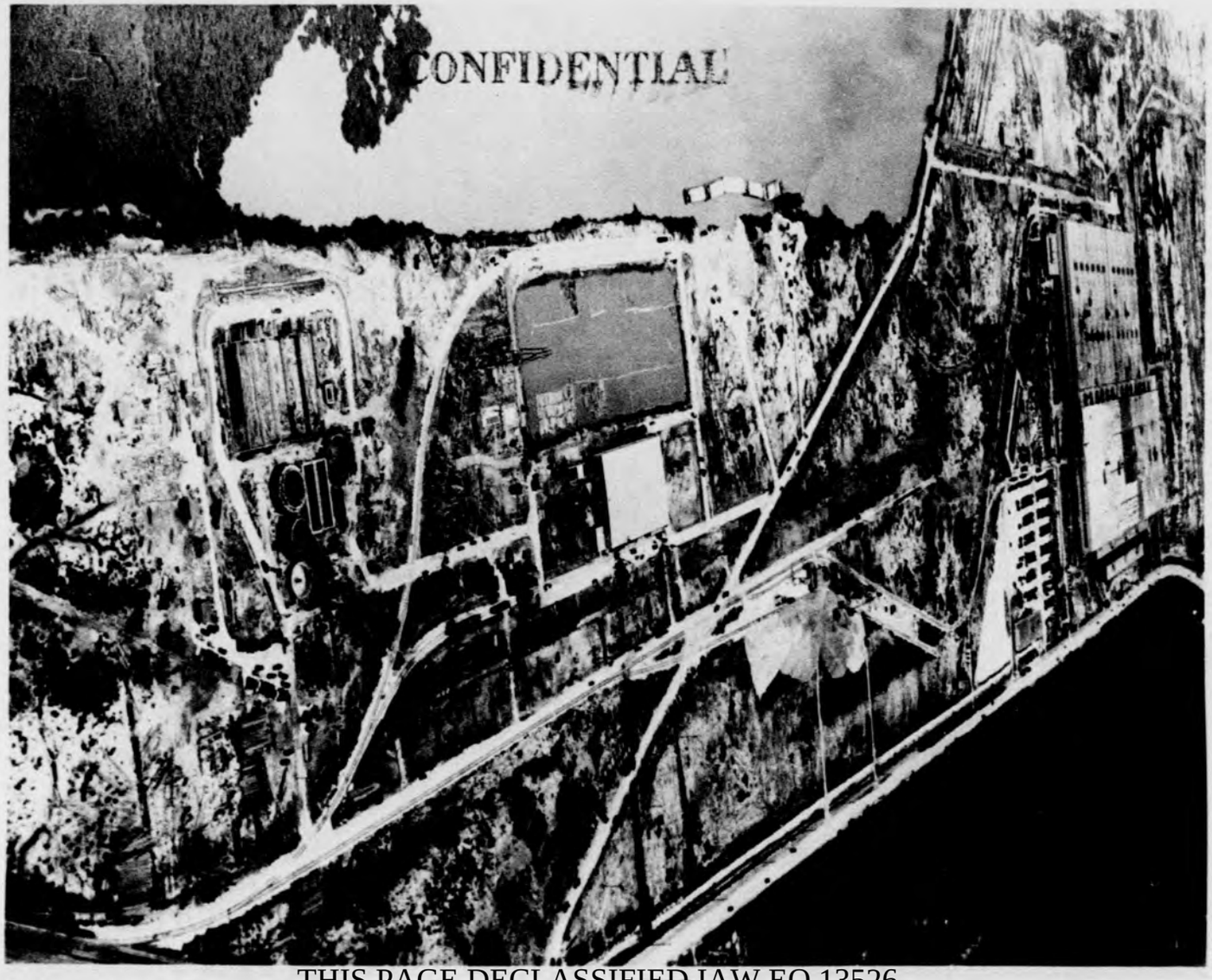

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Site at Time of Cancellation of C-76 Contract.

AUG 2 1943

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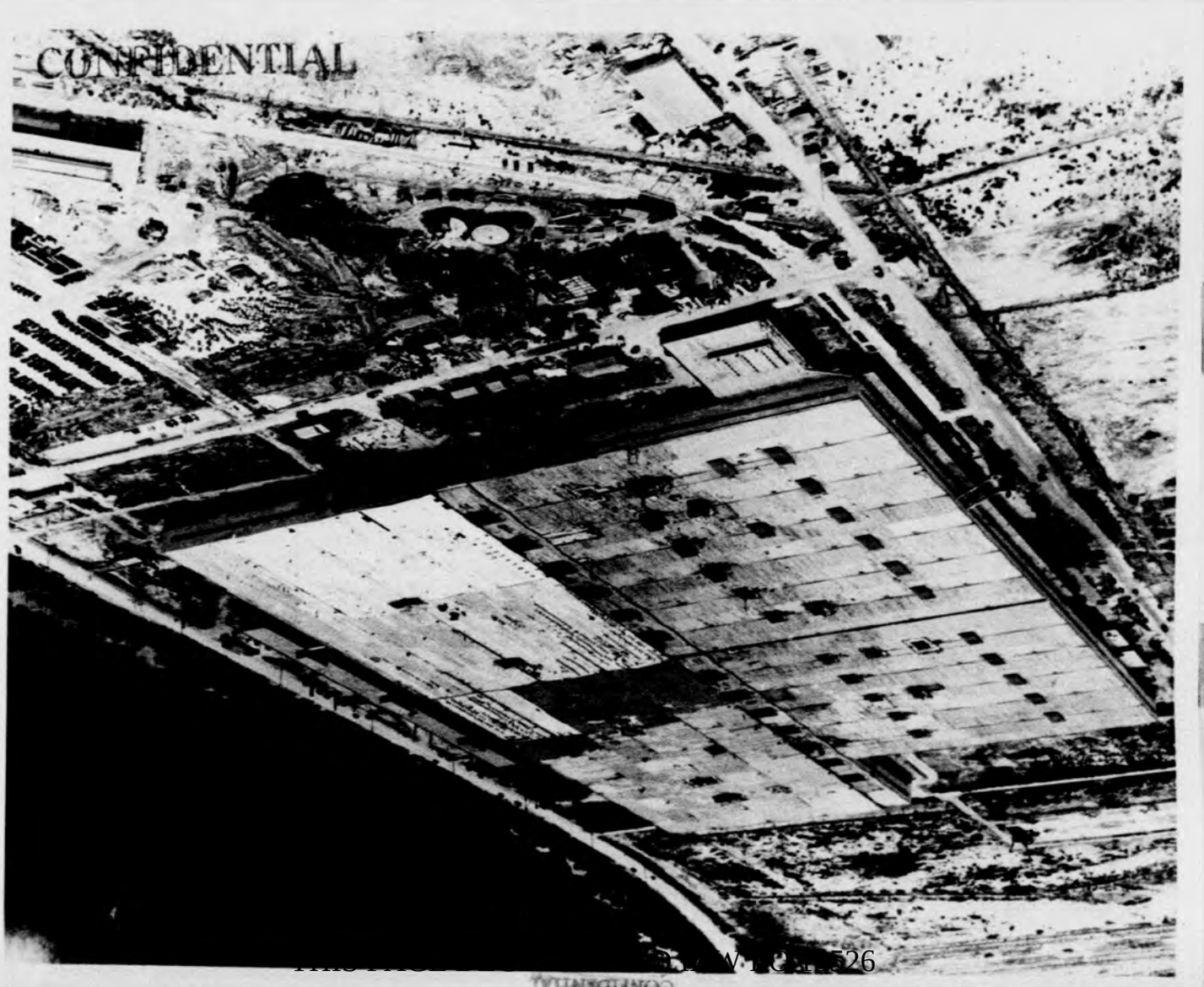

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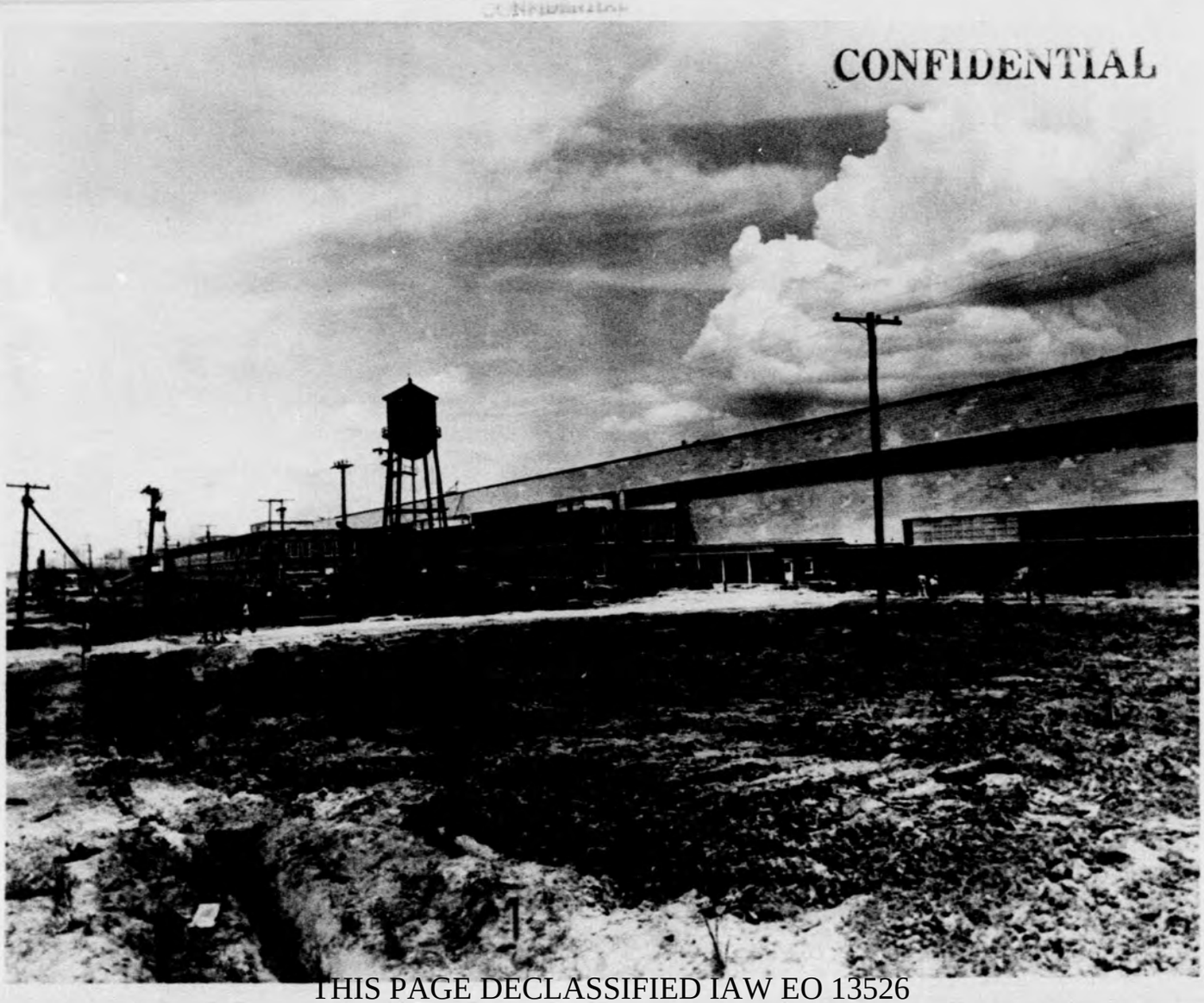

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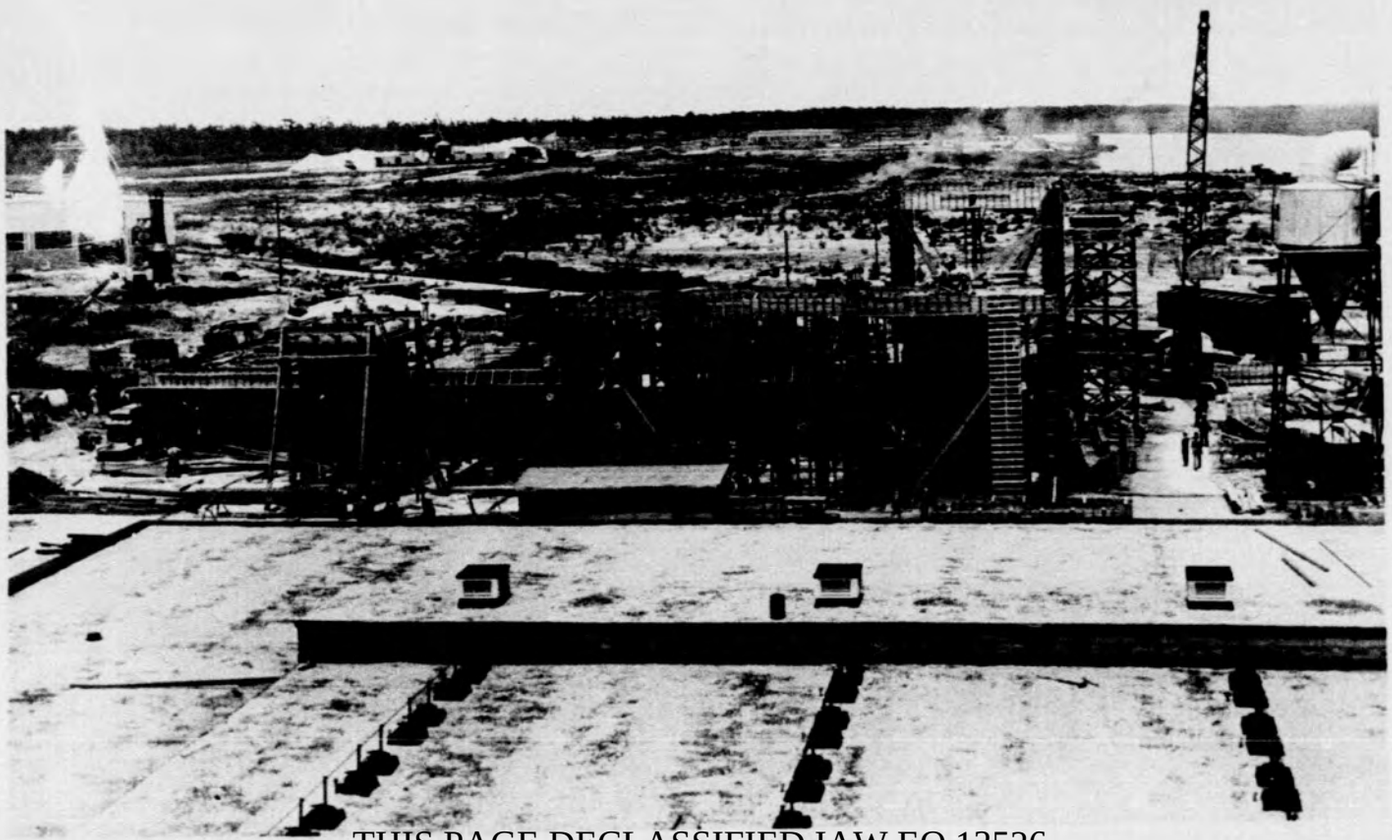

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Site at Time of Cancellation of C-76 Contract.

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Total Fill Necessary 8,635,000 Cu Yds
Cut Necessary After
Removing Over Burden 10,795,000 Cu Yds
All Fill Figures in Cu Yds
Deposit Necessary for Off Fill
All Cut Figures include
an Allowance for 20% Loss

Highway Borrow Pit
1,300,000 Cu Yds
Natchez

Station No 1
4100' Concrete Roadway
34 50 From Edge of Pavement to Property Line on Entire Frontage
Old Buildings
Administration
Shell & Plank Road
Parking
Prolonged Tangent of Road
Lunch Stand
Tool House
Field Office
Time Office
Guard House No 1
Sewing Machine
Sewing Machine
Paint Shop
Carpenter Shop
Supply Office
Water Well
New Orleans Chef Menteur Highway
Station No 2
Property Line
Station No 3
Right of Way
Nashville RR
Higgins Station
3000'
"A" Fill
585,000 Cu Yds
"B" Fill
1,910,000 Cu Yds
Total 1,200,000 Cu Yds
740,000 Cu Yds "A" Fill
460,000 Cu Yds To "B" Fill
Borrow Pit "A"
Tchefuncte
Returntrack
Launching Basin
Viehery Channel
Mold Loft & Pattern Shop Above
Steel Storage
Main House
Dock House
Storage
Warehouse & Quarters
Canal
West Bank
Borrow Pit
C Fill
3510 000 Cu Yds
4,925,000 Cu Yds
932,500 Cu Yds To C Fill
3,993,000 Cu Yds To "D" Fill
7439'-98'
D Fill
3,113 Cu Yds
20-8
20-7
20-6
20-5
20-4
EC-3
20-1
5835
5835
4725
4163
3605
2900
2375
883
2300
1000'
2400'
3775'-0"
620'
300'
1875'
1/2 Scale

PROGRESS REPORT
Piling Being Driven
Piling Driven
Foundation - Construction
Foundation - Complete
Structural Steel Erection
Structural Steel Complete
Frame Bldgs Under Construction
Buildings - Facilities - Complete

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Cut Necessary After
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All Fill Figures in Cu Yds
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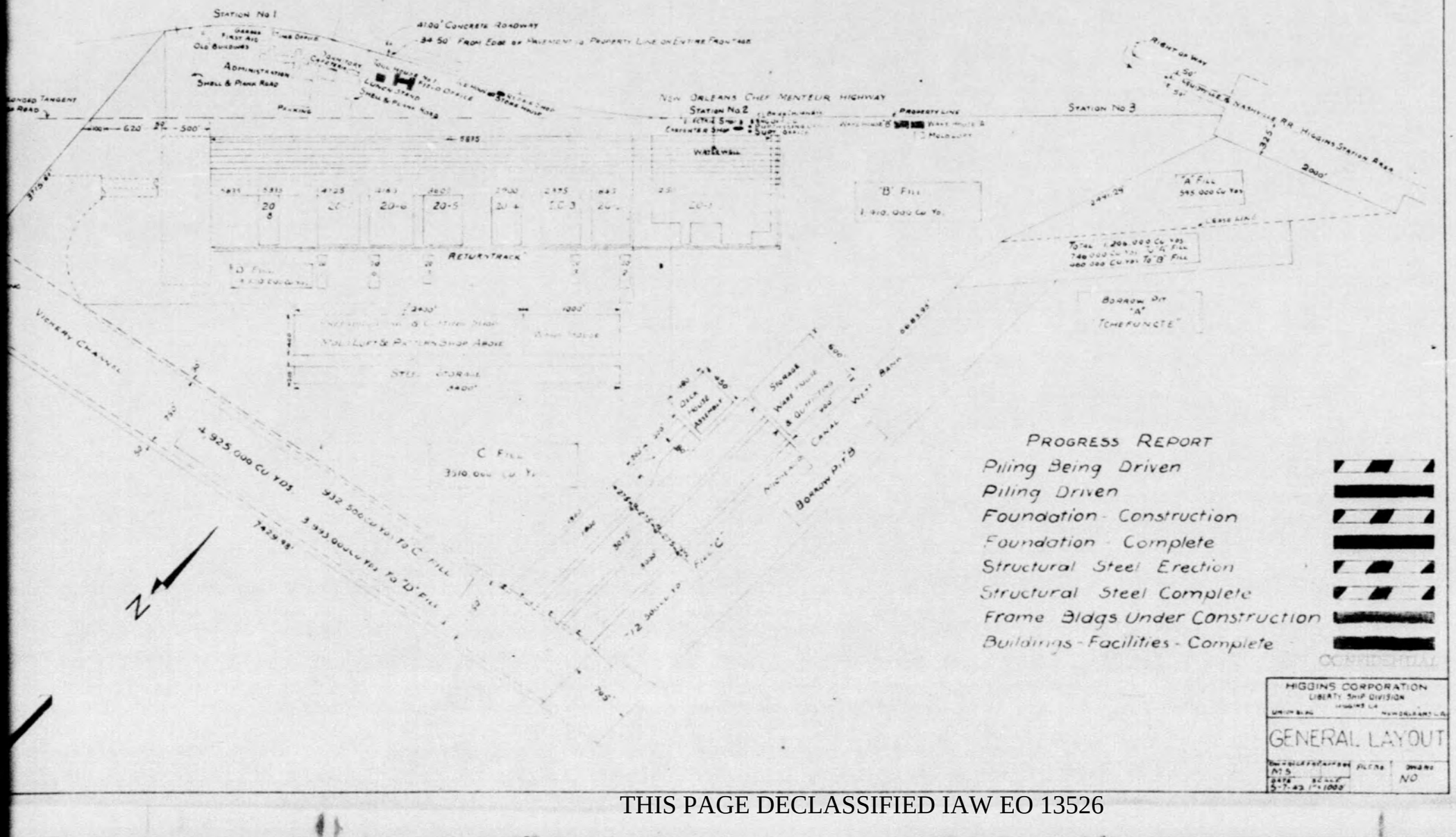
an Allowance for 20% Loss.

HIGHWAY BORROW PIT
1,300,000 CU YDS
NATCHEZ



PROGRESS REPORT

- Piling Being Driven
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- Foundation - Complete
- Structural Steel Erection
- Structural Steel Complete
- Frame Bldgs Under Construction
- Buildings - Facilities - Complete

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HIGGINS CORPORATION
LIBERTY SHIP DIVISION
NEW ORLEANS, LA.

GENERAL LAYOUT

DRAWN BY NS
DATE 5-7-43
SCALE 1" = 100'
FILE No
DRAWING NO

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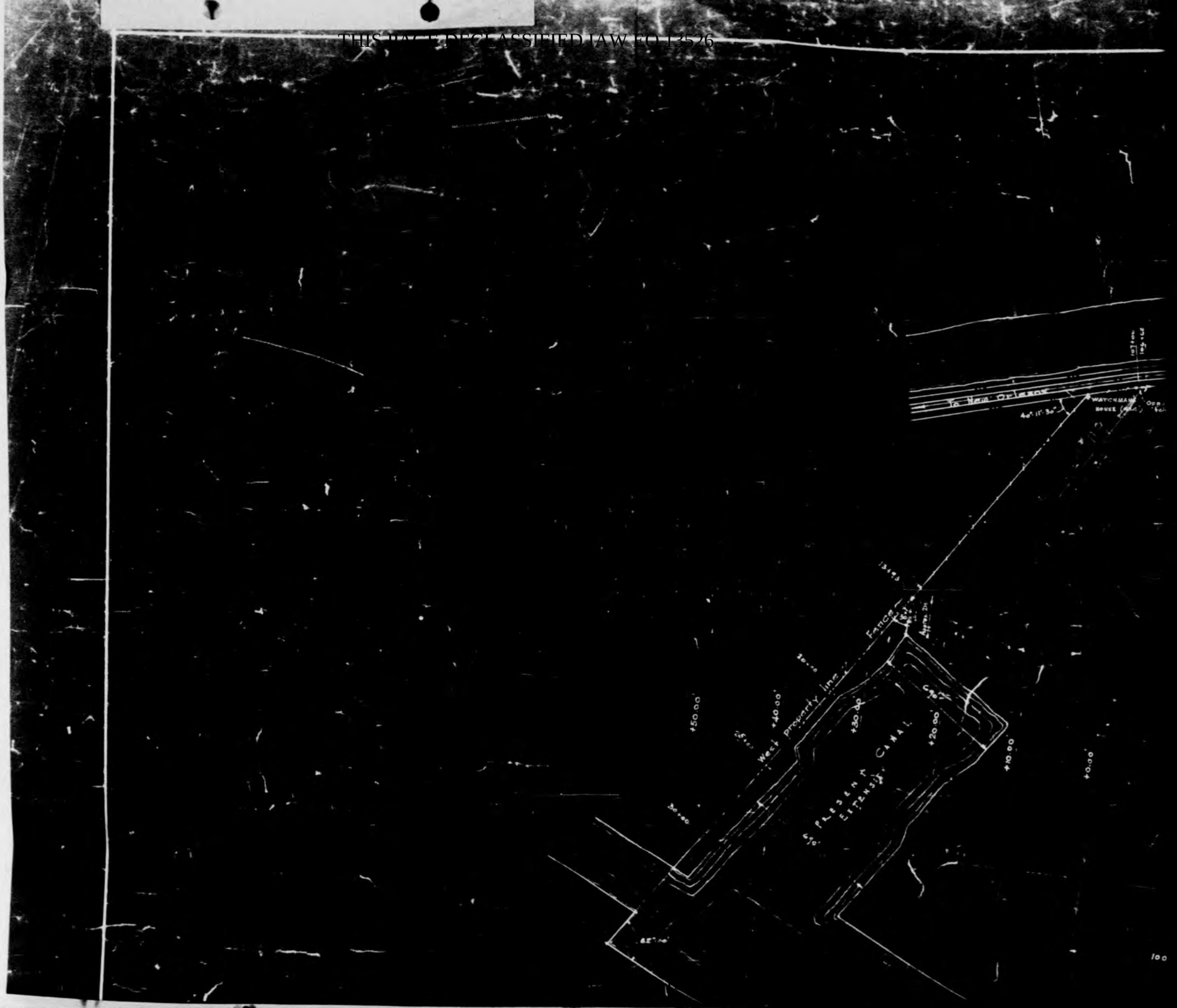

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BAYOU SAUVAGE
GENTILLY HIGHWAY U.S. 90
BRICK CHIMNEYS
OFFICE
ENGINEERING
Watchman's House
WATER TANK
GARAGE
MANUFACTURING
BLDG
Fin. 1st fl elev. 26'-0"
168'-0"
CONCRETE APRON
CONC. APRON
FLIGHT HANGAR
DRY KILN
EMPLOYEES' ENTRANCE
EMPLOYEES' PARKING
UNLOADING PLATFORM
R.R. track
SHELL ROAD
315'-0"
750'-0"
Elev. 25'6
ACETYLENE GENERATOR BUILDING
PUMP HOUSE
TRUCK & TANK CAR UNLOADING STATION JOB 1931

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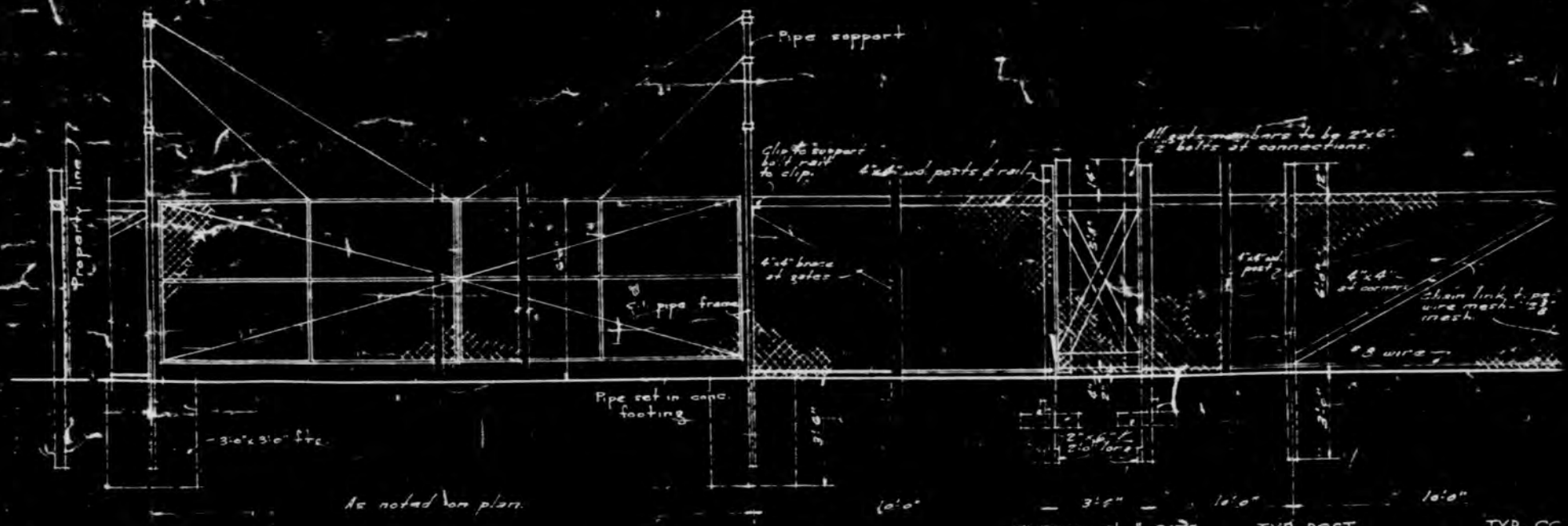
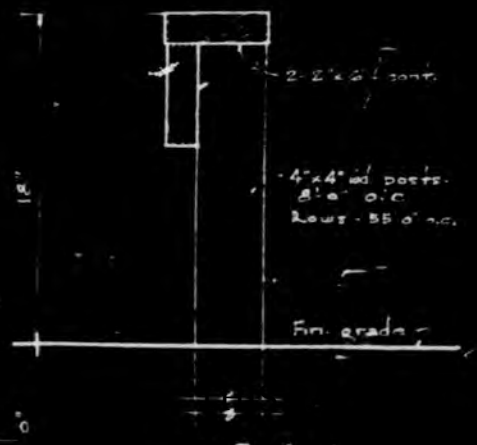
DOOR SCHEDULE

NO.	OPG. SIZE	TYPE	MATERIAL	FRAME	REMARKS
1	5'-6 1/2" x 7'-7 1/8"	Double hinged	Wood & glass	Wood	Lobby Ent. Det. sh. # 28
2	5'-6" x 7'-7 1/8"	" "	" " "	"	Lobby · Det. sh.#
3	2'-4" x 7'-0"	Hinged	Wood	"	Lobby Toilet Rms. Det. sh.#
4	2'-0" x 7'-0"	"	Wood & glass	"	Lobby Tel. Booths Det. sh.#
5	5'-6" x 7'-0"	Double hinged	Kalamein	Kalamein	Stair #1; passage; 2nd fl. bridge. Det. sh.# Small wire gl. panel.
6	5'-6" x 7'-0"	" "	Wood & glass	Wood	Office to Fact.-1st fl. under bridge. Det. sh.#
7	3'-8" x 7'-0"	Hinged	Kalamein	Kal.	Stairs Small wire gl. panel.
8	3'-0" x 7'-0"	"	"	"	Stairs Small wire gl. panel.
9	3'-8" x 7'-0"	"	Wood & glass	Wood	Stairs
10	2'-6" x 6'-10 3/4"	"	Wood	"	Toilet & Rest Rm. Dr. 2" above fl.
11	3'-0" x 6'-10 3/4	"	"	"	Janitors' Closets. Dr. 2" above fl.
12	3'-0" x 7'-0"	"	Kalamein	Kal.	Vault
13	5'-6" x 7'-0"	Double hinged	Wood & glass	Wood	Stair Hall #1 Det. sh.#
14	3'-0" x 7'-0"	Hinged	" " "	"	Fac. Rms. #1, 2, & 3 Det. sh. # 34.
15	3'-0" x 7'-0"	"	" " "	"	Wd. & gl. partn. Det. sh.#
16	5'-6" x 7'-0"	Double hinged	" " "	"	Wd. & gl. partn. Det. sh.#
17	5'-6" x 8'-0"	" "	Kalamein	Kal.	Transfmr. Vault
18	3'-0" x 6'-8"	Hinged	"	"	Stairs at roof
19	7'-0" x 8'-0"	Double hinged	"	"	Eng. to Factory
20	11'-4" x 8'-3"	Vert. bi-part	Metal clad	Metal	Elevator # 3.
21	3'-6" x 7'-0"	Hinged	Kalamein	Kal.	Mach. Rm. Stair # 3
22	3'-2" x 7'-0"	"	Wood & glass	Wood	At stair # 5
23	5'-0" x 7'-0"	Double hinged	" " "	"	At Lobby Stair Hall
24	3'-2" x 7'-0"	Hinged	" " "	"	At Exec. Offices - Flush wd; gl. panel; grille.
25	2'-6" x 7'-0"	"	Wood	"	At Exec. offices - Flush wood.
26	3'-8" x 7'-0"	Hinged	Wood & glass	Wood	Factory exit Det. sh.#
27	14'-9 1/2" x 18'-2 1/2"	Vertical sliding	" " "	"	Det. sh.#
28	16'-7 1/4" x 18'-2 1/2"	" "	" " "	"	" " #
29	3'-6" x 7'-0"	Hinged	Wood	Wood	Elev. Mach. Rm. Det. sh #8
30	10'-0" x 10'-0"	Sliding gates	"	"	Elevators # 1 & 2
31	2'-6" x 6'-10 3/4"	Hinged	"	"	Fact. Toilet Rms. - Dr. 2" above fl. Det. sh. #19-22
32	3'-0" x 6'-10 3/4" or 6'-3"	"	"	"	[illegible] Jan. Clos. Dr. 2" above fl. See sects. for varying heights.
33	123'-2" x 40'-0"	Canopy	Steel, fire resist. bd. & gl.	Steel	At West end of assembly bay
34	3'-0" x 7'-4"	Hinged	Wood	Wood	At stairs to platform over Toilet Rms.
35	2'-8" x 7'-0"	"	Wood & glass	"	Employees' Entrances
36	12'-5 1/4" x 12'-2 3/8"	Vertical lift	" "	"	At Dry. [illegible]
37	3'-0" x 6'-10 3/4"	Hinged	" " "	"	At Cafeteria & Kitchen Flush wd. & gl. panel. [illegible]
38	3'-0" x 5'-0"	Double acting	Wood	"	Flush wd. [illegible]
39	15'-0" x 7'-9 1/2"	Horiz. sliding	Met. covered	M.C.	Bet. Kit & Factory.
40	4'-0" x 6'-10"	" "	" "	"	Bet. Kit. & Bakery.
41	6'-8 1/4" x 8'-0"	Double hinged	Wood & glass	Wood	Ext. at Kitchen.
42	3'-2" x 7'-0"	Hinged	" " "	"	At Exec. Offices - Flush wd. gl. panel grille
43	2'-8" x 7'-0"	"	" " "	"	At Exec. Offices - Flush wd. & gl. panel.
44	2'-8" x 7'-0"	"	" " "	"	At Exec. Offices - Flush wd. gl. panel; grille.
45	2'-6" x 7'-0"	"	Wood	"	At Exec. Offices - Flush wd.; grille [illegible]



TYPICAL FENCE & GATE

Scale: 1/4" = 1'-0"



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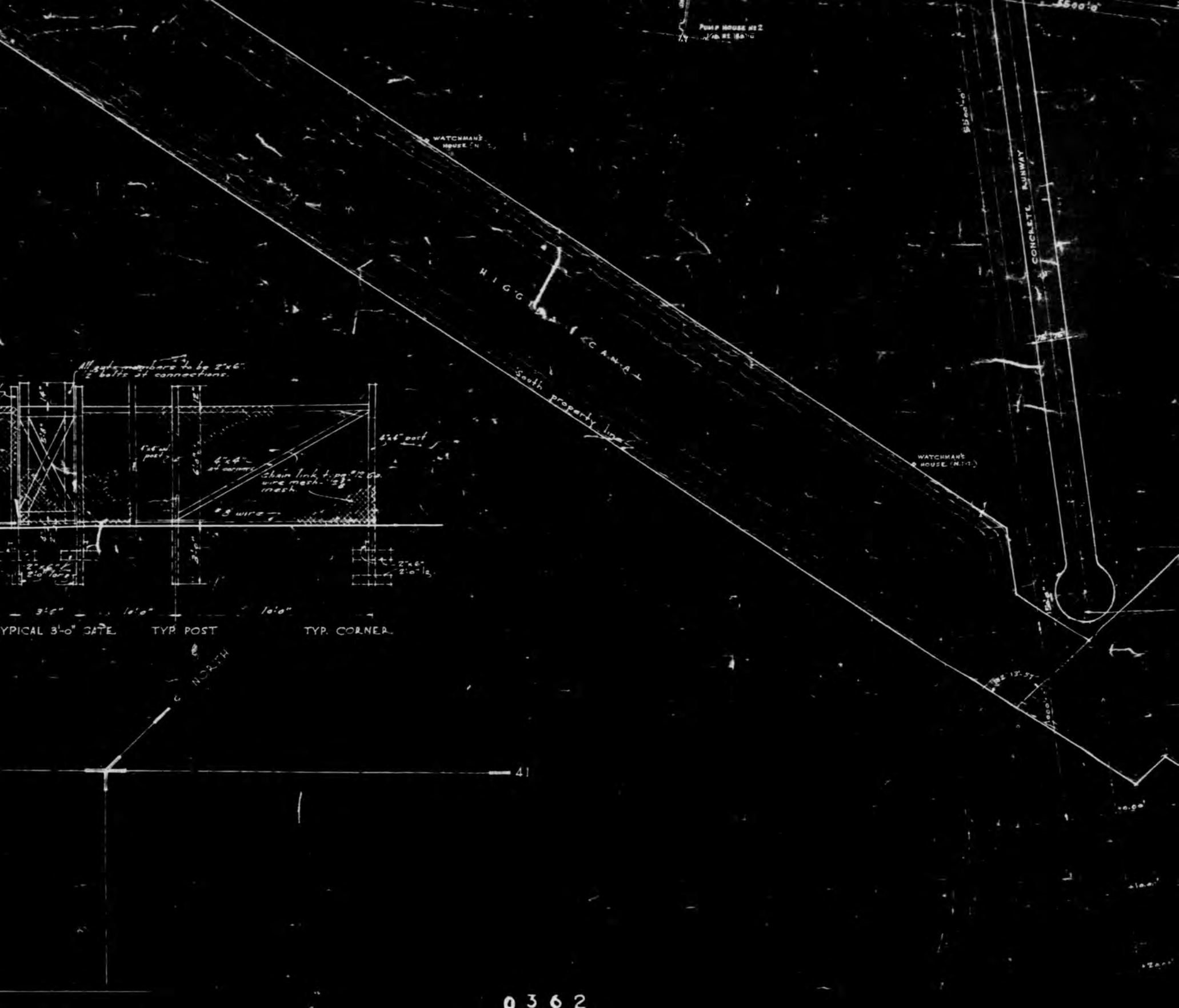
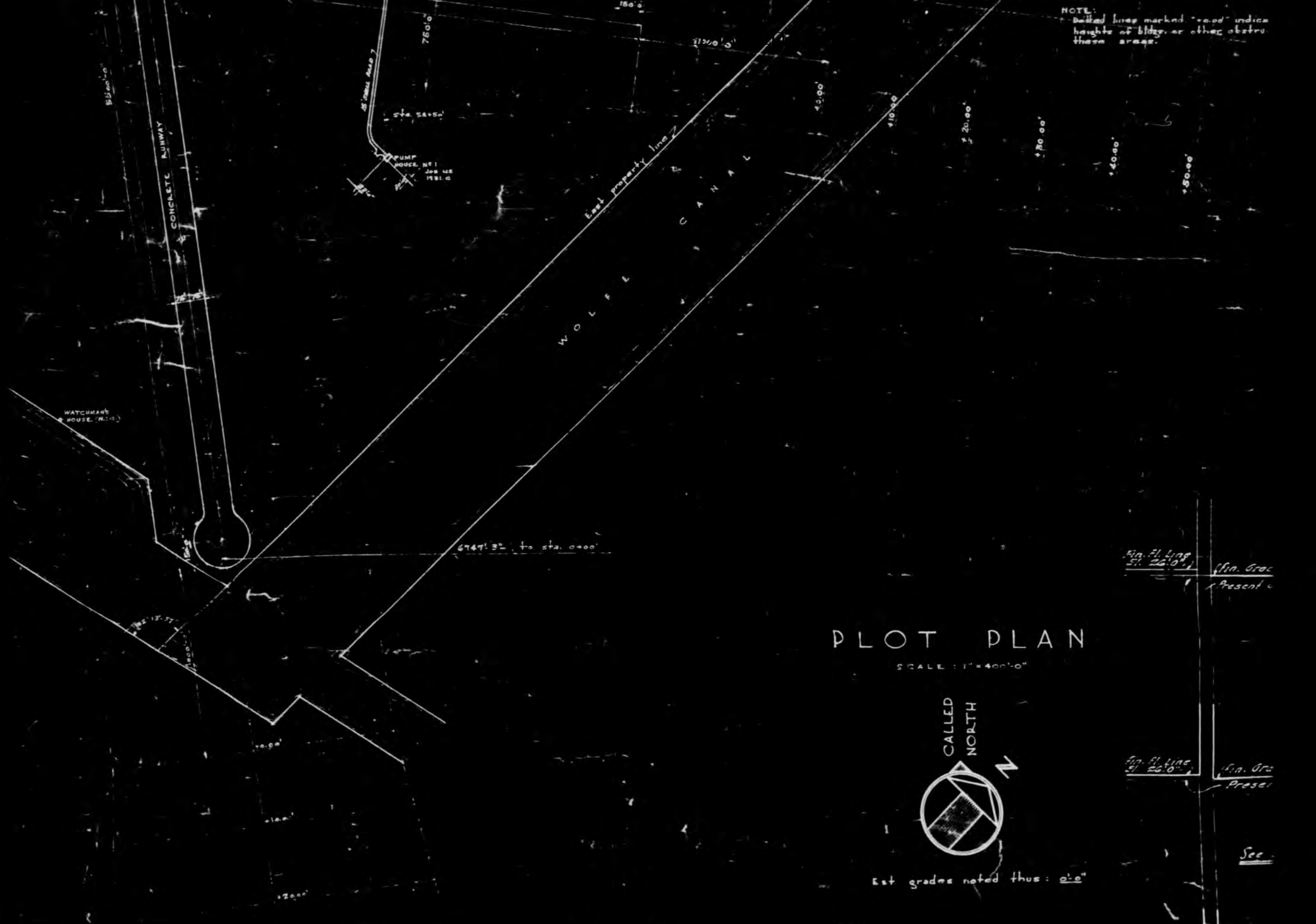

PUMP HOUSE NO 2
WATCHMAN'S HOUSE (N.)
CONCRETE RUNWAY
HIGGINS CANAL
South property line
WATCHMAN'S HOUSE (N.W.)
All angle members are 2" by 2"x6" 2 bolts at connections.
6"x6" post
6"x6" post
4"x4" at corners
chain link fabric 12 Ga. wire mesh 2" mesh
3 wire
2"x6" 2'-0" lg.
3'-6"
10'-0"
10'-0"
YPICAL 3'-0" GATE
TYP. POST
TYP. CORNER
NORTH
41


NOTE:
Dotted lines marked "+0.00" indicate heights of bldgs. or other obstru… these areas.
CONCRETE RUNWAY
WATCHMAN'S HOUSE
PUMP HOUSE Nº 1
East property line
WOLFE CANAL
6747'-3" to sta. 0+00
Fin. Fl. Line El. 26'-0"
Fin. Gra…
Present
PLOT PLAN
SCALE: 1" = 400'-0"
CALLED NORTH
N
Est. grades noted thus: 0'-0"
See

NOTE:
Dotted lines marked "+20.00" indicate maximum heights of bldgs. or other obstructions in these areas.

+20.00'
+30.00'
+40.00'
+50.00'

DOOR SCHEDULE
CONTINUED

NO	OPG SIZE	TYPE	MATERIAL	FRAME	REMARKS
73	12'0" x 14.5¼"	Sliding	Metal Clad	Met. Clad	Plating & Anodizing Dept.
74	3'8" x 7'0"	Hinged	"	"	Press & Cutting, Plating & Anodizing
75	12'0" x 16'8"	Sliding	"	"	Press & Cutting.
76	9'0" x 16'8"	Sliding	"	"	Press & Cutting
77	10'0" x 10'0"	Peele Telco	—	—	Elevator No. 1
78	8'0" x 10'0"	Overhead	Wood & Glass	Wood	Garage Sh. #6
79	16'0" x 10'0"	Overhead	" " "	"	Garage

47	3'-6" x 7'-0"	Double hinged
48	2'-6" x 7'-0"	Sliding
49	2'-8" x 7'-0"	Hinged
50	3'-0" x 7'-0"	" - Dutch
51	5'-6" x 7'-0"	Double hinged
52	3'-0" x 7'-0"	Hinged
53	19'-4½" x 13'-0½"	Overhead
54	2'-8" x 6'-6¼"	Hinged
55	2'-8" x 3-11¾"	Hinged
56	3'-0" x 4'-2¾"	Hinged
57	4'-0" x 7'-0"	"
58	2'-6" x 7'-0"	"
59	4'-0" x 6'-10¾"	"
60	3'-4¼" x 8'-0"	"
61	6'-0" x 6'-10¾"	Horiz. sliding
62	6'-0" x 7'-0"	Double Hinged
63	3'-0" x 6'-10¾"	Hinged
64	3'-0" x 6'-10¾"	"
65	3'-8" x 6'-10¾"	Double Hinged
67	2'-8" x 7'-0"	Hinged
68	3'-0" x 6'-11¾"	"
69	10'-0" x 8'-7"	Overhead
70	6'-0" x 7'-0"	Double Hinged
71	3'-6" x 7'-2"	Hinged
72	3'-0" x 7'-0"	Double Acting

T PLAN
ALE : 1" = 40'-0"

CALLED NORTH
N

eadings noted thus : 0'-0"

Property Line
Gate
Fence
Fin. Gr. El. 25.6"
Fin. Grade Beyond El. 25.0"
Top of Conc. Loado
Fin. Gr. El.
Fin. Fl. Line El. 26.0"
Fin. Grade El. 25.6"
Present Grade
Present Grade
Fin. Grade Beyond Culvert
Top of Catch
El. 23.16

SECTION ON S.P. 38+40

Fence
Fin. Grade El. 25.0"
Fin. Gr.
Top of Catch
El. 23.16
Fin. Fl. Line El. 26.0"
Fin. Grade El. 25.6"
Present Grade

See Sheet 4.0 For Plan

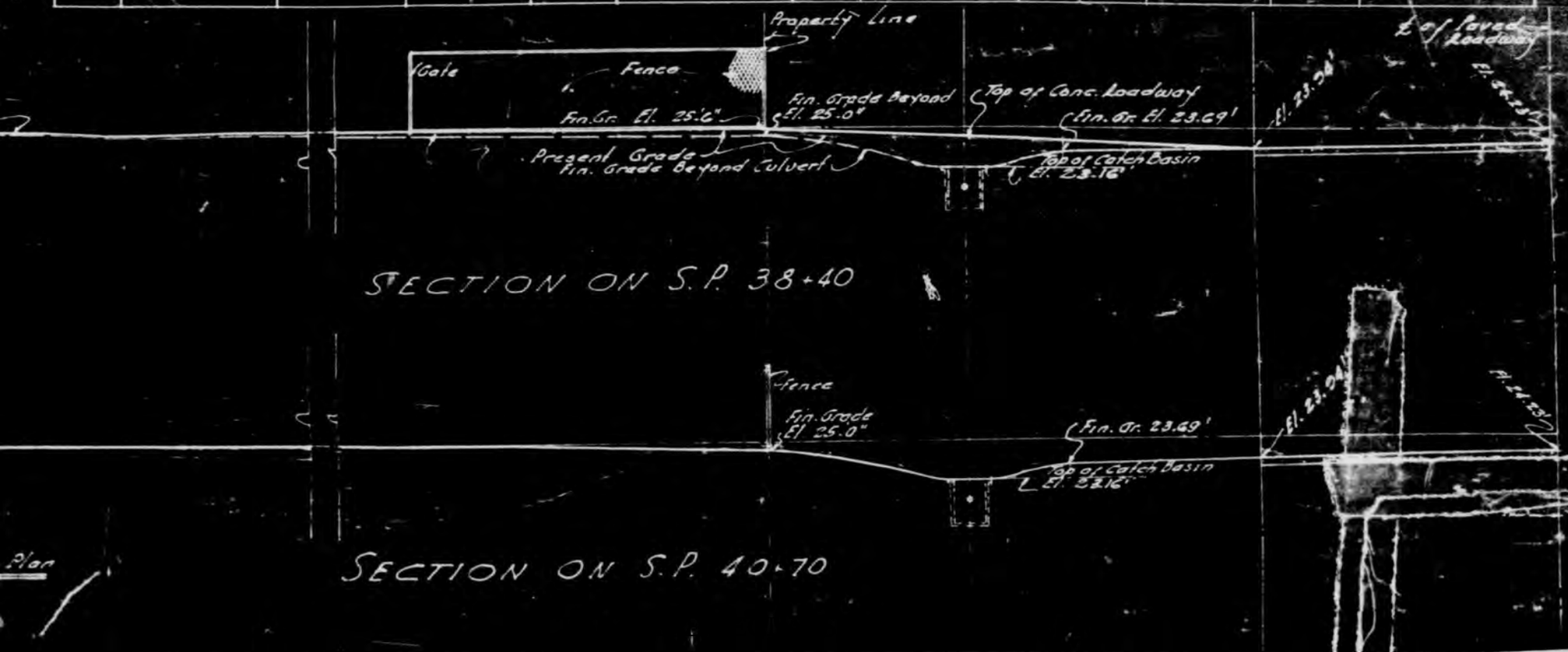
SECTION ON S.P. 40+70

Fence

DOOR SCHEDULE
CONTINUED

NO	OPG SIZE	TYPE	MATERIAL	FRAME	REMARKS
73	12'0" x 14-5¼"	Sliding	Metal Clad	Met. Clad	Plating & Anodizing Dept.
74	3'8" x 7'0"	Hinged	"	"	Press & Cutting, Plating & Anodizing
75	12'0" x 16'8"	Sliding	"	"	Press & Cutting.
76	9'0" x 16'8"	Sliding	"	"	Press & Cutting
77	10'0" x 10'0"	Peele Telco	—	—	Elevator No. 1
78	8'0" x 10'0"	Overhead	Wood & Glass	Wood	Garage Sh. #6
79	16'0" x 10'0"	Overhead	" " "	"	Garage

45	2'-6" x 7'-0"	"	Wood	"	At Exec. Offices - Flush wd.; grille.
46	2'-9" x 7'-0"	"	"	"	At Exec. Offices - Flush wd.; grille.
47	3'-6" x 7'-0"	Double hinged	"	"	At Exec. Offices - Flush wood
48	2'-6" x 7'-0"	Sliding	"	"	At Exec. Offices - Flush wd.; grille
49	2'-8" x 7'-0"	Hinged	Wood & glass	"	At Exec. Offices
50	3'-0" x 7'-0"	" - Dutch	Wood	"	Blue Print Rm. - Dutch door with counter
51	5'-6" x 7'-0"	Double hinged	"	"	At Hotel Cafeteria
52	3'-0" x 7'-0"	Hinged	"	"	
53	17'-4¾" x 13'-0½"	Overhead	Wood & glass	"	At Dry Kiln
54	2'-8" x 6'-6¼"	Hinged	Wood	Wood	
55	2'-8" x 3'-11¾"	Hinged	Wood	Wood	
56	3'-0" x 4'-2¾"	Hinged	Met. Covered	Met.	
57	4'-0" x 7'-0"	"	Wood & glass	Wood	
58	2'-6" x 7'-0"	"	Wood		
59	4'-0" x 6'-10¾"	"			
60	3'-4½" x 8'-0"	"	Wood & glass		
61	6'-0" x 6'-10"	Horiz. sliding	Met. covered	Met.	
62	6'-0" x 7'-0"	Double Hinged	Kalamein	Kal.	
63	2'-0" x 6'-10¾"	Hinged	Flush, kalamein	"	
64	3'-0" x 6'-10¾"	"	Flush wood	Wood	To Cafeteria
65	5'-6" x 6'-10¾"	Double Hinged	Flush kalamein	Kal.	Cafeteria & Cafe
66	3'-8" x 6'-10¾"	Hinged	kalamein	Kal.	Dairy, small units, Cafeteria
67	2'-8" x 7'-0"	Hinged	Wood	Wood	at Maintainace & Fire Houses - Sh. #20.
68	3'-0" x 6'-11¼"	"	Wood & Gl.	"	at Maintainace & Fire Houses - Sh. #20
69	10'-0" x 8'-7"	Overhead	Wood & Gl.	"	at Maintainance & Fire Houses Sh. #20
70	6'-0" x 7'-0"	Double-Hinged	" " "	"	Bay Dept. Sh. #46
71	3'-6" x 7'-2"	Hinged	" " "	"	At Dehumidifier House see sh. #46 & 49
72	3'-0" x 7'-0"	Double Acting	Wd. & Gl.	"	At Canteens - 16" round Glass - Lim. Rich. Pattern



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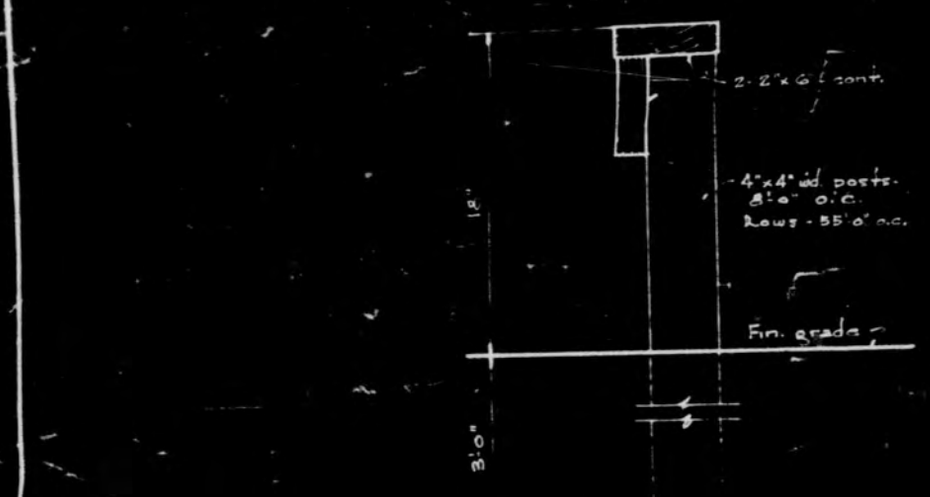

1½" SCALE DETAIL OF AISLE MARKERS FOR PARKING AREAS

WIND ROSE.

KEY TO MATERIALS

	BRICK		METAL
	CONCRETE	ELEV. SECT.	WOOD
	SMOOTH FACE TILE	CONT. BLOCK	
	GLAZED HOLLOW TILE		

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41

33

WIND ROSE.

MANUFACTU

HIGGINS AI

NEW ORLEANS

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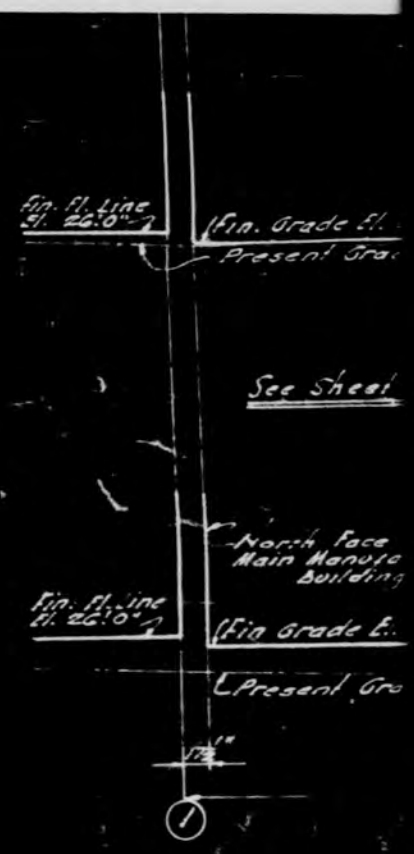
SCALE : 1" = 400'-0"

CALLED NORTH

N

Est. grades noted thus : 0'-0"

NOTE:
For part plot plan at Manufacturing Bldg., scale: 1" = 100'-0", see sheet no. 1-A.
For R.R. track layout, see sh. nos 1-B & 1-C.
For Guard's & Watchmans Houses and Plot plan at Office & Engineering Bldg., scale: 1" = 50'-0", see sh. no. 1-D.



MANUFACTURING PLANT

FOR

S AIRCRAFT, INC

R L E A N S LOUISIANA

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400'-0"

d thus: 2'-6"

facturing Bldg.,
et no. 1-A.
ch nos 1B & 1-C.
ees and Plot
cering Bldg.,
no. 1-B.

SECTION ON S.P. 38+40

Fin. Fl. Line El. 26'0"

Fin. Grade El. 25.6"

Present Grade

Fence

Fin. Grade El. 25.0"

Fin. Gr. 23.69'

Top of Catch Basin El. 23.16'

See Sheet 1-D for Plan

SECTION ON S.P. 40+70

North Face of Main Manufacturing Building

Fin. Fl. Line El. 26'0"

Fin. Grade El. 25'6"

Present Grade

Fence

Fin. Grade Beyond El. 25'0"

Fin. Gr. Beyond 23.21'

Top of Catch Basin El. 23.16'

Fin. Grade Beyond

Property Line

55'0"

Half of Gentilly Highway

255'0"

SECTION ON S.P. 55+25

GRADE SECTIONS NORTH OF MANUFACTURING BUILDING

SCALE 1" = 10'

INC.

SIANA

DATE	BY	BULL'N	DATE	BY	BULL'N
8-3-43	F.P.	102	5-5-43	F.H.P.	+95
10-11-43	A.E.B.	119	5-6-43	A.E.B.	*39
			5-7-43	F.H.P.	40
			5-3-43	A.E.B.	*62
			6-17-43	A.E.B.	*75
			7-3-43	A.E.B.	78

DEFENSE PLANT CORPORATION

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PLOT PLAN

REVISIONS		
DATE	BY	BULL'N
2-13-43	F.A.K.	2
2-22-43	A.E.B.	4
3-13-43	A.E.B.	11
3-24-43	F.A.K.	14
3-27-43	A.E.B.	15
4-2-43	A.E.B.	16

JOB NUMBER 1931

ALBERT KAHN ASSOCIATED ARCHITECTS AND ENGINEERS, INC. DETROIT MICHIGAN

BARNARD, GODAT, & CONSULTING ENGINEERS ASSOCIATES NEW ORLEANS LOUISIANA

CONFIDENTIAL

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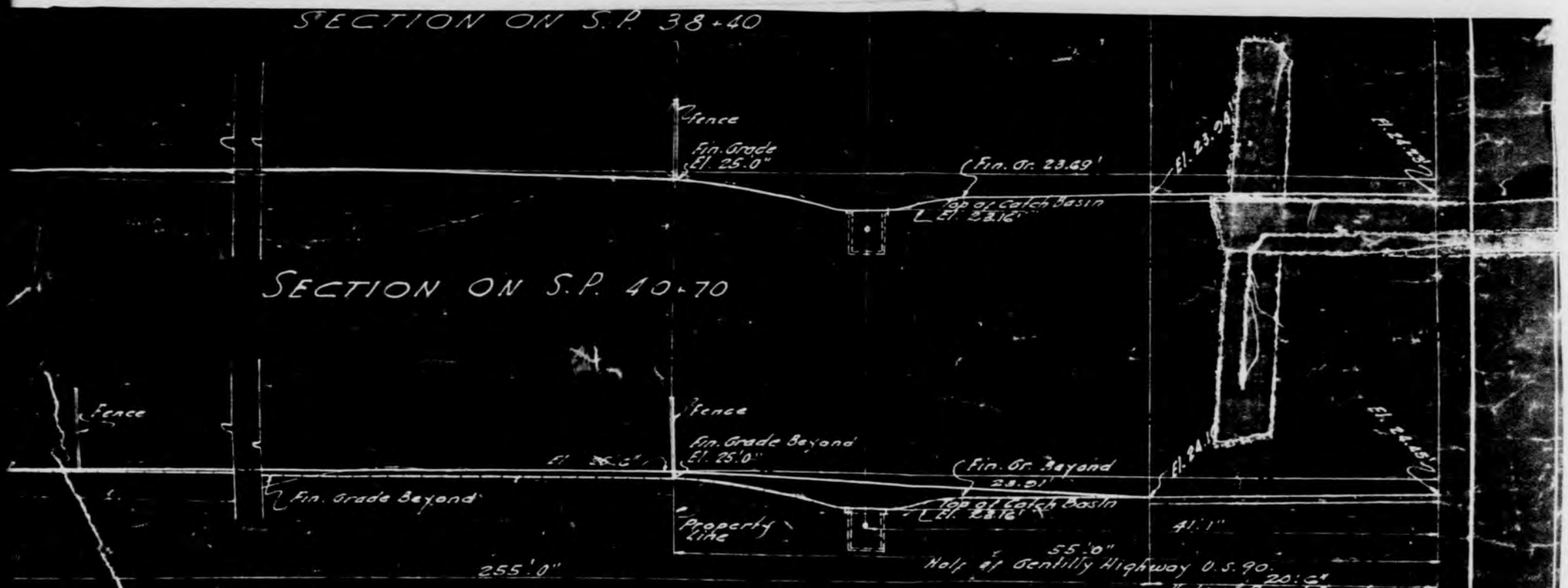

DATE	BY	BULL'N	DATE	BY	BULL'N
8-3-43	F.P.	102	5-5-43	F.H.P.	#35
10-11-43	A.E.B.	119	5-6-43	A.E.B.	#39
			5-7-43	F.H.P.	#40
			5-3-43	A.E.B.	#42
			6-12-43	A.E.B.	#73
			6-23-43	A.E.B.	78

REVISIONS		
DATE	BY	BULL'N
2-13-43	F.A.F.	2
2-2-43	A.E.B.	4
3-13-43	A.E.B.	11
3-24-43	F.A.F.	14
3-27-43	A.E.B.	15
4-5-43	A.E.B.	16

DEFENSE PLANT CORPORATION

PLANCOR Nº 1569

PLOT PLAN

ALBERT KAHN ASSOCIATED ARCHITECTS AND ENGINEERS, INC.
DETROIT MICHIGAN

DR. M.D.M.
TR. M.D.M.
CH.
APP.
DATE: 2-6-43

JOB NUMBER 1931

BARNARD, GODAT, & HEFT
CONSULTING ENGINEERS
-ASSOCIATES-
NEW ORLEANS LOUISIANA

SHEET NUMBER 1

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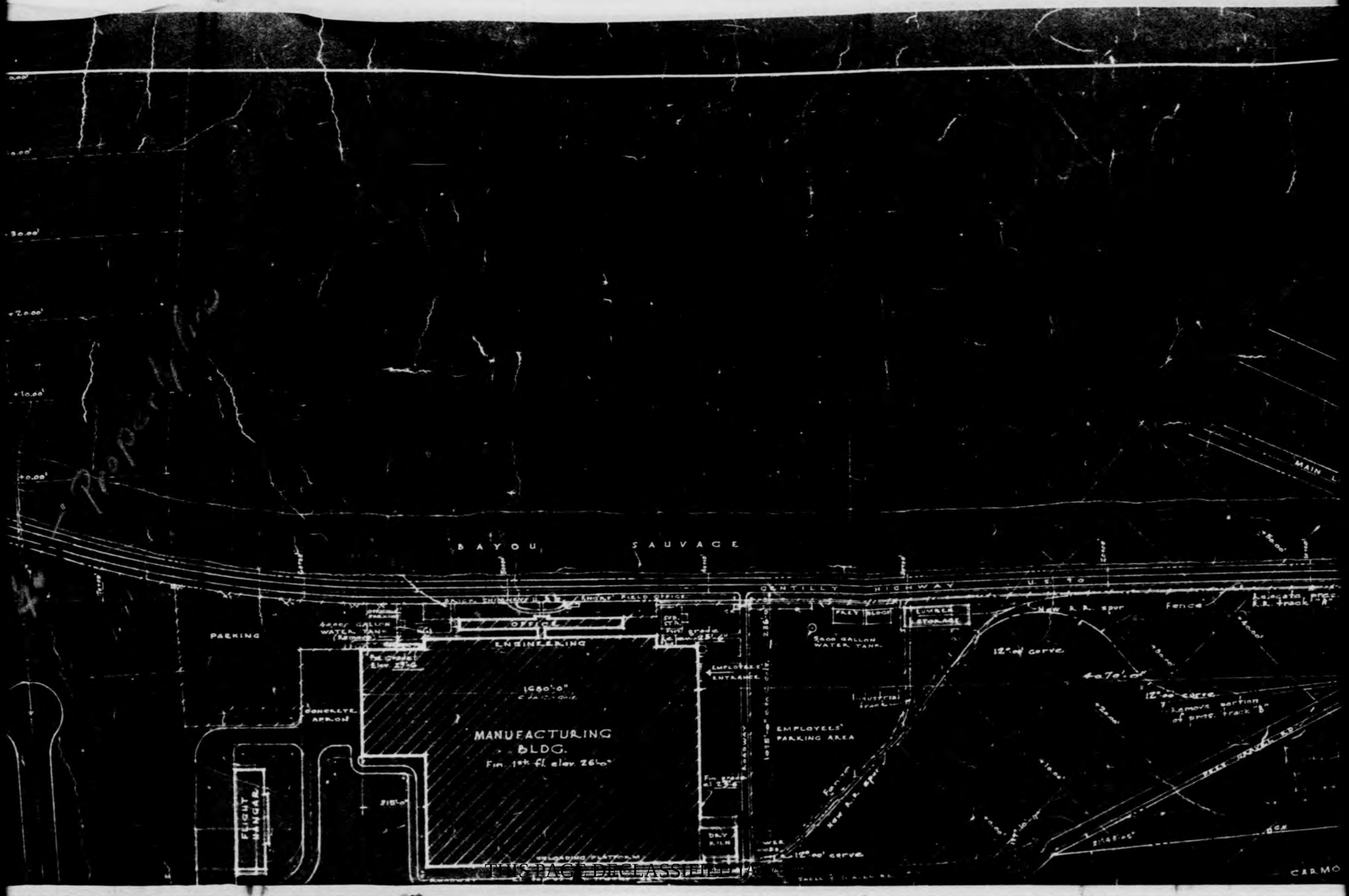

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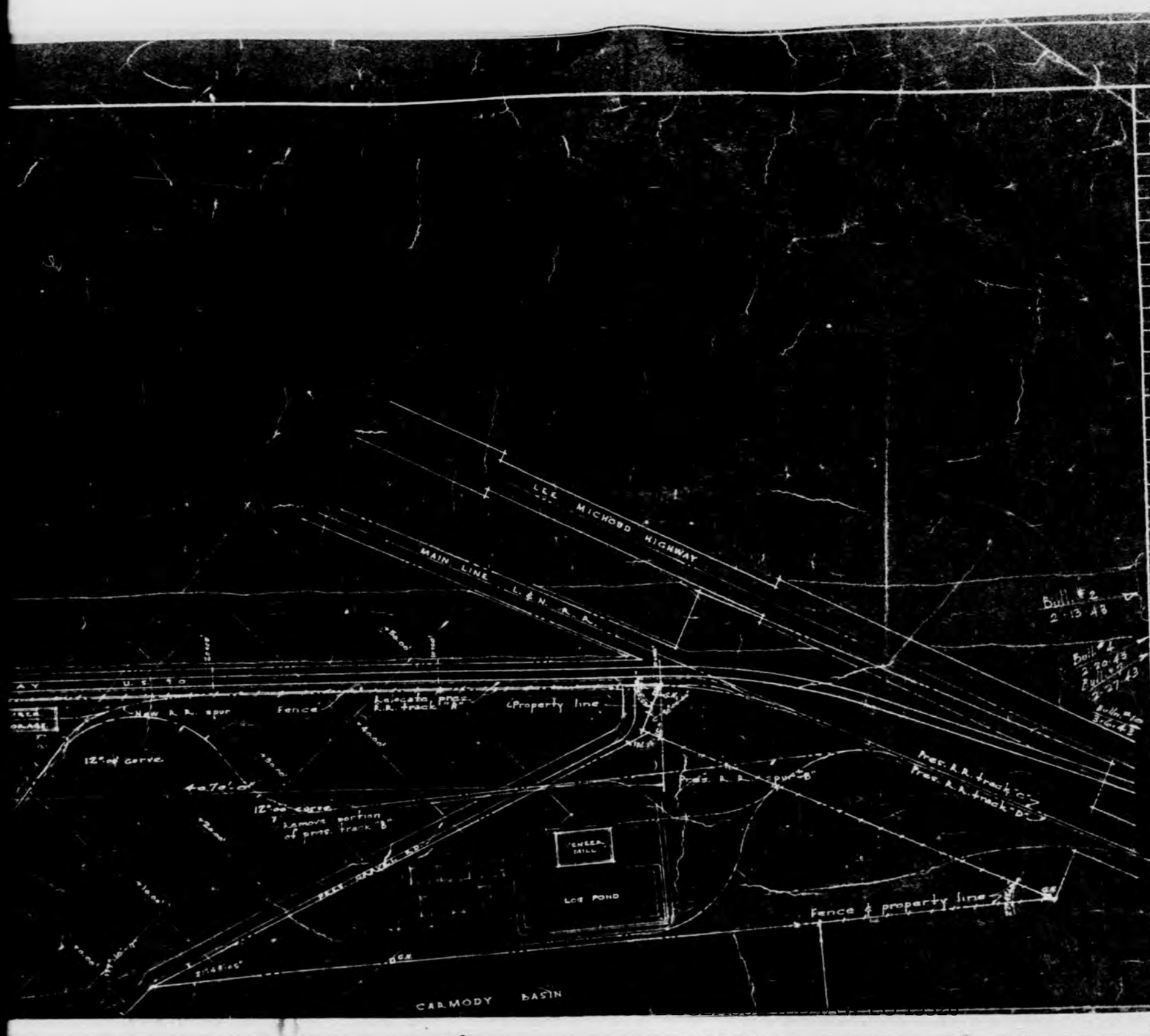

NO.	OPG. SIZE	TYPE	MATERIAL
1	5'-6½" x 7'-7⅛"	Double-hinged	Wood & glass
2	5'-0" x 7'-7⅛"	" "	" "
3	2'-4" x 7'-0"	Hinged	Wood
4	2'-0" x 7'-0"	"	Wood & glass
5	5'-6" x 7'-0"	Double-hinged	Kalamein
6	5'-6" x 7'-0"	" "	Wood & glass
7	3'-8" x 7'-0"	Hinged	Kalamein
8	3'-0" x 7'-0"	"	"
9	3'-8" x 7'-0"	"	Wood & gl.
10	2'-6" x 6'-10⅝"	"	Wood
11	3'-0" x 6'-10⅝"	"	"
12	3'-0" x 7'-0"	"	Kalamein
13	5'-6" x 7'-0"	Double hinged	Wood & gl.
14	3'-0" x 7'-0"	Hinged	" "
15	3'-0" x 7'-0"	"	" "
16	5'-6" x 7'-0"	Double Hinged	"
17	5'-6" x 8'-0"	" "	Kalamein
18	3'-0" x 6'-8"	Hinged	"
19	7'-0" x 8'-0"	Double Hinged	"
20	11'-4" x 8'-3"	Vert. bi-part.	Met. clad
21	3'-6" x 7'-0"	Hinged	Kal.
22	3'-2" x 7'-0"	"	Wd. &
23	5'-0" x 7'-0"	Double-hinged	" "
24			
25			
26	3'-8" x 7'-0"	Hinged	Wood &
27	14'-9½" x 18'-2½"	Vertical sliding	" "
28	16'-7¼" x 18'-2½"	" "	" "
29	3'-6" x 7'-0"	Hinged	Wood
30	10'-0" x 10'-0"	Sliding gates	Wood
31	2'-6" x 6'-10⅜"	Hinged	"
32	3'-0" x 6'-10⅜" or 6'-3"	"	"
33	123'-2" x 40'-0"	Canopy	Steel &
34	3'-0" x 7'-4	Hinged	Wood

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DOOR SCHEDULE

NO.	OPG. SIZE	TYPE	MATERIAL	FRAME	REMARKS
1	5'-6½" x 7'-7⅞"	Double hinged	Wood & glass	Wood	Lobby Ent. at 1st fl.
2	5'-6" x 7'-7⅞"	"	" " "	"	Lobby Ent. at 1st fl.
3	2'-4" x 7'-0"	Hinged	Wood	"	Lobby Hdkf. Room Ent. at 1st fl.
4	2'-0" x 7'-0"	"	Wd. & glass	"	Lobby Hdkf. Booth Ent. at 1st fl.
5	5'-6" x 7'-0"	Double hinged	Kalamein	Kalamein	Stairway passage to 2nd & 3rd floors at 1st fl.
6	5'-6" x 7'-0"	" "	Wood & glass	Wood	Office & Lobby Ent. at 1st fl.
7	3'-8" x 7'-0"	Hinged	Kalamein	Kalamein	Closet Small wood sh. panel
8	3'-0" x 7'-0"	"	"	"	Closet Small wood sh. panel
9	3'-8" x 7'-0"	"	Wood & glass	Wood	Closet
10	2'-6" x 6'-10½"	"	Wood	"	Toilet & Locker Room Door 2 above fl.
11	3'-0" x 6'-10½"	"	"	"	Janitors Closet Door 2 above fl.
12	3'-0" x 7'-0"	"	Kalamein	Kalamein	Vault
13	3'-6" x 7'-0"	Double hinged	Wood & glass	Wood	Stair Ent. at 1st Part. sh.
14	3'-0" x 7'-0"	Hinged	" "	"	Fan Room #1, 2, & 3 part. sh. at #4
15	3'-0" x 7'-0"	"	" "	"	Wd. & gl. partn. Det. sh. at #4
16	3'-6" x 7'-0"	Double Hinged	" "	"	Wd. & gl. partn. Det. sh. at #4
17	5'-6" x 8'-0"	" "	Kalamein	Kal.	Trans. Vault
18	3'-0" x 6'-8"	Hinged	"	"	Stair at mezz.
19	7'-0" x 8'-0"	Double Hinged	"	"	Ent. to Lavatory
20	11'-4" x 8'-3"	Vert. bi-part.	Met. clad	Metal	Elevator #3
21	3'-6" x 7'-0"	Hinged	Kal.	Kal.	Mach. Rm. Stair #3
22	3'-2" x 7'-0"	"	Wd. & gl.	Wood	At stair #5
23	5'-0" x 7'-0"	Double-hinged	" "	"	At Lobby Stair Hall
24					
25					
26	3'-8" x 7'-0"	Hinged	Wood & glass		Lavatory Ent.
27	14'-9½" x 18'-2½"	Vertical sliding	" "	"	
28	16'-7¼" x 18'-2½"	" "	" " "	"	
29	3'-6" x 7'-0"	Hinged	Wood	Wood	
30	10'-0" x 10'-0"	Sliding gates	Wood	Wood	Elec
31	2'-6" x 6'-10¾"	Hinged	"	"	
32	3'-0" x 6'-10¾" or 6'-3	"	"	"	
33	123'-2" x 40'-0"	Canopy	Steel frame, corrugated wire glass	Steel	At West Ent. Assembly
34	3'-0" x 7'-4	Hinged	Wood	Wood	At stairs to over Toilet Rm.

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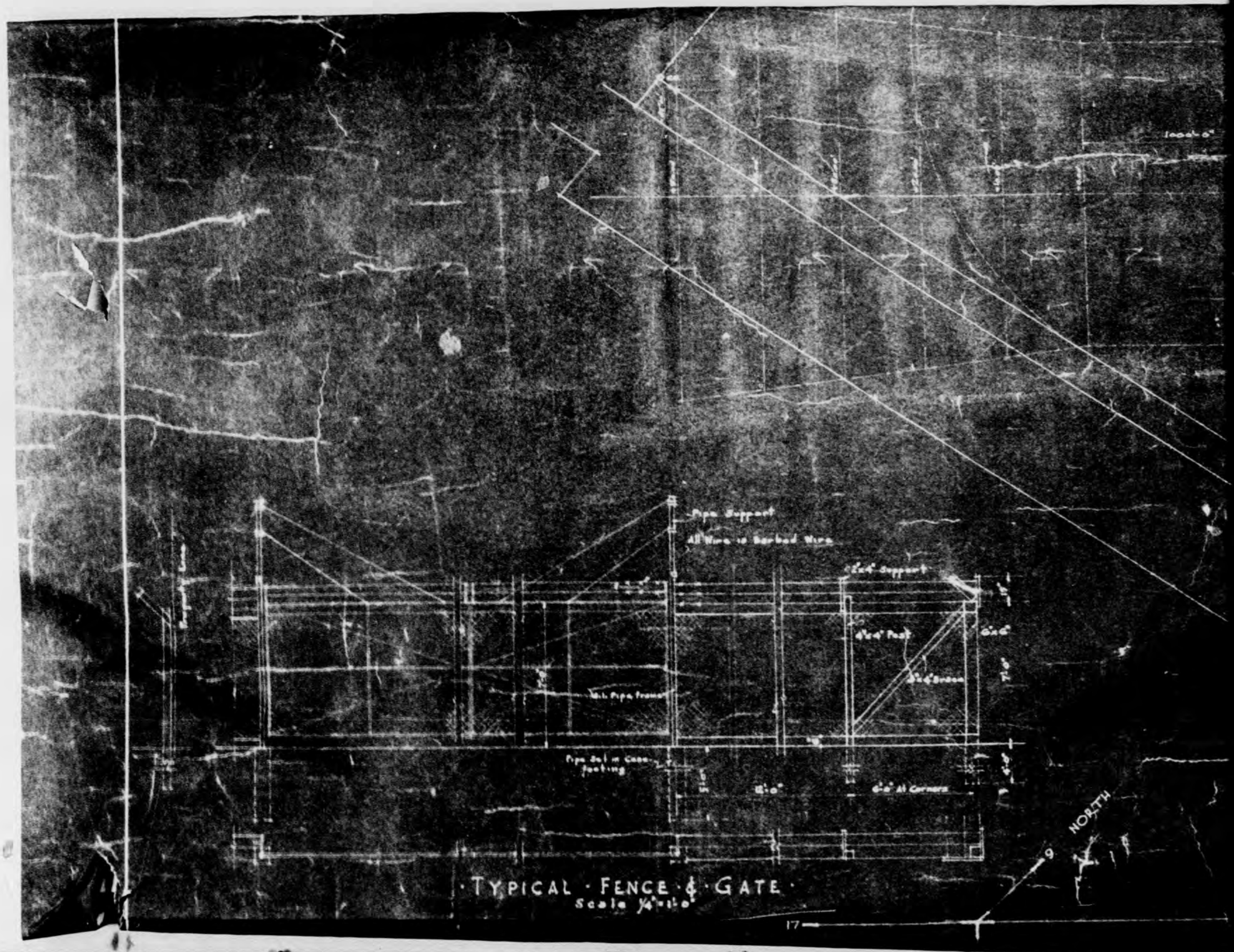

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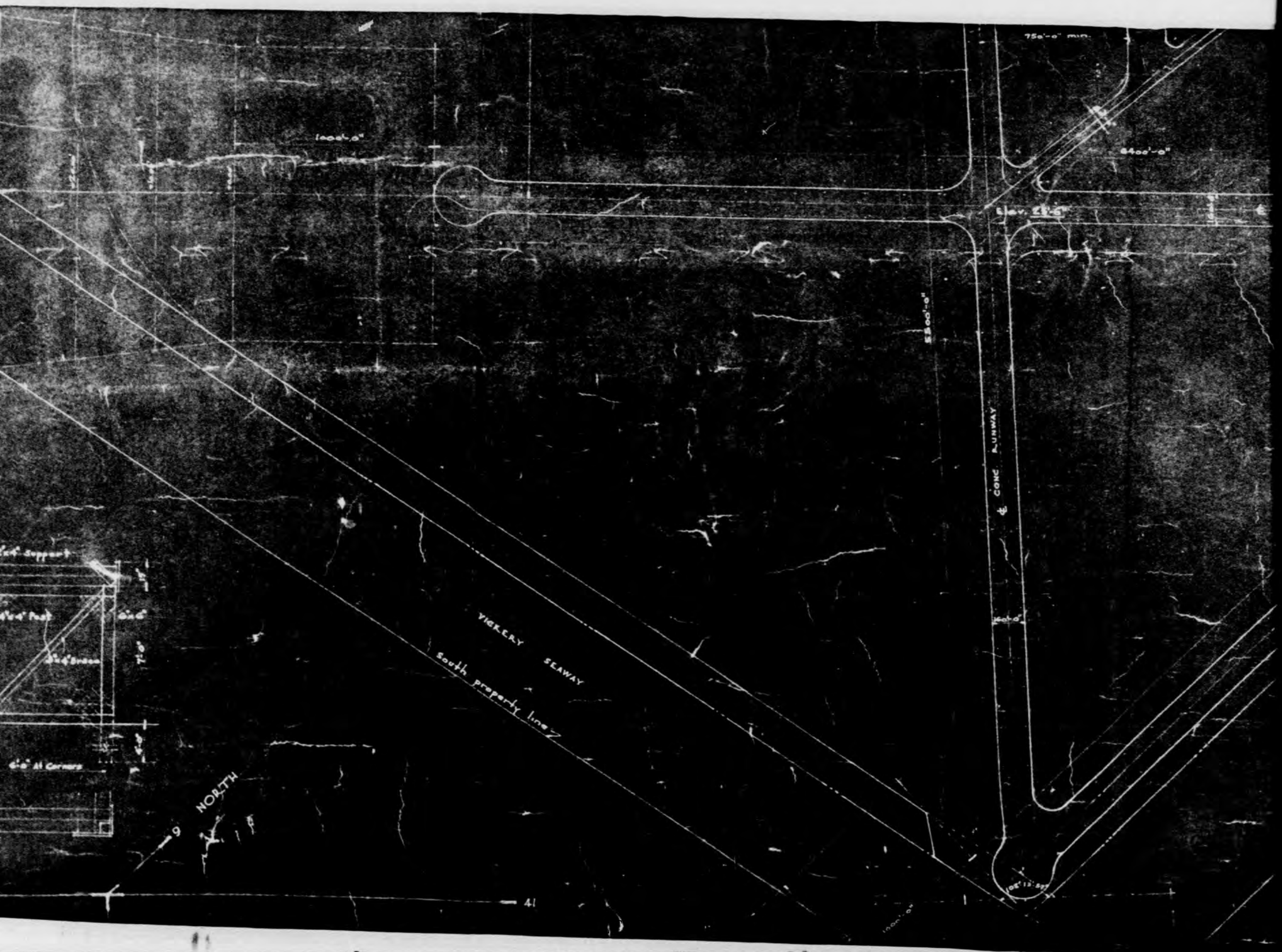

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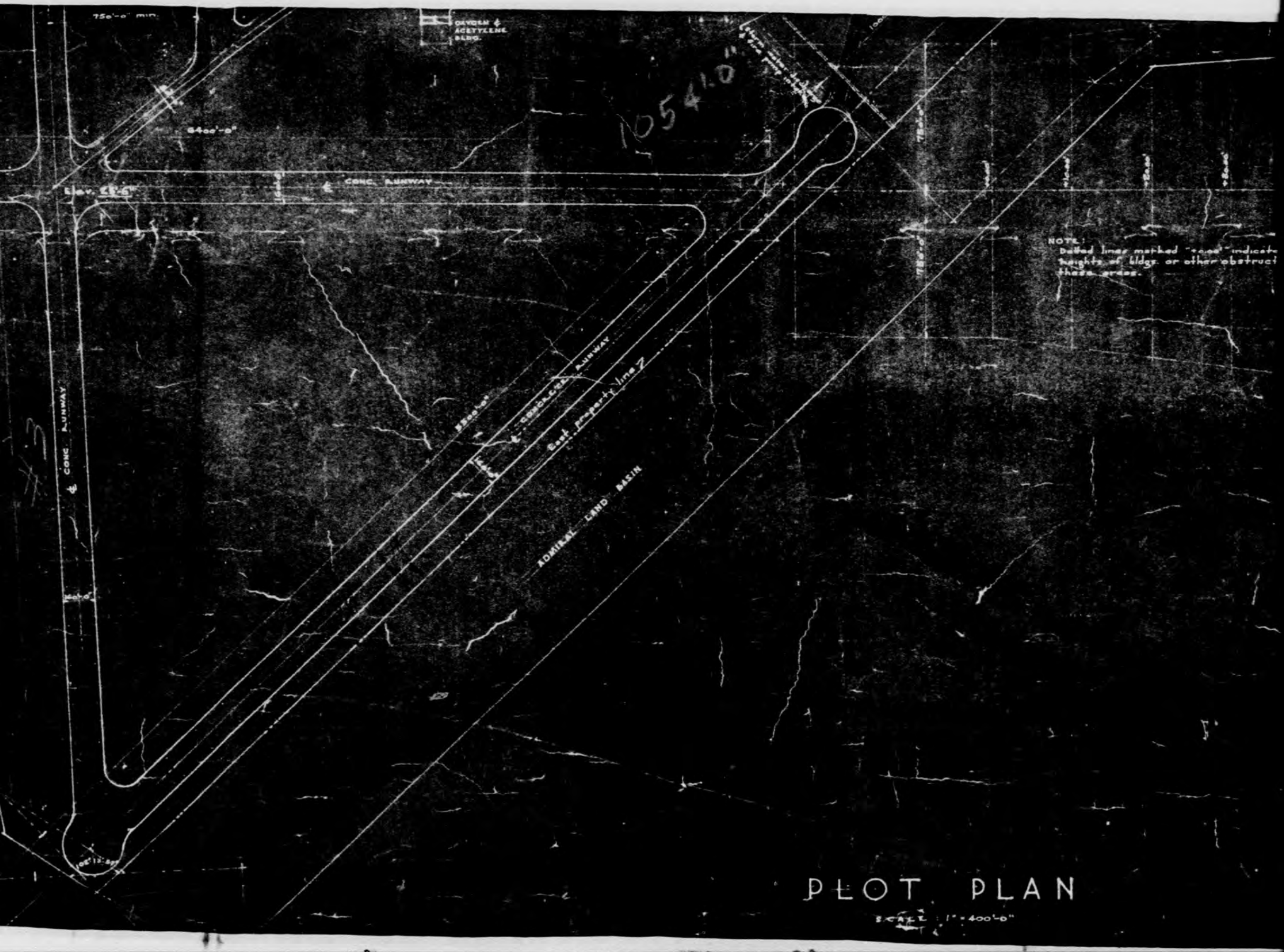

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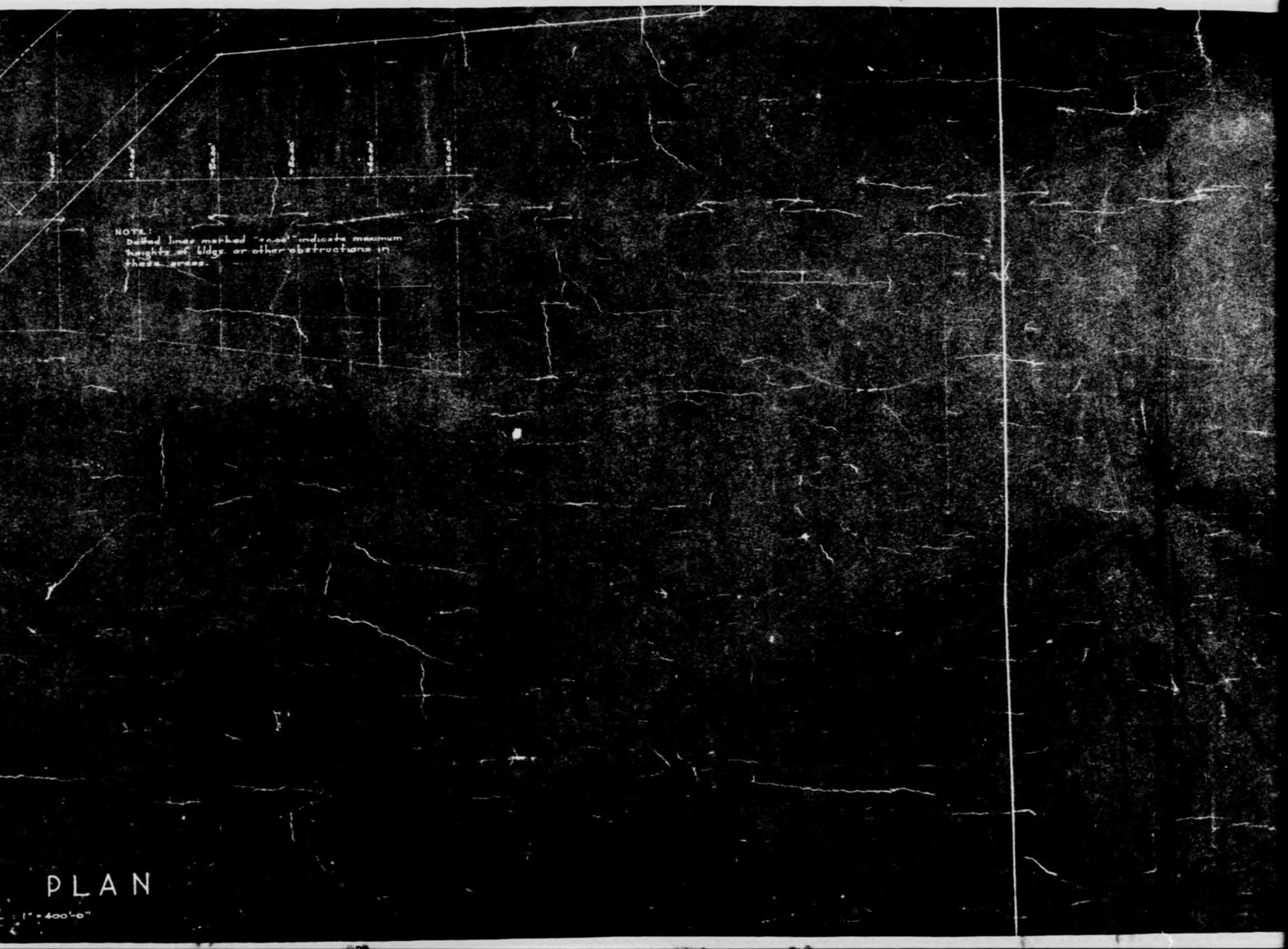

PLAN

1" = 400'-0"

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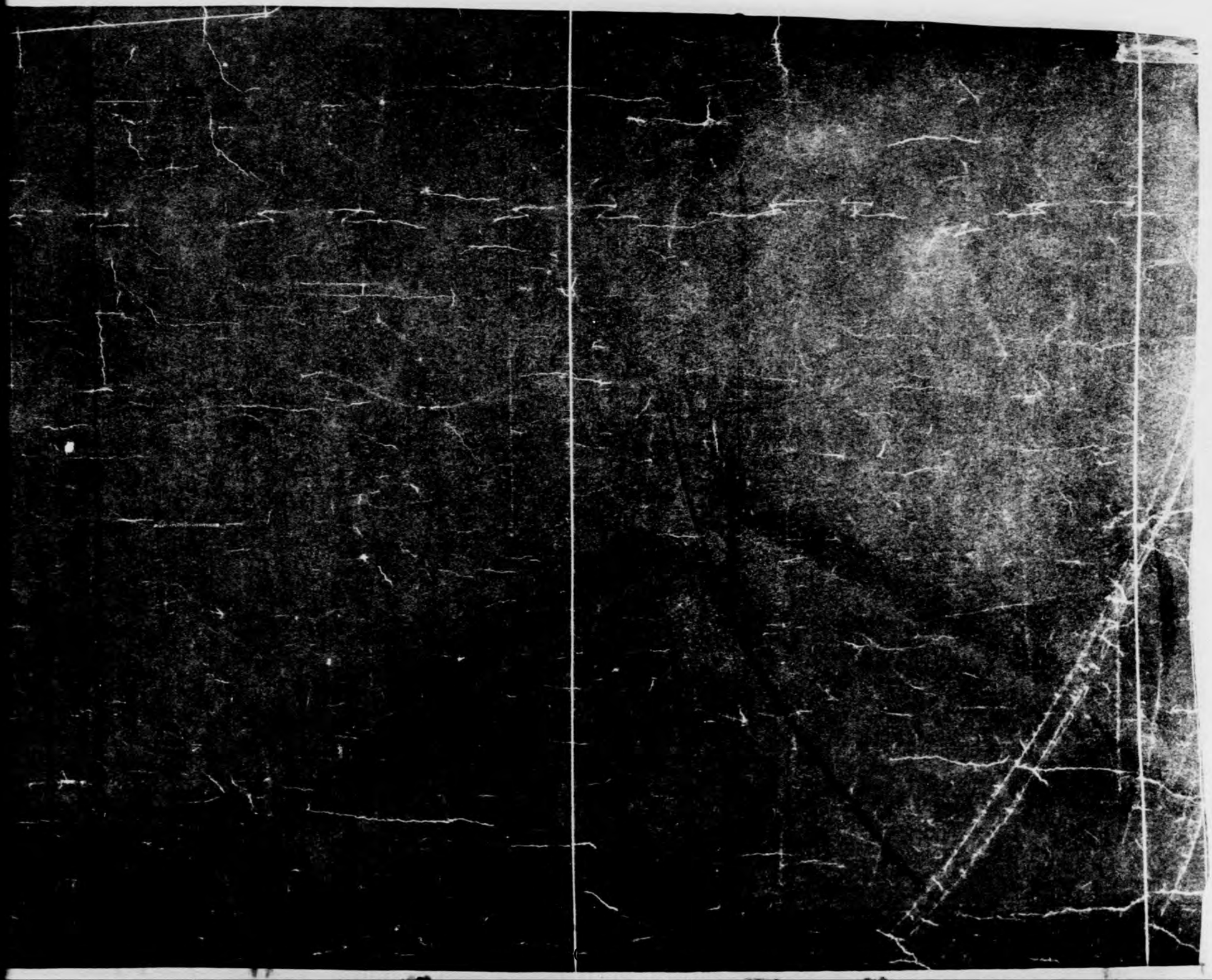

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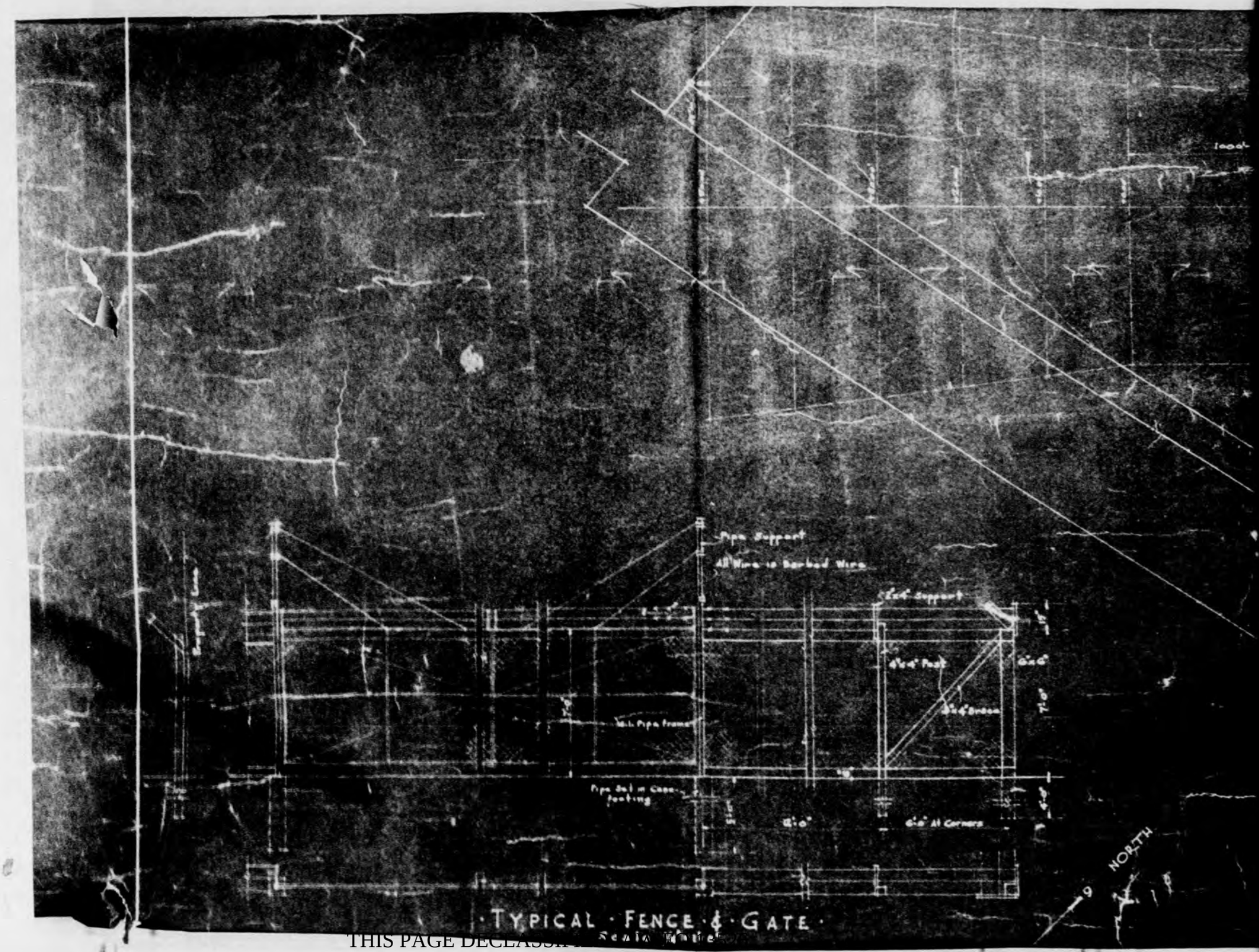

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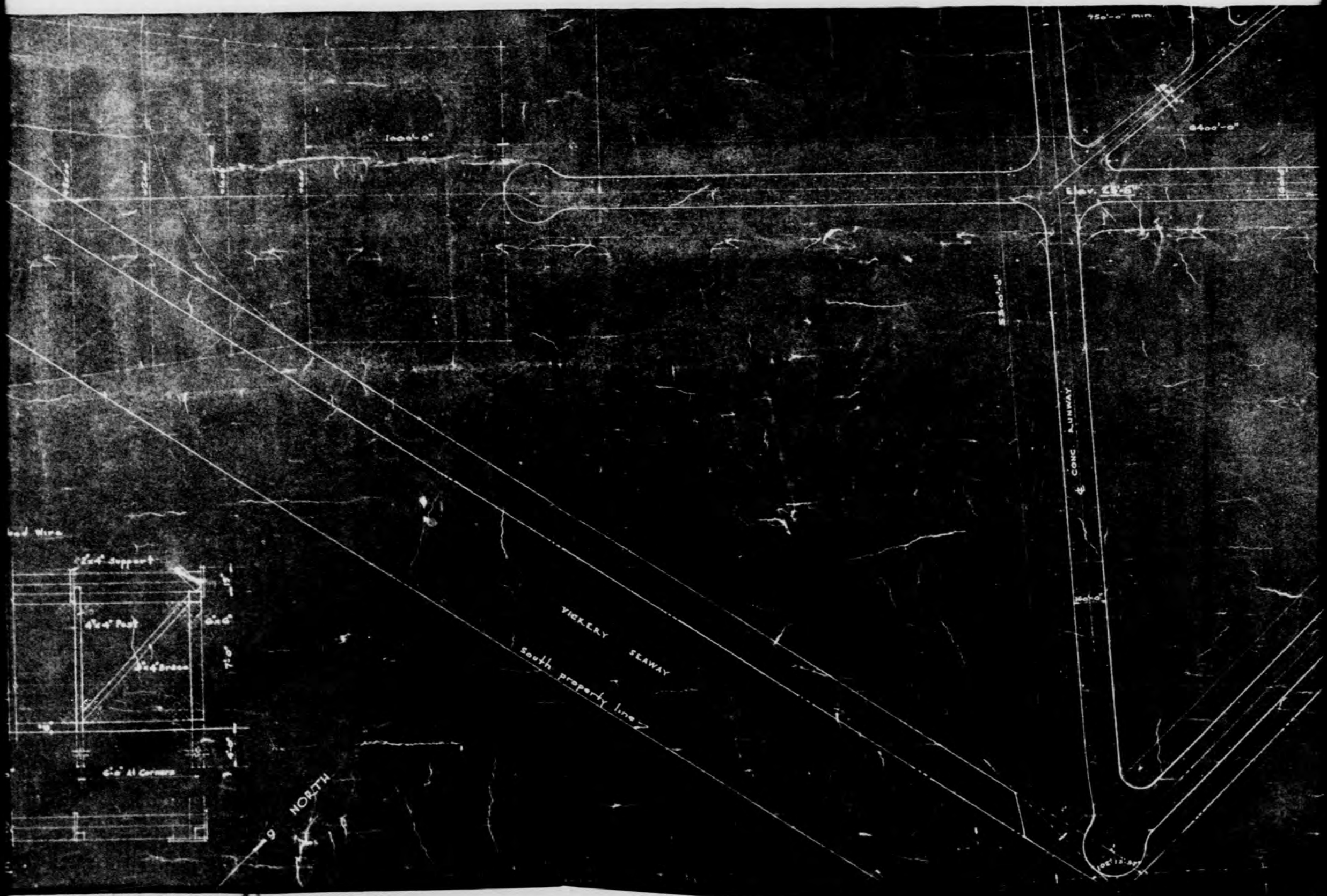

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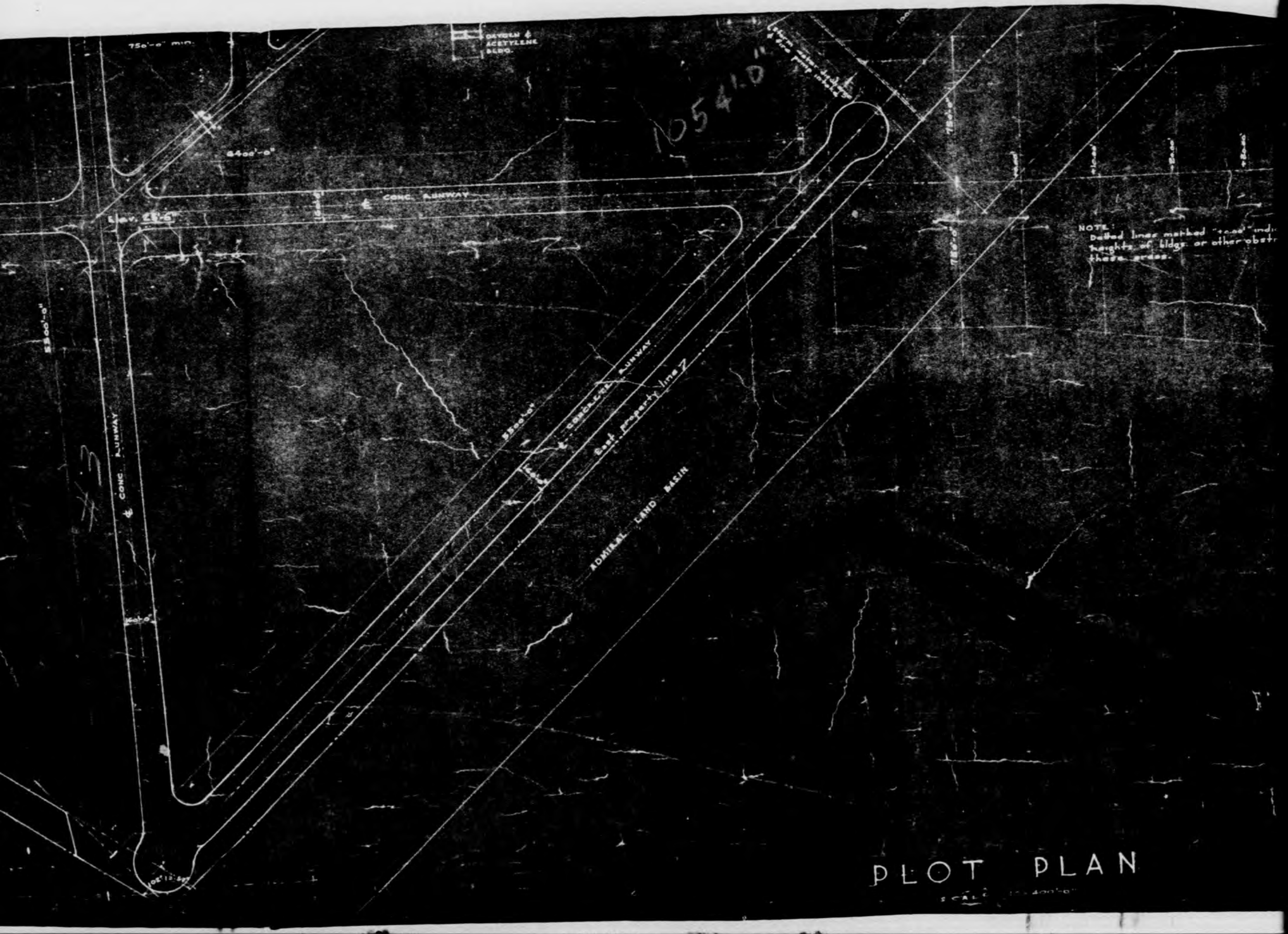

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NOTE:
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LOT PLAN

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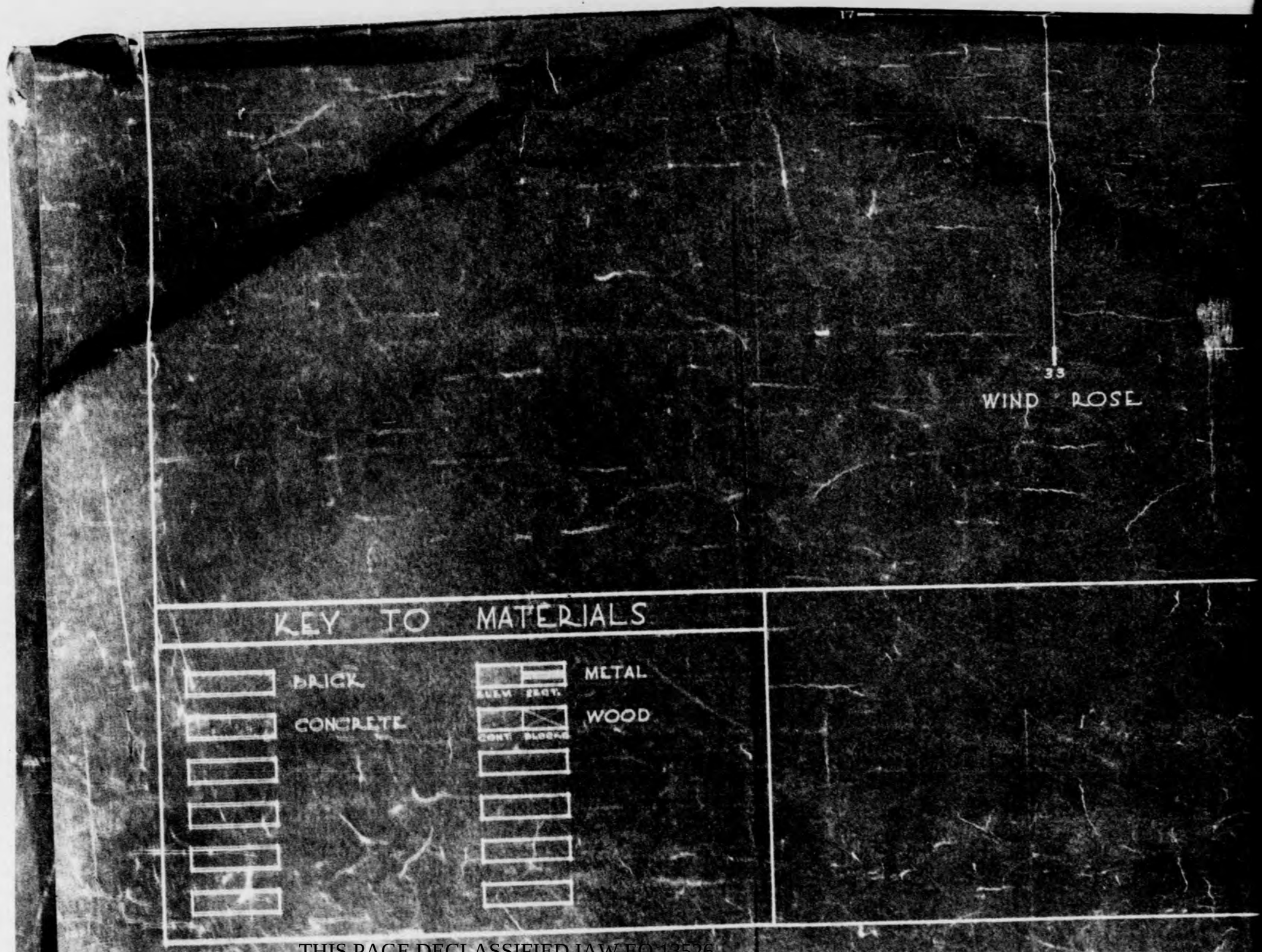

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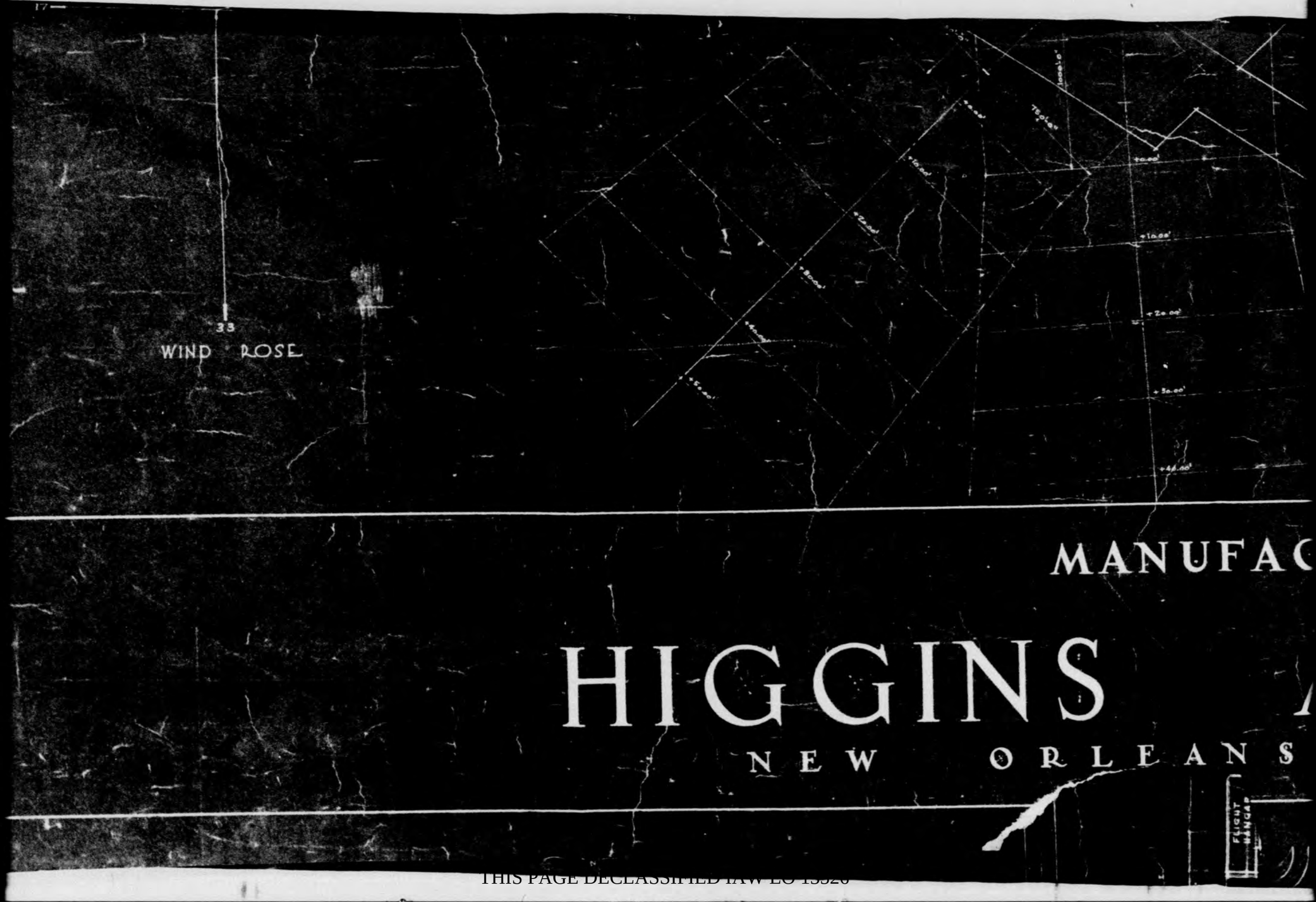

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FOR
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CALLED NORTH

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ANT

AFT, INC.

LOUISIANA

DEFENSE PLANT CORPORATION

REVISIONS		
DATE	BY	BULLN.
2-13-43	A.E.B.	#2
2-26-43	A.E.B.	#4
2-27-43	A.E.B.	#7
3-6-43	A.E.B.	#10

JOB NUMBER 1931

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34	3'-0" x 7'-4"

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CARMODY BASIN

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DEFENSE PLANT CORPORATION

INFORMATION ON THIS SHEET AFFECTS NATIONAL DEFENSE. ITS REVELATION IN ANY MANNER TO AN UNAUTHORIZED PERSON IS PUNISHABLE UNDER THE ESPIONAGE ACT.

PLANCOR NR 1569

PLOT PLAN

REVISIONS		
DATE	BY	MODEL NO.
2-13-43	R.A.C.	#2
2-20-43	A.E.B.	#4
2-27-43	A.E.B.	#7
3-6-43	A.E.B.	#10

ALBERT KAHN ASSOCIATED ARCHITECTS AND ENGINEERS, INC.
DETROIT MICHIGAN

DL.
TL.
CH.
APP.
DATE 2-6-43

JOB NUMBER 1931

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Auth: C.O. 4750
Initials: CMH
Date: 30 AUGUST 1945

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Authority C.G. AMCG
Initials CMT
Date 30 AUGUST 1945

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1. (U) Tel. Conv. 5 Oct. 1942 Gen. Somervell and A.J.Higgins, Pres. Higgins Industries New Orleans, La. (File: M&D)	Mr. Higgins told Gen. Somervell that he was in Washington at "the request of Roosevelt," to bring to the attention of Generals Arnold and Echols a plastic cargo plane which he (Higgins) wanted to build. This plane, he said, could carry 60 tons of cargo, go 4,000 miles and have enough fuel to get back; or, it could carry 18 tons of cargo 9,000 miles. It could land at a speed of 50 miles an hour. Mr. Higgins said he would build the plane without cost to the Government and could have the first one completed in 4 or 5 months if he could get priorities. He also mentioned that he was developing a 24-cylinder 3,000 h.p. airplane engine.
2. (U) AFP #309737 31 Oct. 1942 (File: Contract Files)	AFP #309737, in the amount of $167,601,600, initiated action for the procurement of 1200 C-76 planes (plywood), plus 20% money value of the planes in spare parts. The sum included a fixed fee not to exceed 3%. Exhibit "A" attached to the AFP, gave a breakdown of the above amount. The resulting Contract, #W 535 ac-34484, was approved 17 Dec. 1942.
3. (U) TT 2 Nov. 1942 Fr: Col. E.W.Rawlings Ind. Plan. Sect., WF To: Gen. Echols Res. Div., Wash. (File: Fac. Unit)	Ind. Plan. Sect. (WF) recommended that a Defense Plant Corporation (hereinafter referred to as DPC) Lease Agreement be negotiated immediately with Higgins Aircraft, in the amount of $30,000,000. The project was to be for the purpose of building C-76 planes, and was to consist of an airplane plant, a plastic plant, and a parts plant and manufacturing laboratory. In addition, there were to be three new runways.
4. (C) Memo 3 Nov. 1942 Fr: Maj. Gen. O.P.Echols CG, Mat. Com., Wash. To: Donald M. Nelson Chairman, WPB, Wash (File: M&D)	M&D was in the process of negotiating with Higgins Aircraft of New Orleans for the construction of 1200 C-76 transport planes of Curtiss design, to be produced at the rate of 100 a month. Mr. Higgins had informed WF that a facilities project, amounting to approximately $30,000,000, had been set up by Mr. Nelson. M&D asked him (Mr. Nelson) for his comments concerning the proposed project.
5. (U) IOM 10 Nov. 1942 Fr: Brig. Gen. F.M.Hopkins, Jr. Res. Div., Wash. To: Maj. Gen. O.P.Echols CG, Mat. Com., Wash. (File: M&D)	Gen. Hopkins stated that the cost of the proposed Higgins Aircraft project ($30,000,000) seemed excessive. The actual cost of the Curtiss-Wright facility at Louisville, Ky.--a production capacity of 100 C-76 planes a month--was $16,082,200. Gen. Hopkins thought that the Higgins plant should fall within a $20,000,000 cost figure, and that $3,000,000

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additional should cover airport development and the building of three 5,000 ft. runways.

6. (U) Ltr. 11 Nov. 1942
Fr: U. S. Maritime Commission, Wash.
To: Maj. Gen. O.P.Echols CG, Mat. Com., Wash.
(File: MM&D)

The Maritime Commission agreed to turn over to DPC the shipyard site at New Orleans which the Commission had acquired. (The Maritime site is known as the Michaud Site, and is hereinafter referred to as the Michaud Site.)

7. (U) TT 13 Nov. 1942
Fr: Mat. Com., Wash.
To: Ind. Plan. Sect., WF
(File: Fac. Unit)

Mat. Com. (Wash) reported that Gen. Echols had ordered the Higgins Aircraft project renegotiated on the basis of 100 C-76 planes a month, using the Curtiss-Wright Louisville expansion as a guide. Gen. Echols had stated that the over-all cost should not exceed $20,000,000. Mat. Com. reported further that: the proposed site (Michaud) was swampy and would require hydraulic fill at an estimated cost of $2,000,000; the buildings would have to be constructed on piling, which would increase the cost of construction approximately $2,000,000 over ordinary construction; a three-runway airport would cost another three or four million; it was thought that only two runways could be built because of the triangular shape of the site, and that neither of these would be in the direction of the prevailing wind. Mat. Com. had requested Higgins to explore the possibility of locating the facility near an existing airport.

8. (U) TWX 13 Nov. 1942
Fr: Res. Div., Wash.
To: Ind. Plan. Sect., WF
(File: Fac. Unit)

Res. Div. (Wash) stated that the parts plant and manufacturing laboratory as proposed by Higgins Aircraft was not to be included in the project. Existing ordnance facilities were considered adequate to supply Higgins with components.

9. (U) Memo 14 Nov. 1942
Fr: Col. R.W.Rawlings Chief, Ind. Plan.Sect., WF
To: Contr. Sect., WF
(File: Fac. Unit)

Ind. Plan. Sect. (WF) forwarded information regarding facilities in use at Curtiss-Wright Louisville for manufacturing C-76 airplanes. Figures concerning Curtiss-Wright and its three major subcontractors were given, for the purpose of comparison with the proposed Higgins Aircraft project.

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	(U) TG 17 Nov. 1942 Fr: Maj. J.L.Bowling Fac. Unit WF To: Res. Div., Wash. (File: Fac. Unit)	Maj. Bowling (WF) reported from New Orleans that the Michaud Site for the Higgins Aircraft facility was satisfactory: transportation, utilities, housing, and labor, were available. Other sites inspected—Callender Field and the New Municipal Field at Kenner, La.— were unsuitable for manufacturing purposes. Maj. Bowling's estimate of the cost of the facility was $23,700,000.
11.	(R) Ltr. 20 Nov. 1942 Fr: Brig. Gen. F.M.Hopkins, Jr. Asst. Chief of Staff (R) Wash To: Under Sec. of War, Wash Attn: Lt. Col. W.S.Ege (File: Fac. Unit)	Res. Div. (Wash) recommended that negotiation be initiated leading to the consumation of an agreement between IPC and Higgins Aircraft in the amount of $23,735,000 instead of $20,000,000 as previously requested.
12.	(U) Memo. Rept. 25 Nov. 1942 Fr: Maj. J.L.Bowling Fac. Unit, WF To: All concerned (File: Fac. Unit)	Major Bowling, Ind. Plan. Sect. (WF) inspected four sites and airfields in and near New Orleans and concluded that, of the four sites—Callender Field, New Orleans City Airport, New City Airport, Michaud Site—the Michaud Site was the most desirable for the Higgins Aircraft facilities and airfield. An Appendix "A" summary gave the probable costs of the project, and a report on the status of the project followed.
13.	(U) Memo of approval 27 Nov. 1942 Fr: Robert P. Patterson Under Sec. of War, Wash. (File: MHD)	The War Department approved the Higgins Aircraft facility project at a total cost of $23,735,000.
14.	(U) Contr. #535 ac-34484 28 Nov. 1942 (File: Contract Files)	This contract, resulting from AFP #309737, approved 17 Dec. 1942, provided for 1200 C-76M1 airplanes, spare parts, and data, at an estimated cost of $162,720,000, exclusive of a fixed fee of $4,881,600.
15.	(R) TG 30 Nov. 1942 Fr: Prod. Div., WF To: Higgins Industries, Inc. Attn: A.J.Higgins (File: Fac. Unit)	At a conference held between Prod. Div. (WF) and the Maritime Commission, it was decided to transfer the 1200-acre Michaud Site to IPC for 25 years at a rental of $1.00 a year. The Maritime Commission was to have the privilege of removing items—wooden piles, etc.—not needed by the Army Air Forces.

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16. (U) Ltr. 2 Dec. 1942
Fr: G.F.Shelley
DPC Engr.
New Orleans, La.
To: DPC, Wash
(File: Fac. Unit)

The DPC Supervising Engineer reported on the Michaud Site--acres, location, necessary dredging and filling operations, cost of land and probable cost of fill, available utilities, etc.

17. (U) Ltr. 4 Dec. 1942
Fr: Leo Fellman & Co.
Real Estate, New Orleans, La.
To: G.F.Shelley
DPC Engr., New Orleans, La.
(File: Fac. Unit)

Leo Fellman & Co., real estate dealers in New Orleans, suggested an alternate site for the Higgins Aircraft facility which, they felt, would be more desirable than the Michaud Site.

18. (U) IDC 15 Dec. 1942
Fr: Capt. A.P.Evans
Fac. Unit, WF
To: Col. E.W.Rawlings
Chief, Prod. Res. Sect., WF
(File: Fac. Unit)

The report of a telephone conversation between Col. McGrew, OCE, and Capt. Evans, Fac. Unit (WF), indicated that Mr. Higgins was having difficulty in getting priorities for building materials, and that progress on plans was held up pending a decision on steel. Mr. Higgins was reported to be in Washington "with fire in his eye."

19. (U) Ltr. 17 Dec. 1942
Fr: Grover Loening, WPB, Wash
To: Maj. Gen. O.P.Echols
CG, Mat. Com., Wash.
(File: M&D)

Grover Loening, Aircraft Consultant of WPB, visited Higgins Industries and reported that the work the company was doing was nearer to aircraft work than that done by "any other of the many shipyards I have visited." He thought the Higgins project could be counted on to be successful.

20. (U) Ltr. Memo 28 Dec. 1942
Fr: DPC Office,
New Orleans, La.
To: [Capt. T.G.Walsh]
[New Orleans]
(File: Fac. Unit)

DPC reported on soil boring records at the Michaud Site. The land was found to be only slightly above sea level, with muck and humus averaging 7 feet deep; piles behaved irregularly during driving, some requiring 28 blows per foot, and others, under the same conditions, only 5 blows. Various strata encountered in well drilling were listed.

21. (U) Rpt. 1 Jan. 1943
Fr: Capt. T.G.Walsh
Prod. Res. Sect., New Orleans, La.
To: All concerned
(File: Fac. Unit)

Prod. Res. Sect. presented a detailed report dealing with factors affecting the preparation of Appendix "A" [plans for the Higgins Aircraft facilities]. The following were mentioned: Steel vs. timber for framing; the proposed water supply and sewerage disposal facilities; delay of machine tool list due to lack of drawings from Curtiss-Wright; humidity control.

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2. (U) Ltr. 1 Jan. 1943
Fr: Lt. Col. E.J.McCrew, Jr.
Chief, Defense Plant Sect., Wash.
To: Higgins Aircraft
(File: M&D)

The War Department approved DPC's modified design for Higgins Aircraft facilities. The letter contained a description of the proposed buildings, a statement concerning the status of the project, and a description of the location.

23. (R) Appendix "A"
4 Jan. 1943
DPC Emergency Facilities
Higgins Aircraft, Inc.
New Orleans, La.
(File: Fac. Unit)

These first three pages of Appendix "A" constituted a summary of the facilities proposal submitted by Higgins Aircraft. The nature, purpose, and location of the facilities were described; and a breakdown was given of the $23,735,000 allotted for manufacturing facilities, and of the $3,638,615 allotted for airport facilities.

24. (U) Ltr. 5 Jan. 1943
Fr: Leo Fellman & Co.
Real Estate, New Orleans, La.
To: Col. E.W.Rawlings
Chief, Prod. Res. Sect., WF
(File: Fac. Unit)

Leo Fellman & Co., real estate dealers, proposed an alternate site for the location of the Higgins Aircraft factory building.

25. (R) IOM 7 Jan. 1943
Fr: Industrial Capacity Unit, WF
To: Prod. Res. Sect., WF
(File: Fac. Unit)

Industrial Capacity Unit, (WF) stated that Higgins Aircraft had been "selected by highest authority" to produce C-76 plastic plywood planes, and recommended that the Higgins request for government-financed facilities to the amount of $23,735,000 be given favorable consideration.

26. (R) Ltr. 8 Jan. 1943
Fr: Col. R.W.Rawlings
Chief, Prod. Res. Sect., WF
To: Leo Fellman & Co.
Real Estate, New Orleans, La.
(File: Fac. Unit)

Col. Rawlings, Prod. Res. Sect. (WF), acknowledged the letter concerning an alternate site for the Higgins Aircraft project, and stated that the Michaud Site was "most desirable" as far as the Government was concerned.

27. (U) Ltr. 14 Jan. 1943
Fr: G.F.Shelley, DPC Engr.
New Orleans, La.
To: Col. J. L. Bowling
Prod. Res. Sect., WF
(File: Fac. Unit)

DPC Supervising Engineer stated that "yesterday" DPC had approved Appendix "A" and the contractor's contract, and that work had started on that date [13 Jan. 1943].

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28. (U) Memo 20 Jan. 1943
Fr: Albert Kahn, Associated Architects & Engineers, Inc.
To: Organizations of Higgins and of Kahn
(File: Fac. Unit)

Albert Kahn, Associated Architects & Engineers, Inc. (hereinafter referred to as Albert Kahn, Inc.) set tentative dates for completion of the major phases of the Higgins Aircraft building program. It was expected that the main manufacturing building would be completed by 24 June 1943, and that the two-story office building would be ready by 17 April 1943.

29. (U) IOM 24 Feb. 1943
Fr: Mat. Lab., WF
To: Prod. Res. Sect., WF
(File: Fac. Unit)

Mat. Lab. (WF) pointed out that while New Orleans relative humidity was higher than the optimum for aircraft plywood manufacture, it would not be necessary to control humidity in the entire factory. The desired result could be obtained by increasing temperature. If it proved impractical to increase temperature throughout the working area, the principle could be applied in storage rooms where lumber and wood parts could be stored when not in actual fabrication.

30. (U) Memo 29 Mar. 1943
Fr: Lumber & Lumber Products Div., Wash.
To: WPB, Wash
(File: M&D)

Higgins Aircraft had made a request for sizeable quantities of equipment for the production of veneer and plywood. Lumber & Lumber Products Div. denied the request because existing facilities were considered more than adequate to satisfy Higgins' demands.

31. (U) IDM 3 Apr. 1943
Fr: Brig. Gen. F.M.Hopkins,Jr Asst. Chief of Staff (R)
To: Brig. Gen. B.E.Meyers Dep. Asst. Chief, M&D, Wash.
(File: M&D)

Gen. Hopkins had seen a memo from Mr. Wilson's (WPB) "Ex. Secretary" which indicated that Higgins would be given a plywood plant based "not on capacity but on the basis of manufacturing operations." Gen. Hopkins added: "Inasmuch as Mr. Wilson is the Executive Vice-Chairman of the War Production Board, his decision in view of his responsibilities will be respected."

32. (U) TG 5 April 1943
Fr: A.J.Higgins, Pres. Higgins Aircraft
To: Maj. Gen. O.P.Echols CG, Mat. Com., Wash.
(File: M&D)

In an eleven-page telegram, Mr. Higgins justified the building and equipping of the plywood plant at Higgins aircraft.

33. (U) IOM 10 Apr. 1943
Fr: Mat. Lab., WF
To: Prod. Res. Sect., WF
(File: Fac. Unit)

Mat. Lab. (WF) stated that it would be more economical to achieve a desired moisture content in wood by the use of a dry kiln or a conditioning room than by

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conditioning an entire factory. Wood should be at approximately the desired moisture content before brought into the factory, the conditioning equipment there to be used only to maintain that content.

34. (U) Ltr. 13 Apr. 1943
Fr: F.D.Higgins, Vice-Pres. Higgins Aircraft
To: Brig. Gen. K.B.Wolfe Chief, Prod. Div., WF
(File: Fac. Unit)

Mr. Higgins stated that WPB, at meetings on 31 March and 1 April 1943, had decided that an air processing system was essential for the manufacture of C-76 plywood planes. Mr. Higgins presented a proposal for such a system at a cost of $2,313,563, and requested Prod. Div.'s approval.

35. (C) IDM 23 April 1943
Fr: Brig. Gen. F.M.Hopkins,Jr Asst. Chief of Staff (R), Wash.
To: Brig. Gen. B.E.Meyers Dep. AC/S, M&D, Wash.
(File: M&D)

Gen. Hopkins had visited the Higgins Aircraft plant and found "an absolute lack of any engineering staff as yet." If Higgins ever made an airplane, he said, it would not be before the summer of 1944. He did not think that these expensive facilities would pay for themselves, and suggested that future criticism might be avoided by giving Higgins a fully engineered and proved plane to build.

36. (U) Ltr. 27 April 1943
Fr: Col. W.G. Saville Corps of Engineers, Galveston, Texas
To: Col. J.L.Person Constr. Div., OP Branch, Wash.
(File: M&D)

The Corps of Engineers found the proposed airfield site "probably one of the worst sites for runway construction of the many swamp and marsh areas in coastal Louisiana." The fill was declared impracticable for runway construction, and other fills were suggested and estimated costs given. Attention was called to the runways that were under construction at Kenner, Louisiana, 20 miles from the Higgins site, and it was suggested that plane sections be transported from New Orleans to Kenner and assembled there.

37. (R) Engineering Rpt. May 1943
Airfield, Higgins Aircraft
(File: Fac. Unit)

This long engineering report (118 pages, besides maps, charts, and a photograph) concerned with the proposed airport for Higgins Aircraft, was prepared by the U.S. Engineer Office, Galveston District, in May 1943, at the request of the Division Engineer, Southwestern Division. The report contained detailed information under the following sub-heads: Location and Description of Project; Regional Factors--Transportation, Construction Materials, Water Supply, Labor, etc.; Scope of Investigation; Description of Site; Hydrological and Meteorological Conditions; Soil and Foundation Conditions; Soil Factors Affecting Design; Runway Layouts; Runway Designs, Estimated Cost and Construction Time; Conclusions; Recommendations; and Exhibits and Appendices. All factors were investigated

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with a view to the building of three 7000-ft. runways with gross loadings of 74,000 lbs., or with gross loadings of 120,000 lbs. The Site not being large enough to accommodate three 7000' runways, it was found necessary to plan on relocating the Intracoastal Canal which boundsthe Site on the south. Three methods of construction were outlined: 1) excavate and refill; 2) concrete pavement immediately, reinforced later with asphaltic concrete; 3) flexible pavement immediately, with concrete surface later. Costs were estimated at 17 1/2 to 22 1/2 million dollars. The Corps of Engineers recommended, in the event shorter runways would be satisfactory--one 7000', one 6000', and one 5200'--that they be built on the Michaud Site, thus saving considerable in cost, and eliminating the necessity for changing the course of The Intracoastal Canal.

38. (U) Ltr. 6 May 1943
Fr: Hon. F.E.Hebert
House of Rep., Wash.
To: Col. J.C.Vaughan
AAC, Wash.
(File: M&D)

The New Orleans Aviation Division had informed Major Maestri that the runways at the Higgins Michaud Site had been reduced from 150,000 to 35,000 pounds, which seemed to indicate that the Modification Center was to be abandoned. Mr. Hebert thought that such a Center would be of incalculable importance in post-war aviation, particularly since the inauguration of the Pan-American Airline from New Orleans to Central & South America. He urged the Air Corps to reconsider its plans.

39. (U) 1st Ind. 10 May 1943
Fr: Maj. Gen. T.M.Robins
Asst. Chief of Engineers,
Wash.
To: CG, AAF, Wash.
Attn: Col. James B. Newman, Jr.
(File: M&D)

Gen. Robins stated that the Higgins site was completely unsatisfactory as an airfield site and recommended that no consideration be given to construction there unless military necessity made it mandatory, and cost and date of completion were negligible factors.

40. (U) TG 15 May 1943
Fr: Albert Kahn, Inc.
To: Fac. Unit, WF
(File: Fac. Unit)

It was the opinion of R. E. Linton (Albert Kahn, Inc.) that runways could be built on the Michaud Site to accommodate 150,000 pound planes, provided adequate drainage was installed.

41. (U) TG 17 May 1943
Fr: Prod. Res. Sect., WF
To: Brig. Gen. F.M.Hopkins, Jr
Res. Div., Wash.
(File: Fac. Unit)

Prod. Res. Sect. (WF) gave a review of the progress that was being made on the three runways at the Higgins Aircraft airfield. Quotations from reports of the Hegge Engineering Co. of New Orleans, Albert Kahn,

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Inc., G.F.Shelley of DPC, and Col. D.C.Jones, District Engineer of New Orleans, tended to refute the report made by the Corps of Engineers regarding the undesirability of the Michaud Site. It was the opinion of Prod. Res. Sect. that the estimate submitted by the Corps of Engineers--17 1/2 to 22 1/2 million dollars to build the airport--was entirely out of line with the known facts, and saw no reason why the Michaud Site should be abandoned.

42. (U) Ltr. 17 May 1943
Fr: Mid-W. Proc. Dist.
Wichita, Kansas
To: CG, WF
(File: Fac. Unit)

Mid-W. Proc. Dist. (Wichita, Kansas) was of the opinion that it was essential to control humidity and temperature in the Higgins Aircraft plant, and recommended that an air processing system be installed. Analyses of New Orleans atmospheric conditions, upon which the conclusion was based, were given.

43. (U) TWX 17 May 1943
Fr: Res. Div., Wash.
To: Prod. Res. Sect., WF
(File: Fac. Unit)

In view of preliminary soil investigations, Res. Div. (Wash) recommended that only two runways be constructed at the Higgins Aircraft airfield, eliminating the expensive construction of the runway parallel to the canal. The two runways were to be 5,000 feet long and 150 feet wide, with a gross loading of 74,000 pounds. It was the opinion of the office that the cost of the airport should be held within the $3,700,000 allowed by Appendix "A."

44. (U) Memo 19 May 1943
Fr: Turner-Raymond Contractors
Higgins, La.
To: G.F.Shelley, DPC Engr.,
New Orleans, La.
(File: M&D)

Probable completion dates were given for various buildings at the Higgins Aircraft project--most of them to be completed by Sept 1--and the cost estimated at $20,451,391, or about $3,509,466 above the cost established in Appendix "A."

45. (U) Memo 20 May 1943
Fr: H.E.Simpson, WPB, Wash.
To: W.B.Murphy, Chairman
Ind. Fac. Committee,
WPB, Wash.
(File: M&D)

In view of a request for $2,313,563.40 for dehumidification in connection with the C-76 program, WPB suggested a complete review of the wooden airships program before becoming more deeply involved in the Higgins enterprise. [In handwriting at bottom of page: "Col. Irvine,--Gen. Arnold says go ahead on C-76 program--memo from Gen. Echols--we keep going on both Louisville and New Orleans La. FMG"]

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46. (U) Ltr. 21 May 1943
Fr: A.L.Wilcox, Chief Engr.
Orleans Levee District
New Orleans, La.
To: G.E.Shelley
DPC Engr., New Orleans, La.
(File: M&D)

Mr. Wilcox of the Orleans Levee District stated "without hesitancy" that the Michaud Site, built up with a hydraulic fill, could support an 80,000 pound runway. He cited as proof successful highways and runways at the New Orleans airport--all built on the same type of soil, elevated by hydraulic fill.

47. (R) ION 31 May 1943
Fr: Prod. Res. Sect., WF
To: Res. Div., Wash.
(File: Fac. Unit)

Prod. Res. Sect. (WF) recommended the amendment of Higgins Aircraft DPC lease agreements to the amount of $2,313,563.40, for air processing, and gave justification for the recommendation.

48. (R) TWX 7 June 1943
Fr: Res. Div., Wash.
To: Fac. Br., WF
(File: Fac. Unit)

Res. Div. (Wash) stated that the proposal for an air processing system at Higgins Aircraft would be held in abeyance, pending a decision as to whether Higgins would produce C-76 planes.

49. (U) TWX 11 June 1943
Fr: Brig. Gen. F.M.Hopkins, Jr
Chief, Res. Div., Wash.
To: Prod. Res. Sect., WF
(File: M&D)

Res. Div. (Wash) had been advised that the CG, AAF had made a decision to the effect that the C-76 program would go forward both at Louisville and at New Orleans.

50. (R) Ltr. 7 June 1943
Fr: Maj. Gen. T.M.Robins
Act. Ch. of Engineers, Wash
To: CG, AAF
Attn: Col. J.B.Newman, Jr.
(File: Fac. Unit)

Gen. Robins recommended that the runways at Higgins Aircraft airport be held within the bounds of Michaud Site. He considered Method No. 3, as proposed in the Corps of Engineers report, to be the most satisfactory for construction--that is, an initial construction of a flexible pavement, with a concrete surface to be constructed at a later date. The initial cost was estimated at $3,610,000, and the total at $6,000,000.

51. (U) TWX 14 June 1943
Fr: Res. Div., Wash
To: Prod. Res. Sect., WF
(File: Fac. Unit)

Prod. Res. Sect. (WF) reported that Gen. Echols had approved the air processing system for Higgins Aircraft, and that the project was before WPB for approval.

52. (U) Ltr. 17 June 1943
Fr: Albert Kahn, Inc.
To: Higgins Aircraft
(File: Fac. Unit)

Albert Kahn, Inc. submitted a Schedule of Revised Costs covering additions and modifications to Higgins Aircraft, exclusive of the airfield. The estimated increase was $2,472,143.

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53. (U) IOM 21 June 1943
Fr: Res. Div., Wash.
To: Prod. Res. Sect., WF
(File: Fac. Unit)

Res. Div. (Wash) forwarded a copy of the report made by the Corps of Engineers (May 1943) with respect to the Higgins Aircraft airfield. It was the opinion of Res. Div. that two 5500 foot runways, 150 feet wide, of 74,000 pound gross loading, would be sufficient to serve the purpose intended, and that the cost should be held down to the $3,700,000 approved in Appendix "A." [See similar recommendation in TWX 17 May 1943.]

54. (U) Memo 30 June 1943
Fr: W.B.Murphy, Chairman Ind. Fac. Committee, WPB, Wash.
To: Fac. Sec., Mat. Com. [Wash]
(File: MM&D)

WPB approved the grant of $2,313,564 to Higgins Aircraft for an air processing system.

55. (U) TG 1 July 1943
Fr: Prod. Div., WF
To: G.W.Shelley DPC Engr., New Orleans, La.
(File: Fac. Unit)

Prod. Div. (WF) approved the construction of two runways, each of which would be 5,500 feet long and 150 feet wide. The third runway was eliminated. Prod. Div. requested copies of bids before contracts were awarded.

56. (C) Memo 7 July 1943
Fr: T.P.Wright, Recorder Aircraft Prod. Bd., Wash.
To: Col. C.S.Irvine, MM&D, Wash. and W.B.Murphy, Chairman, Ind. Fac. Committee, WPB, Wash
(File: MM&D)

Minutes of the 5 July 1943 meeting of the Aircraft Prod. Bd. were quoted in part. It was found that the Higgins project was running several million dollars beyond the original agreement, and that the extent of construction was exceeding the agreement by more than 500,000 sq. ft.--about double the requirements for production. Aircraft Prod. Bd. agreed to the appointment of representatives of the Board and of WPB, to determine what could be done to keep the program within the original agreement.

57. (C) Memo 10 July 1943
Fr: C.E.Wilson, WPB, Wash.
To: Maj. Gen. O.P.Echols AC/AS, MM&D, Wash.
(File: MM&D)

WPB questioned the desirability of proceeding with the wooden airship program, and suggested that it might be more practical to utilize the Higgins facilities for making parts for a more desirable type of plane.

58. (U) Memo 11 July 1943
By: Brig. Gen. F.M.Hopkins,Jr. Chief, Res. Div., Wash.
(File: Fac. Unit)

This memo is a report of a staff inspection of Higgins Aircraft, and of a conference held on 9 July 1943. The facilities were reported to be 70% complete with approximately 90% of the equipment delivered. It was estimated that the total cost would be $25,800,000, as against the $23,735,000 originally set up.

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59. (U) Ltr. 12 July 1943
Fr: W.B.Murphy, Chairman
Ind. Fac. Committee, WPB,
Wash.
To: Col. C.S.Irvine
M&D, Wash.
(File: M&D)

WPB approved the expenditure of $2,313,500 for air processing in the Higgins Aircraft factory, but the airport facilities were to be held in abeyance for sixty to ninety days, pending decision as to whether Higgins was to build a complete airplane.

60. (C) Memo 14 July 1943
Fr: T.P.Wright, Recorder
Airc. Prod. Bd., Wash.
To: Col. C.S.Irvine
M&D, Wash, and
W.B.Murphy, Chairman
Ind. Fac. Committee,
WPB, Wash.
(File: M&D)

Mr. Wright quoted from the minutes of the 12 July 1943 meeting of the Airc. Prod. Bd. WPB and M&D reported that the Higgins facilities were well advanced, and had sufficient area to build 250 planes (C-76) a month. It was of immediate importance to utilize the available facilities, and Airc. Prod. Bd. recommended that the production of C-46 wings (for Curtiss-Wright, Buffalo and St. Louis) be placed in the Higgins factory on a subcontracting basis.

61. (U) Memo 15 July 1943
Fr: Col. C.S.Irvine
M&D, Wash.
To: Brig. Gen. F.M.Hopkins,Jr.
Chief, Res. Div., Wash.
(File: M&D)

A conference had been held on 14 July 1943, for the purpose of arranging for the Curtiss company to subcontract airplane parts to Higgins Aircraft. Representatives of the contracting companies were present, of Mat. Div. (WF), of WPB, and of M&D. It was agreed that preliminary negotiations would be based on Higgins' supplying Curtiss with 75 sets of outer wing panels a month, and that the initial production would be on a cost-plus basis, later to be converted to a fixed-price contract.

62. (C) Memo 22 July 1943
Fr: T.P.Wright, Recorder
Airc. Prod. Bd., Wash.
To: Col. C.S.Irvine
M&D, Wash.
(File: M&D)

Gen. Echols advised, at a meeting of the Aircr. Prod. Bd. on 19 July 1943, that arrangements had been made for Higgins to make 75 sets of C-46 wings a month. Final decision on the C-76 airplane was to be held in abeyance pending results of tests on which the utility of the type would be appraised.

63. (U) IDM 29 July 1943
Fr: Col. C.S.Irvine
M&D, Wash.
To: Maj. Gen. Echols
AC/AS, M&D, Wash.
(File: M&D)

M&D informed Gen. Echols that Prod. Div. Mat. Com. (WF) had initiated correspondence to the Proc. Div. requesting the immediate cancellation of the C-76 program at Higgins. Prod. Div. also requested that a Letter of Intent for 500 C-46's plus spare parts be given to Higgins.

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64. (U) Ltr. of Intent
2 Aug. 1943
Higgins Aircraft
(File: M&D)

A Letter of Intent was issued to Higgins Aircraft providing for the purchase of the following: 1) 500 AAF type C-46 airplanes, identical with those being procured from Curtiss-Wright; 2) spare parts for the planes in Item 1, at a cost not to exceed $21,700,000. The total estimated cost of the contract was $130,200,000, exclusive of a fixed fee not to exceed 4%. Resulting Contract #W33-038-ac-298 was approved 2 Dec. 1943.

65. (U) Ltr. 5 Aug. 1943
Fr: Maj. M.C.Harding
Contr. Officer, WF
To: Higgins Aircraft
(File: M&D)

Mat. Com. (WF) cancelled Higgins Aircraft contract W 535 ac-34484 [C-76 planes], including all subcontracts and existing orders---effective at once.

66. (U) Ltr. 5 Aug. 1943
Fr: W.B.Murphy, Chairman
Ind. Fac. Committee, WPB
Wash.
To: Col. C.S.Irvine
M&D, Wash.

WPB asked for justification of the $2,300,000 project for air conditioning at Higgins Aircraft. The premise on which the funds had been granted---the production of plywood planes---was no longer valid.

67. (U) Memo 6 Aug. 1943
Fr: W.B.Murphy, Chairman
Ind. Fac. Committee, WPB
Wash.
To: Brig. Gen. F.M.Hopkins, Jr.
Chief, Res. Div., Wash.
(File: M&D)

The necessity for an air processing system having been removed by cancellation of the C-76 airplane project, WPB revoked its previous approval of the air conditioning project.

68. (R) Ltr. 6 Aug. 1943
Fr: Robert P. Patterson
Under Secy. of War, Wash.
To: IPC, Wash.
(File: M&D)

The War Department amended its agreement with IPC, concerning the Higgins Aircraft facility, to this effect: $2,313,564 was granted to Higgins for air processing, making the total amount of funds for the project $26,048,564 instead of $23,735,000.

69. (U) IOM 11 Aug. 1943
Fr: Col. C.S.Irvine
M&D, Wash.
To: Maj. Gen. O.P.Echols
AC/AS, M&D, Wash.

Col. Irvine stated that the Higgins Aircraft project remained a "most touchy subject in view of the interest of the Truman Committee," and suggested that Col. O'Dwyer, Office of Inspector General, make a visit to the plant to have an informal discussion with Mr. Higgins and his son "just to make certain that everything is going along O.K."

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70. (U) Ltr. 17 Aug. 1943
Fr: A.J.Higgins, Pres.
Higgins Industries
To: 1) DPC, Wash.
2) MC, Wash.
3) WPB, Wash.
(File: M&D)

The contract for 1200 C-76 planes having been cancelled, Mr. Higgins raised the question of disposal of facilities. He held that the facilities were needed and essential: that any type of plane--all metal, or metal and wood--could be built. Two telegrams attached to his letter seemed to indicate that the plywood plant could be kept working to good purpose. In the event that Government agencies did not care to operate the facilities, Higgins Industries was prepared to acquire and operate them.

71. (U) Memo 20 Aug. 1943
Fr: W.B.Murphy, Chairman
Ind. Fac. Committee, WPB,
Wash.
To: Fac. Bureau, Wash.
(File: M&D)

WPB concurred in AAF's decision to allow Higgins an air conditioning system [for revocation of WPB approval see Memo 6 Aug. 1943]. Three reasons were given: 1) no other requirements for air conditioning were more important than the Higgins installation; 2) air conditioning had been granted to several (named) airplane plants in the South; 3) the Higgins plywood plant was so near completion that there was nothing to be gained by witholding equipment.

72. (C) Ltr. 24 Aug. 1943
Fr: Col. E.L.Lucas
Office of Inspector General
Wash.
To: Inspector General, Wash.
(File: M&D)

Col. Lucas, Office of Inspector General, submitted a nine-page criticism of the administration of the Higgins Aircraft contracts. The cancellation order had not been complied with, fees on outer wing panels were pyramided, plant construction was of a higher type than use required, the contractor's cost system had not been approved, too large a portion of purchases was awarded to one company, etc. Eighteen recommendations were made.

73. (U) Ltr. 15 Sept. 1943
Fr: Higgins Aircraft
To: WPB, Wash.
(File: M&D)

Higgins Aircraft contended that it would be in the interest of national defense to keep Higgins woodworking facilities in operation. Unnecessary transportation of logs could be eliminated, they stated, the packing box shortage could be relieved, and plywood moulded boats for aircraft rescue work could be developed. Higgins made four proposals for disposition of the facilities; one concerned renting, and three concerned outright purchase. A report concerning the woodworking facilities, prepared by the factory superintendent, was attached to the letter.

74. (U) ICM 21 Sept. 1943
Fr: Col. W.M.Morgan
Actg. Chief, Prod. Eng.
Sect., WF
To: Chief, Prod. Div., WF
(File: Contract Files)

At a meeting held at Mat. Com. (WF) on 14 Sept. 1943, Gen. Branshaw decided that a contract would be drawn up between Curtiss-Wright and the Government covering engineering assistance to be furnished Higgins Aircraft

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for the manufacture of C-46 planes. Engineering and production data furnished Higgins were to be identical to that used by Curtiss-Wright to insure that planes built by the two companies would be identical.

75. (C) 1st Ind. 28 Sept. 1943
Fr: Mid-W. Proc. Dist.
Wichita, Kansas
To: Maj. E.G.Littel
Inspector General, WF
(File: M&D)

Mid-W. Proc. Dist. replied to a letter submitted by the Office of the Inspector General which contained recommendations concerning the administration of Higgins Aircraft contracts. (See Ltr. 24 Aug. 1943.) Proc. Dist. stated that the contract for C-76 planes had been terminated as quickly as was possible, considering the magnitude of the project and the shifting of commitments from that project to the new C-46 project. Other matters discussed were: fees paid for subcontracting wing panels, the installation of the air processing system, control measures applied to contractor's purchasing procedures, etc.

76. (U) Memo 1 Oct. 1943
Fr: Brig. Gen. F.M.Hopkins,Jr.
Chief, Res. Div., Wash.
To: Under Secy. of War, Wash.
Attn: Col. Warren Ege
(File: M&D)

Because of the cancellation of the C-76 plane project, Gen. Hopkins declared the Higgins woodworking facilities provided in the amount of $2,018,000, to be in excess of the aircraft program. Higgins Industries Inc. was prepared to lease the facilities for use in war work being carried on by that company for the Army & Navy, and Gen. Hopkins recommended that the facilities be separated from Higgins Aircraft Inc. and placed under a new lease agreement.

77. (U) Memo 6 Oct. 1943
Fr: Brig. Gen. H.C.Minton
Dir., Proc. Div., Wash.
To: Brig. Gen. F.M.Hopkins,Jr.
Chief, Res. Div., Wash.
(File: M&D)

Army Service Forces had been having difficulty in obtaining veneer for wire-bound wooden shipping boxes, and had had to resort to less desirable methods of packing. Proc. Div. (Wash) suggested that the Higgins facilities could be advantageously converted to the production of container veneer.

78. (U) Ltr. 14 Oct. 1943
Fr: Brig. Gen. F.M.Hopkins,Jr.
Chief, Res. Div., Wash.
To: Army Service Forces, Wash.
Attn: Col. J. S. Cooke
(File: Fac. Unit)

Gen. Hopkins stated that the Higgins Aircraft plywood facilities were not required by the AAF program, and gave the Army Service Forces permission to use the facilities for the production of container veneer.

79. (U) Ltr. 14 Oct. 1943
Fr: A.J.Higgins, Pres.
Higgins Aircraft
To: Brig. Gen. F.M.Hopkins,Jr
Chief, Res. Div., Wash
(File: M&D)

Mr. Higgins set the date of the dedication of Higgins Aircraft at 24 Oct. 1943, and suggested a program for the celebration. "President Roosevelt should be uligized [sic] for demanding its creation," etc.

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80. (U) TT 23 Oct. 1943
Fr: Res. Div. Wash.
To: Lt. Col. Moriarty
Res. Cont. Sect., WF
(File: Fac. Unit)

Res. Div. (Wash) stated that Higgins Aircraft would probably not produce an airplane before 1 July 1944. Mid-W. Proc. Dist. (Wichita) was requested to initiate reinstatement of the Higgins airfield project (held in abeyance since July 1943) five to six months before runways would be required for Higgins operations.

81. 1st Ind. 25 Nov. 1943
Fr: Mid-W. Proc. Dist.
Wichita, Kansas
To: Historical Officer, WF
(File: Historical Office)

Mid-W. Proc. Dist. stated a few facts concerning the Michaud (Maritime) Site previous to the time it was leased by IPC for Higgins Aircraft. The Maritime Commission (Liberty ship) Contract was signed on 13 March 1942, and construction of the facility, at an estimated cost of $25,832,000, was begun on 9 March 1942. The contract was cancelled on 18 July 1942. The value of the facility at the time of cancellation was approximately $4,000,000.

82. (U) TT 30 Nov. 1943
Fr. Brig. Gen. A.E.Jones
Chief, Proc. Div., WF
To: AC/AS, M&D, Wash.
(File: Contract Files)

Gen. Jones, Prod. Div. (WF) reported that the financial statement of Higgins, as of 31 Dec. 1942, did not reflect a well-balanced financial condition. A statement dated 30 June 1943 indicated that funds were adequate at that time. While the financial condition of the company appeared sound, it was apparent that the pending contract in the amount of $128,584,200 was too large to be supported by the net working capital, and Proc. Div. (WF) intended to control such advance payments as were approved.

83. (U) Chg. Ord. 28 Nov. 1943
Contr. #34484
(File: Contract Files)

The Gov't having terminated the Higgins Supply Contract (for 1200 C-76 planes), only a portion of the funds allotted would be required. The contracting parties agreed that the aggregate sum to be paid to Higgins would not exceed $7,601,600—a reduction of $160,000,000.

84. (U) Ltr. 8 Dec. 1943
Fr: Hugh Fulton, Chief
Counsel, U.S.Senate
To: A.J.Higgins, Pres.
Higgins Aircraft
(File: M&D)

A Special Committee Investigating the National Defense Program requested information concerning the following: delivery date of first C-46 plane; what parts were made by Higgins and what parts by Curtiss-Wright; whether Curtiss-Wright had delivered parts as required; whether modifications were being made on the C-46, and if so, who made the suggestions, how they were agreed upon, etc.; the number of employees engaged in work on the C-46; estimated future requirements.

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85. (U) IDM 9 Dec. 1943
Fr: Col. C.S.Irvine, MM&D, Wash.
To: Maj. Gen. O.P.Echols AC/AS, MM&D, Wash.
(File: MM&D)

Mr. Higgins had shown Col. Irvine Mr. Fulton's letter (8 Dec. 1943). It was Col. Irvine's opinion that the letter was inspired by Mr. Higgins himself, since it requested information that correlated with complaints Mr. Higgins had made relative to the Curtiss-Wright Company. Mr. Higgins told Col. Irvine that his statement to the Truman Committee would be "a frank statement that he was unable to get into production... that his only desire was to build airplanes for the Air Force..."

86. (U) Memo 10 Dec. 1943
Fr: Brig. Gen. E.M.Chidlaw Chief, Mat. Div., MM&D, Wash.
To: Brig. Gen. A.R.Crawford Chief of Staff, Mat. Com., WF
(File: Tr. & Trans. Br. Prod. Eng. Sect.)

In view of Andrew J. Higgin's receipt of a letter from the Truman Committee, Gen. Chidlaw believed that Mat. Div. (Wash) should get in touch with Curtiss-Wright to find out why they were not furnishing Higgins Aircraft with the necessary engineering data on the C-46 project.

87. (U) Ltr. 13 Dec. 1943
Fr: Curtiss Wright Corps., Buffalo
To: CG, Mat. Com., WF
(File: Prod. Coord. Br., Prod. Eng. Sect.)

Higgins had stated it would be necessary for them to obtain parts from Firestone due to Curtiss' inability to furnish them with tools. Curtiss stated that although they were confronted with difficulties identical with those of Higgins and had not been able to furnish tooling according to agreement, they had helped Higgins more than Higgins had helped themselves. Curtiss suggested that it would be wise for Higgins to procure sub-assemblies from Firestone; the items would be added to Curtiss' sub-contract with Firestone and would be considered Curtiss-furnished parts.

88. (C) Ltr. 20 Dec. 1943
Fr: Col. Wm. O'Dwyer, Special Advisory Group, Wash.
To: Brig. Gen. B.E.Meyers Dep. AC/AS, MM&D, Wash.
(File: MM&D)

Col. O'Dwyer (Special Advisory Group) reported on the results of several conferences that had been held during Dec. 1943 regarding coordination of Curtiss (Buffalo) and Higgins Aircraft activities on the sub-contract for C-46 outer wing panels. Higgins declared that Curtiss had not furnished them with information and equipment necessary for the performance of the Curtiss-Higgins contract, but they (Higgins) were determined to produce a panel whether it met with Curtiss specifications or not. Curtiss felt the complaints were unjustified, but promised to furnish the information needed by Higgins.

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89. (R) Memo 22 Dec. 1943
Fr: Brig. Gen. F.M.Hopkins,Jr.
Ch., Res. Div. Wash.
To: Under Secy. of War, Wash.
(File: Fac. Unit)

Res. Div. (Wash) recommended that the Under Sec. of War approve the expenditure of $1,380,936 for unauthorized modifications that had been made in the Higgins Aircraft plant. The sum had been approved by the local DPC Supervising Engineer, but not by the AAF.

90. (U) TT 27 Dec. 1943
Fr: Res. Div., Wash.
To: Lt. Col. Moriarty
Res. Cont. Sect., WF
(File: MM&D)

Res. Div. (Wash) informed Res. Contr. Sect. (WF) that DPC had been instructed not to begin airport construction at the Higgins plant, because a flight strip for the flyaway of C-46 planes could be started in the spring of 1944 in time to be completed for testing of the first planes.

91. (U) IOM 29 Dec. 1943
Fr: Mid-W. Proc. Dist.
Wichita, Kansas
To: Maj. Milton Hay
Res. Div., MM&D, Wash.
(File: MM&D)

Mid-W. Prod. Dist. anticipated that 150 C-46 planes would be sent to Higgins Aircraft for modification. Inasmuch as completion of the airfield was necessary for testing modified aircraft, it was requested that Res. Div., MM&D authorize commencement of construction.

92. (U) TT 31 Dec. 1943
Fr: Prod. Div., WF
To: Res. Div., MM&D,
Wash.
(File: MM&D)

Prod. Div. (WF) requested that at least one run-way be constructed at the Higgins plant as rapidly as possible, but not so as to incur additional cost by overtime.

93. (U) Ltr. 8 Jan. 1944
Fr: J.H.Jouett, Vice-pres.
Higgins Aircraft Inc.
To: Under Secy. of War, Wash.
Attn: Col. Hammond
(File: MM&D)

Mr. Jouett of Higgins gave the Under Sec. of War information concerning a pending sub-lease of government--provided Higgins Aircraft facilities to Higgins Plastic Corp. Among the products that the Plastic Corp. would furnish Higgins Aircraft were: plywood for use in P.T. boats, sawn lumber, molded products, and general woodworking material.

94. (U) Memo of Approval
12 Jan. 1944
By: Robert P.Patterson
Under Secy. of War, Wash.
(File: MM&D)

The Under-Secretary of War approved a grant of $3,751,465 to Higgins Aircraft, for conversion from C-76 to C46 plane production.

95. (R) Ltr. 12 Jan. 1944
Fr: Robert P. Patterson
Under Secy. of War, Wash.
To: DPC, Wash
(File: MM&D)

The Under Secretary of War approved the sub-lease of a portion of Higgins Aircraft facilities to Higgins Plastics Corp.

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96. (U) ICM 19 Jan. 1944
Fr: Brig.Gen. F.M. Hopkins, Jr.
Chief, Res.Div., Wash.
To: Brig.Gen. B.E. Meyers,
Dep. AC/S, M&D, Wash.
(File: M&D)

Gen. Hopkins wrote a review of the Higgins Aircraft facilities, covering the period 3 Nov. 1942—19 Jan. 1944. 1) C-76 Facility Program—On 17 Nov. 1942, WPB approved the construction of the Higgins Aircraft plant at an estimated cost of $20,000,000, with a capacity to produce 100 C-76 airplanes a month. On 19 Nov. 1942, the project was revised upward to $23,735,000 to cover land improvements and airport development. In Aug. 1943, the agreement was amended in the amount of $2,213,564 to cover an air conditioning system. On 12 July 1943, the Aircraft Production Board ordered the airport facility held in abeyance for 60 to 90 days; it was expected that construction would be started during March of 1944. As a result of cancellation of the C-76 program [5 Aug. 1943] Higgins woodworking facilities, which DPC had provided at a cost of $2,018,000, were separated from Higgins Aircraft, called Higgins Plastics Corporation, and sub-leased by DPC and Higgins Aircraft to Higgins Plastics Corp. on a rental basis. 2) C-46 Facilities Program—on 24 July 1943, it was decided that Higgins Aircraft would make 50 complete C-46 planes a month, and on 31 July 1943, Curtiss-Wright signed a Letter of Intent with Higgins for the production by Higgins of C-46 wing panels. On 24 Dec. 1943, WPB approved a grant of $3,751,469 to Higgins Aircraft to cover modifications needed as a result of conversion from C-76 to C-46 production.

97. (U) Memo 20 Jan. 1944
Fr: Col. W. O'Dwyer
Special Advisory Group
AC/AS, M&D, Wash.
To: Maj.Gen. O.P. Echols
AC/AS, M&D, Wash.
(File: M&D)

Col. O'Dwyer, Special Advisory Group for M&D (Wash.) submitted to Gen. Echols a detailed account of his interview of 18 Jan. 1944 with Andrew J. Higgins and Frank Higgins at the Higgins Industries in New Orleans. At this time Frank Higgins stated that since 15 Dec. 1943 Curtiss-Wright had given full cooperation on the outer wing sub-contract but it was doubtful if this cooperation would continue. Due to persuasion of Col. O'Dwyer, Frank Higgins submitted a letter of 18 Jan. 1944 (see attached inclosure) to Gen. Echols which stated that the "failure of Curtiss-Wright to supply necessary engineering, information, templates, tooling, etc., are rapidly being overcome." While at Higgins, Col. O'Dwyer was advised that the Office of Legislative Services was in receipt of a communication from Mr. Hugh Fulton, Counsel to Truman Committee, asking about the Curtiss-Wright-Higgins relationships. When this information was relayed to Higgins, Sr., he immediately contacted Mr. Fulton, and from this conversation Col. O'Dwyer stated that it "sounded like an agreement between them [Higgins and Mr. Fulton] to lay in wait for the Curtiss-Wright Company to make some serious mistake." Also Col. O'Dwyer felt that should there be deficiencies in the output of C-46's, it was believed Higgins would use all available methods to sidestep his responsibility and place it, if possible,

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98. (U) R&R-1 22 Jan. 1944
Fr: Col. W.S. Ege
Chief, Legislative Services, AAF, Wash.
To: AC/AS, MM&D, Wash.
(File: MM&D)

Letter from Hugh Fulton, Chief Counsel for Senate Special Investigating Committee, to Special Asst. to Secy. of War, was forwarded by Legislative Services to AC/AS, MM&D for reply. Senate Investigating Committee requested answer to the following:
(1) Had production between several Curtiss plants and Higgins Aircraft been satisfactorily coordinated?
(2) Had there been any difficulty encountered as result of failure of Curtiss-Wright at Buffalo to furnish other plants with drawings, templates, and engineering information?
(3) Had engineering changes had any considerable affect in slowing production of the plane?
(4) Had number of engineering changes been more than average?
(5) Were the changes instituted by Army or company?
(6) Were such changes as had been made due to change in AAF requirements or because of difficulties in design of the plane?

99. (R) IOM 15 Feb. 1944
Fr: Brig.Gen. F.M. Hopkins, Jr.
Chief, Res. Div., MM&D, Wash.
To: Maj.Gen. O.P. Echols
AC/AS, MM&D, Wash.
(File: MM&D)

MM&D authorized DPC to proceed immediately with the construction of one runway at the Higgins Airport, and to plan for construction of a second.

100. (C) Memo 27 Feb. 1944
Fr: Brig.Gen. W.E. Hall,
Dep. Chief of A/S, Wash.
To: Julius H. Amberg, Esq.
Special Asst. to Secy. of War, Wash.
(File: MM&D)

Julius H. Amberg, Special Asst. to Secy. of War, was advised as follows regarding the status of C-46 production on 27 Feb. 1944:
(1) C-46 Production Committee had been established to coordinate production between several Curtiss plants and Higgins Aircraft.
(2) Difficulty had been encountered as a result of failure of Buffalo plant of Curtiss-Wright to furnish the other plants with drawings, templates and engineering information promptly. Some difficulty was to be expected since the design prime contractor did not have data and drawings in usuable condition for transmission to other plants who were unfamiliar with procedures and usages of the designer's plant.
(3) Engineering changes required by operational experienced in certain theatres of service had slowed preliminary production.
(4) The engineering changes were not considered abnormal since this plane did not have benefit of adequate service testing before being placed in production. It had been necessary to place in production before completing its accelerated

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service test program.
(5) Engineering changes had been instituted by both Army and the company.
(6) Some of these revisions had been made due to changes in AAF requirements to improve the plane's tactical suitability and some had been necessary due to usual and ordinary difficulties in taking a plane from the drawing board and putting it into mass production.

101. (R) Memo 28 Feb. 1944
Fr: Col. W.R. Herod
Res. Cont. Sect., WF
To: Lt.Col. J.C. Vaughan
Res. Div., Wash.
(File: Fac. Unit)

Mat. Com. (WF) had been informed that from 70 to 95% of the Higgins Plastics Corp. output was used by the Navy, and recommended that a proposed increase in facilities ($448,202) be referred to the Navy Bureau of Ships for sponsorship.

102. (U) TT 7 March 1944
Fr: Col. W.R. Herod,
Chief, Resources Contr. Sect., WF
To: Defense Plant Corp.
(File: Fac. Unit)

Mat. Com. (WF) requested DPC (Wash.) to: (1) freeze $1,607,000 on Schedule II for use on airport construction, with the understanding that the airport facilities would be completed within this amount and (2) earmark and utilize only for facilities necessary for C-46 production the $2,070,607 approved by AAF.

103. (U) TT 3 April 1944
Fr: Res. Div., Wash.
To: Res. Cont. Sect., WF
Attn: Lt.Col. G.H. Moriarty
(File: Fac. Unit)

AAF had submitted the Higgins Aircraft proposal for a $448,000 woodworking expansion to the Navy Bureau of Ships, as suggested by Res. Cont. Sect. (Memo 28 Feb. 1944). In view of the surplus capacity in the woodworking industry, the Bureau could not certify that the expansion was essential. Higgins then advised Res. Div. (Wash.) that they were negotiating with Mat. Com. (WF) for the production of plywood air-rescue boats, and that if the contract was let, more than 50% of the proposed expansion would be devoted to production for the AAF.

104. (U) TT 8 April 1944
Fr: Res. Cont. Sect., WF
To: Res. Div., Wash.
Attn: Maj. M.M. May
(File: Fac. Unit)

Res. Cont. Sect. (WF) stated that three plywood rescue boats had been purchased from Higgins Aircraft for experimental purposes. There was no certainty that more boats would be purchased, and there were no contracts under negotiation. Res. Cont. Sect. (WF) did not recommend approval of the proposed Higgins Aircraft woodworking expansion.

105. (U) Ltr. 12 April 1944
Fr: Maj.Gen. C.E. Branshaw
CG, Mat. Com., WF
To: AC/AS, M&D, Wash.
Attn: Brig.Gen. B.W. Chidlaw,
Chief, Mat. Div.
(File: M&D)

Gen. Branshaw, CG, Mat. Com. (WF), advised AC/AS, M&D (Wash.) on 12 April 1944 that the C-46 Production Committee since its establishment had known that the C-46 engineering data was in a poor condition, but that the Curtiss-Wright Corp. was now making an effort to review all C-46 engineering data and to revise that part which was found to be incorrect. It was understood that two sets of C-46 drawings existed and that the

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data supplied to Higgins was a combination of these two sets. Although while complaints on this subcontracting program may have been well founded during the latter part of 1943, since then work had been done by the Higgins Aircraft with aid from Curtiss-Wright to correct the templ te situation.

106. (U) TT 14 April 1944
Fr: Resources Div., M&D, Wash.
To: Resources Contr. Sect., Mat. Com., WF
(File: Fac. Unit.)

Resources Div. (Wash.) was of the opinion that Higgins Aircraft would be able to allow Consolidated-Vultee to continue using 98,000 square feet of floor space for storage inasmuch as it would be sometime before Higgins would be in a position to utilize the space provided them by DPC.

107. (U) Ltr., 17 April 1944
Fr: Brig.Gen. F.M. Hopkins, Jr. Chief, Resources Div., M&D, Wash.
To: F.O. Higgins, Vice-Pres., Higgins Aircraft, Inc.
(File: M&D)

Gen. Hopkins, Resources Div. (Wash.), advised Mr. Higgins on 17 April 1944 that since 95% of the output from the proposed woodworking facilities was to be for the Navy Dept., the Navy Bureau of Ships had been contacted. The Navy Bureau of Ships had advised that they would not certify that the woodworking facilities in the amount of $446,000 were essential since the existing capacity of the construction of wooden boats was greatly in excess of requirements and therefore, the AAF would not take any further action in this regard.

108. (U) Memo 1 May 1944
Fr: Maj.Gen. O.P. Echols AC/AS, M&D, Wash
To: [Maj.] Gen. B.M. Meyers, Dep. AC/AS, M&D, Wash.
(File: M&S)

Gen. Echols, AC/AS, M&D (Wash.) requested that Gen. Meyers or Gen. Hopkins contact office of Mr. Appley, [Office of Secy of War] and inform him that M&D was interested in having Mr. Higgins get the necessary personnel for his project. Mr. Higgins had complained to Gen. Echols that he was having difficulty in getting labor and also had advised Gen. Echols that funds had not been made available for his landing strip. Gen. Echols stated "I am afraid that we will be open to a tremendous amount of criticism, and all the blame for his failures will certainly be placed on our shoulders if some action is not taken in regard to this matter."

109. (R) Memo 3 May 1944
Fr: Brig.Gen. F.M. Hopkins, Jr. Chief, Resources Div., M&D, Wash.
To: Under Secy. of War, Wash. Attn: Brig.Gen. R.S. Greenbaum
(File: Res. Contr. Sect.)

Resources Div., M&D, recommended that additional funds in the amount of $200,000 be approved by the Under Secy. of War for Higgins airport construction. The lowest construction bid for the airport had been $1,807,000 and only $1,607,000 had been frozen for its construction. Approval of these funds would make the total amount of the lease agreement $30,000,033.

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110. (U) Memo of Approval
6 May 1944
By: Robert P. Patterson,
Under Secy. of War, Wash.
(File: M&S)

Under Secy. of War approved a grant of $200,000 to Higgins Aircraft for increase in cost of construction of a runway.

111. (U) Confer. Rpt.
[20 May 1944]
(File: Res. Contr. Sect.)

Various phases of the Higgins facility were discussed at a conference held in New Orleans on May 16, 17, and 18, 1944. One of the important ones was the airport the first flight test strip, 5400' in length, was nearing completion, at a total cost of approximately $1,759,161.

112. (U) Memo 22 May 1944
Fr: Maj. M.M. Hay
Facilities Br., Res.Div.
M&D, Wash.
To: Brig.Gen. F.M. Hopkins,Jr.
Chief, Res.Div., M&D,Wash.
(File: M&S)

Maj. Hay, Res. Div., M&D, reported on a visit to Higgins Aircraft on 16 May 1944 to attend a conference regarding the necessity and evaluation of various items contained in a supplemental request from Higgins for additional funds in the amount of $1,286,984.41. Representatives from Mat.Com. (WF), DPC and Higgins attended this conference. Higgins was advised that these representatives were there in "an effort to see that everything needed to complete the plant once and for all was included in the proposed application as well as to eliminate any non-essential items which might be found." Maj. Hay stated "As of 30 April 1944, Defense Plant Corporation has committed $27,268,419 in connection with subject plant." From an examination of data at Higgins it appeared that a considerable amount of money would be spent before the plant was finally completed. $7,821,000 had been authorized by Federal Housing Authority and other Government agencies for housing and utilities for Higgins housing projects. Maj. Hay recommended that the contract for 600 air-rescue boats be let to some company who would not require additional facilities, and that if given to Higgins that some way be found to prevent Higgins from acquiring new woodworking machinery. It was concluded that: (1) DPC representative at Higgins had been doing only as directed by Washington DPC office; and (2) that one runway should be sufficient but if the second runway was to be constructed, a decision should be made by higher authority by middle of June as considerable money could be saved while construction equipment was on the job.

113. (U) Ltr.Contr. ac-3415
15 June 1944
Higgins Plastics Corp.
New Orleans, La.
(File: Contract Files)

Ltr.Contr. W 33-038-ac-3415 entered into on 27 May 1944 with Higgins Plastics Corp., New Orleans, La., for 600 airborne lifeboats, AAF Type A-1, at an estimated price of $1,800,000.00. Approval of this contr. was given by Maj. Gen. B.E. Meyers, CG, Mat.Com.(WF) on 15 June 1944. [This Ltr. Contr. was superseded by CPFF

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contract ac-3415, approved by Brig.Gen. K.B. Wolfe, Chief of Engineering & Procurement, ATSC, WF, on 28 Sept. 1944 at a total cost of $2,268,786.00.]

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114. (R) Memo 23 June 1944
Fr: Brig.Gen. F.M. Hopkins,Jr.
Chief, Resources Div., Wash.
To: Office, Under Secy. of War
Attn: Chief, Legal Div.
(File: Res. Contr. Sect.)

Resources Div. (Wash.) requested that Office, Under Secy. of War initiate negotiations with DPC toward amending the Higgins lease agreement in the amount of $1,300,000, which would include the $200,000 overruns approved by Under Secy. of War on 6 May 1944 and also the $1,100,000 needed for completion of airport and production facilities for C-46 production.

115. (U) Memo of Approval #2164
27 June 1944
(File: M&S)

Under Secy. of War's office approved project for additional funds and additional facilities for Higgins to complete airport and "round out" C-46 production in the amount of $1,100,000.

116. (U) Memo 27 June 1944
Fr: T.P. Wright,
Aircraft Res.Control
Office, Airc. Prod.
Bd., Wash.
To: Files
(File: M&S)

Dr. Lombard, [Res.Contr. Office, Aircraft Prod.Board], Wash. made a report on his visit to Higgins and Consolidated plants in New Orleans, with the following comments on Higgins:

(1) Outer panels for C-46's were in moderate production
(2) Estimated completion of one C-46 in Sept. [1944] and one in Nov. [1944] from two sets of parts from Curtiss.
(3) Third plane, an all Higgins plane, was barely getting started in production. Although 12 production planes were to be completed in 1944, Dr. Lombard believed that none would be produced in 1944, and a likelihood that first plane would not be ready for March 1945.
(4) Higgins had suggested that 5 additional sets of components be shipped from Curtiss to carry out their initial set-up on the assembly line. Dr. Lombard believed that, provided it was essential to proceed at all on the job, these components be increased to 25 sets.
(5) Possibly 150 to 200 planes could be completed in 1945 with assistance from Curtiss but doubtful whether more than 50 could be completed without this assistance.

117. (C) Memo 5 July 1944
Fr: Maj.Gen. O.P. Echols
AC/AS, M&D, Wash.
To: Recorder, Joint Aircraft
Committee
(File: M&S)

Gen. Echols submitted to Joint Aircraft Committee a proposed revision of C-46 production at Higgins which showed a schedule of two in 1944 and 146 in 1945. This proposal had been concurred in by Higgins and Mat. Com. (WF).

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118. (R) Ltr. 14 July 1944
Fr: Col. G.H. Moriarty
Actg. Chief, Res.Contr. Sect., WF
To: AC/AS, M&D, Wash. ResourcesDiv.
(File: Res. Contr. Sect.)

Res. Contr. Sect.(WF) recommended that the amendatory lease agreement be drawn in amount of $1,052,209.41 or if the agreement had been drawn in the amount of $1,300,000, as previously approved, that the balance of $247,790.59 be frozen so that commitments could not be made without proper AAF approval.

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119. (U) Memo 24 July 1944
Fr: Col. J.C. Vaughn, Jr. Res.Div., Wash.
To: Brig.Gen. F.M. Hopkins,Jr. Chief, Res.Div., Wash.
(File: M&S)

Gen. Rose of War Manpower Commission visited Higgins plant and recommended the following:
(1) That Higgins be given more wing assembly work in order to utilize the several hundred trained men who were not assigned to productive duties.
(2) That the 1,000 unit F.H.A. housing project which had been cancelled be reinstated because of the isolated location of the plant and its distance from center of New Orleans.
(3) AAF should hold down hiring of additional help at Higgins until actually needed.
(4) That AAF encourage transfer of trained supervisory personnel from other plants, specifically mentioning North American B-24 facility at Dallas.

120. (S) Memo 1 Aug. 1944
Fr: Brig.Gen. M.E. Gross, Chief, Requirements Div. Office of AC/AS, OC&R, Wash.
To: C/AS, Wash.
(File: M&S)

The Aircraft Requirements Board on 31 July 1944 made the recommendation that C-46 production be reduced to 200 per month beginning with March 1945 and be reduced further after July 1945. It was noted that accomplishment of this reduction would result in eliminating Higgins, New Orleans, and reducing Curtiss-St.Louis production. This recommendation was approved by Gen. Arnold, CG, AAF, on 4 Aug. 1944.

121. (U) R&R-1, 5 Aug. 1944
Fr: Brig.Gen. F.M. Hopkins,Jr. Chief, Res.Div., Wash.
To: AC/AS, M&S, Wash.
(File: M&S)

Resources Div., M&S, advised Mat. Div. (Wash.) that the question of manpower utilization as reported by Gen. Rose of War Manpower Commission had been investigated by Mat. Com. (WF) and it was reported that there was no unusual idleness in the plant. Higgins had 99% of the specifications necessary for the C-46 production.

122. (U) Memo 11 Aug. 1944
Fr: Brig.Gen. F.M. Hopkins,Jr. Chief, Res.Div., Wash.
To: Maj.Gen. O.P. Echols, AC/AS, M&S, Wash.
(File: M&S)

Resources Div., Wash., requested Gen. Echols' views toward issuing instructions to DPC that construction of the runway at Higgins and acquisition of machinery and equipment be stopped immediately due to cutback entirely for production of C-46's at Higgins. This runway was approximately 30% complete. Gen. Echols returned this memo with the following note: "Obtain recommendation from Gen. Wolfe - Materiel Command. He may want to use as a Mod. Center or some other purpose."

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123. (U) Tel.Conv., 14 Aug. 1944
Mr. C.D.Cline, Higgins, New Orleans, and Brig.Gen. O.E. Cook, Mat.Com., WF
(File: Res.Contr.Sect.)

Gen. Cook, Chief, Prod. Div. (WF), and Mr. C.D. Cline of Prod. Div. (WF) conferred by telephone on 14 Aug. 1944 while Mr. Cline was visiting Higgins Aircraft. The following items were discussed: the cancellation of the C-46 contract with Higgins; number of employees laid off and the possibility of securing additional work at this plant. Mr. Cline was advised by Gen. Cook to inform Mr. Higgins that the C-46 termination "is not because of their non-performance but because for the convenience of the Government, because we won't need the airplanes that they might otherwise produce after April of next year [1945] and there is no need of putting the money into it, and he [Mr. Higgins] realizes that." Gen. Cook and Mr. Cline agreed that Higgins should be advised to contact other aircraft companies with an endeavor to make full usage of the facilities.

124. (U) TT 15 Aug. 1944
Fr: Col. G.H. Moriarty
Actg. Chief, Res.Contr. Sect., WF
To: IPC, Wash.
Attn: Mr. Joyce, Vice-Pres.
(File: Res.Contr. Sect.)

IPC (Wash.) was requested to freeze all available funds within Higgins, Plancor 1569, effective as of 15 Aug. 1944.

125. (C) IOM 17 Aug. 1944
Fr: Col. M.D. Burnside, Air Inspector, Mat.Com., WF
To: CG, Mat.Com., WF
(File: M&S)

Air Inspector's Office, Mat. Com. (WF), investigated statements made by Mr. Andrew Higgins at a meeting which was held on 20 June 1944 and which was attended by representatives of Transportation Corps and Readjustment Div., ASF, and Higgins Industries, Inc. The following conclusions were reached:

(1) That construction of Higgins Aircraft plant and Higgins acceptance of a CPFF contract for C-76's at a fixed fee of 3% had not forced AAF to renegotiate downward the fees of other airplane manufacturers as alleged by Mr. Higgins.
(2) AAF had not insisted that Higgins increase their fixed fee to 4%, but had urged unsuccessfully for them to accept C-46 contract at 3%.
(3) Statement that neither Andrew Higgins, Frank Higgins nor Mr. Morris Gottesman, [Secy.-Treas.], had received compensation from Govt. funds during construction of the plant was correct.
(4) Statement that Higgins plant was designed to make it entirely flexible in contrast to Ford Willow Run which had been designed for B-24, was not entirely correct as considerable alteration was necessary when production was changed from C-76 to C-46.
(5) Statement that Higgins plant had been built within

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the original estimated cost of $23,750,000 was incorrect as substantial additional funds had been needed.

(6) Higgins stated that the plant was completed within 5 mos. It had been estimated to be completed in 8 mos. but at 8 mos. was only 9[illegible]% completed as to construction and 36% as to machinery.

(7) Higgins alleged that approximately 40 planes would be constructed before runways were completed. The District Air Inspector's report of 13 July 1944 expressed the opinion that the first plane (Curtiss-Wright fabricated parts) could not be expected before latter part of Oct. 1944 and that the runway would be ready for use by 1 Nov. 1944, if good weather permitted.

126. (U) Ltr., 19 Aug. 1944
Fr: Capt. G.V. Walls, Contracting Officer, Mat.Com., WF
To: Higgins Aircraft, Inc.
(File: Contract Files)

Contract termination notice to Higgins directed discontinuance of work on 498 C-46A airplanes and all spare parts, effective 18 Aug. 1944.

127. (U) TF [22 Aug. 1944]
Fr: Brig.Gen. K.B. Wolfe, CG, Mat.Com., WF
To: AC/AS, M&S, Wash. Attn: Res. Div.
(File: M&S)

Mat.Com. (WF) advised Res. Div. (Wash.) that, since the Higgins runway project had been reported as 60% complete with the runway itself 25%, no action be taken to stop work on the project itself until definite conclusions could be reached as to the future plans for this plant. Higgins had indicated that they were interested in leasing the plant from DPC under the following conditions: (1) if the project under construction was completed; (2) if the AAF did not require the facilities for aircraft production and (3) if the AAF would approve the release of these facilities to Higgins for whatever purpose they might be able to use them.

128. (U) Ltr., 22 Aug. 1944
Fr: J.J. Jouett, Vice-Pres., Higgins Industries, Inc. New Orleans, La.
To: Defense Plant Corp.
(File: M&S)

Higgins Industries, Inc., made request to DPC to extend the lease agreement between DPC and Higgins Aircraft for land and facilities located at Michaud, New Orleans La., "to the termination of the 25 year lease of the site presently leased to Defense Plant Corporation by the Maritime Commission with a proviso permitting ultimate purchase by Higgins." The land and facilities had been leased to Higgins Aircraft, Inc. by DPC until 31 Dec. 1946. Higgins Industries, Inc. was desirous of using facilities at Michaud for manufacture of various items for both war time and commercial use.

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129. (U) IOM 1 Sept. 1944
Fr: Col. G.H. Moriarty
Actg. Chief, Res.Contr. Sect., WF
To: AAF, Wash.
Attn: Brig.Gen. F.M. Hopkins, Jr., Chief, Res. Div., M&S, Wash.
(File: M&S)

Res.Contr. Sect. (WF) recommended and approved that a long time lease of aircraft plant at New Orleans be negotiated between DPC and Higgins Industries, Inc., with details and rental charges left entirely up to mutual agreement between DPC and Higgins. It was to be understood that as long as there was a war requirement, Higgins would be available for this type of production. Mat. Com. recommended that, from the time a new lease was made, no further AAF funds be expended for any new equipment or plant conversion of any kind, and any post war lease made with Higgins for peace time production would rest entirely with DPC as to terms and conditions. It was to be understood that work on completing the airport would not be cancelled or effected in any way by a new lease.

130. (U) Ltr., 4 Sept. 1944
Fr: J.H. Jouett, Vice-Pres., Higgins Aircraft, Inc.
To: Defense Plant Corp.
(File: M&S)

Higgins Aircraft requested authority from DPC to use certain machinery and approximately 20,000 square feet of factory space for producing machined carbon parts for Clinton Engineering Works, Tennessee Kodak Co., a subsidiary of Eastman Kodak Co.

131. (U) Ltr., 5 Sept. 1944
Fr: Defense Plant Corp.
To: Higgins Aircraft, Inc.
(File: M&S)

On 5 Sept. 1944 DPC granted Higgins permission to use 20,000 square feet of factory space and 30 pieces of machinery for sub-contracting work for Clinton Engineering Works, subject to terms of DPC lease agreement and the following additional conditions: (1) sub-contracting work be limited to Clinton Engineering Works; (2) War Dept. approval be obtained; (3) Rental be paid DPC; and (4) Such approval could be terminated by DPC upon 30 days notice.

132. (U) Ltr., 11 Sept. 1944
Fr: Brig.Gen. F.M. Hopkins, Jr. Chief, Res. Div., M&S, Wash.
To: Higgins Aircraft, Inc.
(File: M&S)

Higgins received permission of AAF to use facilities of Higgins Aircraft for certain sub-contracting work for Clinton Engineering Works, subject to conditions as set forth in DPC letter to Higgins dated 5 Sept. 1944.

133. (U) Memo 20 Sept. 1944
Fr: Brig.Gen. F.M. Hopkins, Jr. Chief, Res. Div., Wash.
To: Navy Dept., BuAer., Wash.
(File: M&S)

BuAer, Navy Dept., Wash., was advised by Res. Div., M&D, Wash., that AAF had no objection to the Consol.-Vultee Aircraft Corp. leasing an additional 100,000 square feet of floor space in the Higgins Aircraft plant. Consolidated's previous request of 7 Sept. for 50,000 sq. feet of space had been increased to 100,000 square feet. It was suggested that Consolidated enter into negotiations with Higgins and DPC relative to this floor space. Consent for use of this space was to be given with the understanding that it might be necessary for Consolidated to give up the space if other war needs might dictate the use of this plant in the War Dept. production program.

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134. (U) Ltr. 22 Sept. 1944
Fr: Higgins Aircraft, Inc.
To: Defense Plant Corp.
(File: M&S)

Higgins requested that agreement of sub-lease of 15 Dec. 1943 between DPC, Higgins Aircraft, Inc. and Higgins Plastics Corp. be amended to include 37,800 square feet of factory space and 50 pieces of machinery necessary to perform contract with Clinton Engineering Works and that rental for the additional facilities be based upon 3% of sales, as already provided for in sub-lease.

135. (U) TT 27 Sept. 1944
Fr: Resources Div., M&S, Wash.
To: Res. Contr. Sect., WF
(File: Res. Contr. Sect.)

ATSC (WF) was requested to make a survey of Higgins plant to find out the amount of floor space required in the Higgins plant for production of all items for AAF; also information was requested as to the length of time Higgins would require the use of DPC facilities for the performance of their sub-contracts with various aircraft manufacturers and whether or not these sub-contracts could be moved to other locations without interfering with production. The Office of Fiscal Director, [Army Service Forces], had requested permission to use approximately 1,000,000 square feet of this facility.

136. (U) Ltr. 28 Sept. 1944
Fr: Brig.Gen. F.M. Hopkins, Jr.
Chief, Res.Div., M&S, Wash.
To: Defense Plant Corp.
(File: M&S)

AAF recommended that DPC complete the airport facilities and the drop hammer building in accordance with AAF approved plans. Also recommended that acquisition of machinery and equipment in connection with Higgins facility be frozen, undelivered commitments be cancelled except for those undelivered items for which acceptance of delivery would be profitable to the Govt. Res. Contr. Sect. (WF), showed their approval of this plan in the attached teletype dated 14 Sept. 1944.

137. (U) Memo 4 Oct. 1944
Fr: Brig.Gen. F.M. Hopkins, Jr.
Chief, Res.Div., M&S, Wash.
To: Hq., Army Service Forces,
Facilities & Insp.Br., Wash.
(File: M&S)

Army Service Forces was advised by M&S, AAF, that investigation had revealed that Higgins facility was to be used for AAF sub-contracting work and therefore, it would be impossible to release space to the Office of the Fiscal Director.

138. (U) Tel.Conv., 27 Oct.1944
Col. J.F. Phillips, Mat.
Div., Wash. and Brig.Gen.
O.R. Cook, ATSC, WF
(File: M&S)

During a telephone conversation between Col. Phillips, Mat.Div.(Wash.), and Gen. Cook, ATSC,(WF), Col. Phillips inquired as to whether ATSC contemplated any change on sub-contracting work on C-46 outer wing panels at Higgins. ATSC was not considering changing that work but had no objection, and had so advised Higgins, to Higgins accepting Ordnance contract to repair trucks and jeeps. Gen. Cook stated that ATSC was reluctant to releasing Higgins facility as it was not known whether it would be needed for post war storage or possibly other production and "the facilities are just too good to turn loose yet."

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139. (U) Memo 31 Oct. 1944
Fr: Brig.Gen. F.M. Hopkins,Jr.
Chief, Res.Div., Wash.
To: Under Secy. of War,Wash.
Attn: Chief, Contracts & Facilities
(File: M&S)

The Under Secy. of War was advised that IPC had received an application form from Higgins Aircraft requesting an amendment to their lease agreement so as to include that part of the aircraft plant and facilities necessary to perform contracts between Higgins and Clinton Engineering Works. Resources Div., Wash., had advised IPC that AAF had no objection to such an amendment.

140. (C) Memo 2 Dec. 1944
Fr: Brig.Gen. H.C. Minton,
Dir., Prod. Div.,
Army Services Forces,Wash.
To: AC/AS, M&S, AAF, Wash.
Attn: Res. Div.
(File: M&S)

A committee composed of Chief of Warehousing Div., Reconstruction Finance Corp. (hereinafter referred to as RFC), Director of Storage Div., Army Service Forces, and Chief of Real Estate Div., Chief of Engineers, met with representatives of AAF at Houston, Texas, to develop a plan to absorb into the RFC Disposal Center plan those facilities then set up by AAF for disposal which were well situated, not subject to objection and which could be retained under long term leases for the storage of surplus property. It was suggested that the AAF Disposal Center plan be absorbed into RFC Disposal Center plan as soon as possible. A copy of this plan was forwarded by Prod. Div., ASF, to AC/AS, M&S, AAF, with a request for AAF to relinquish space in Higgins Aircraft to RFC for storage purposes.

141. (U) TT 13 Dec. 1944
Fr: Res.Contr. Sect., WF
To: Res. Div., M&S, Wash.
(File: M&S)

ATSC agreed to the release of 435,225 square feet of floor space at Higgins Aircraft for use in production of 105 mm. shells for Ordnance. ATSC recommended that Ordnance Dept. be cautioned to be sure of availability of labor in New Orleans for their project. Note at the bottom of this document stated that Gen. Echols and Gen. Powers, M&S, Wash., had approved this release.

142. (U) Memo 14 Dec. 1944
Fr: Brig.Gen. H.F. Safford,
Chief, Prod.Service Div.,
Office of Chief of Ord.,
Wash.
To: Hq., AAF, Wash.
Res. Div., Wash.
(File: Res.Contr. Sect.)

Ordnance Dept., [Army Service Forces], requested Res. Div., AAF, to make sufficient space, estimated at 435,000 square feet, available for the Ordnance Dept. in Higgins Aircraft main assembly building to permit production of 500,000 - 105 mm. shells per month by Higgins Plastics Corp. Ordnance also requested that AAF authorize expenditure of funds under Plancor 1569 (Higgins Aircraft) to provide for necessary alterations to the building.

143. (U) Memo 16 Dec. 1944
Fr: Brig.Gen. F.M.Hopkins,Jr.
Chief, Res.Div., Wash.
To: Chief of Ordnance
(File: Res. Contr. Sect.)

Res. Div. (Wash.) advised Chief of Ordnance that AAF Headquarters agreed to sponsor and arrange for financing of building alterations for Ordnance work as an amendment to Plancor 1569 upon recommendation of the Ordnance Dept.

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144. (U) TG 19 Dec. 1944
Fr: Lt.Col. C.J. Lawson
Contracting Officer,
ATSC, WF
To: Higgins Plastics Corp.
(File: Contract Files)

Higgins Plastics Corp. was notified on 19 Dec. 1944 that 300 airborne lifeboats on contr. ac-3415 were cancelled. Higgins Plastics was instructed to "stop all work, terminate subcontracts and purchase orders and place no further orders in connection with the terminated portion of the contract, except to the extent that you or a subcontractor or supplier wish to retain and continue for your account any work in process or other materials."

145. (C) Memo 22 Dec. 1944
Fr: Brig.Gen. F.M. Hopkins, Jr.
Chief, Res. Div., Wash.
To: Dir., Prod. Div.
Army Service Forces, Wash.
(File: M&S)

Army Service Forces was notified on 22 Dec. 1944 that AAF was holding Higgins plant in reserve for stand-by until after V-J Day. Thus space required by RFC would not be available.

146. (U) Memo 26 Dec. 1944
Fr: Brig.Gen. F.M. Hopkins, Jr.
Chief, Res.Div., Wash.
To: Exec.Officer, Mat.Div.,
Wash.
(File: M&S)

Resources Div. submitted to Mat. Div. the following break-down of space utilized at Higgins Aircraft plant as of 26 Dec. 1944: C-46 wing panels - 600,000 sq. ft.; air rescue boats - 400,000 sq. ft.; Consol.-Vultee storage - 300,000 sq. ft.; subcontract with Clinton Engineering Works - 40,000 sq. ft.; and Ordnance shell contract - 435,000 sq. ft. - total 1,775,000 sq. ft. Contract for C-46 wing panels would expire in Feb.1945 and boat contract scheduled to be completed in second quarter of 1945. Total floor space of plant was 2,393,000 square feet.

147. (U) 1st Memo Ind., 27 Dec. 1944
Fr: Brig.Gen. H.F. Safford
Chief, Prod.Services Div.
Army Service Forces,
Office, Chief of Ordnance
To: Hq., AAF
Attn: Chief, Res. Div.
(File: M&S)

Office, Chief of the Ordnance, forwarded to Res.Div. copies of approved site letter covering shell production at Higgins Plastics Corp., which showed an additional labor requirement of 3500; a total estimated facilities expansion cost of $10,350,000 for the program, of which $500,000 would be for construction and rehabilitation, including installation costs of machine tools and machinery; estimated date of initial operation as June 1945; and April 1945 as estimated date for completion of construction. This was a part of the December Artillery Ammunition Program. Ordnance requested AAF to provide for necessary rehabilitation and construction in the amount of $500,000 under Plancor 1569

148. (U) TT 31 Dec. 1944
Fr: Res.Div., Wash.
To: ATSC, WF
Attn: Chief, Res.Cont.Sect.
(File: Res.Contr. Sect.)

Res. Div. (Wash.) inquired as to whether or not 275,000 square feet of heated inside floor space at Higgins Aircraft could be made available to the RFC for the duration of the war for use in its disposal center plan for storage of termination inventories.

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149. (U) Ltr. 3 Jan. 1945
Fr: Higgins Aircraft, Inc.
To: Maj. M. M. Hay
Res. Div., M&S, Wash.
(File: M&S)

Higgins Aircraft submitted a floor plan for allocation of areas as used and the following list of the activities at their plant: contract for 500 C-46 airplanes was in process of liquidation; contract for 155 sets of outer wing panels for C-46 planes, estimated to be approximately $3,500,000, would be completed about May 1945; contract for 300 airborne lifeboats, estimated value $1,134,000, would be completed about April 1945; contract with Tennessee-Eastman Co. for carbon parts could not be accurately estimated or total volume forecasted at that time; contract with Ordnance Dept. for repair of 2100 jeeps at $514,500 was progressing negotiations were pending for repair of a large number of Ordnance vehicles.

150. (U) Memo 5 Jan. 1945
Fr: Construction Requirements Committee, WPB
To: War Dept., AAF, Wash. Facilities Sect.
(File: M&S)

Construction Requirements Committee, WPB, approved Higgins application for $500,000 "covering the transfer of available funds in existing DPC Plancor 1569 set up for the Army Air Forces to the Office of the Chief of Ordnance for partial defrayment of costs in connection with the production of Shell 105 MM, M1, at a maximum rate of 500,000 units per month." This amount was within the $10,350,000 expansion approved by WPB on 21 Dec. 1944 for Ordnance work.

151. (U) Memo 5 Jan. 1945
Fr: Brig.Gen. F.M. Hopkins,Jr. Chief, Res. Div., Wash.
To: Exec. Asst., Office, Under Secy. of War
Attn: Col. G.K. Heiss
(File: M&S)

Office, Under Secy. of War, was advised that all AAF contracts, air rescue boat and C-46 wing panel contracts with Higgins would be completed during second quarter of 1945 and no additional prime contracts were contemplated with that company. Therefore, in the near future a total of 1,438,000 sq. ft. of floor space would be available in this facility. Some interest had been expressed by WPB in utilizing this plant for the truck tire program and when a definite request was received it would be referred to Under Secy of War for approval. A breakdown of space utilized in Higgins Aircraft at that time was given.

152. (C) Memo 8 Jan. 1945
Fr: Brig.Gen. F.M. Hopkins,Jr. Chief, Res. Div., M&S, Wash.
To: Dir., Prod.Div., Army Service Forces, Wash.
(File: M&S)

Army Service Forces was informed that AAF concurred in the use of 275,000 square feet of space in Higgins Aircraft plant by RFC for a disposal center.

153. (R) Memo 9 Jan. 1945
Fr: Brig.Gen. F.M. Hopkins,Jr. Chief, Res. Div., Wash.
To: Under Secy. of War
(File: M&S)

Res. Div. (Wash.) requested that Office of Under Secy. of War recommend release of $500,000 of available funds by DPC to cover rehabilitation costs and necessary construction involved in production of 105 mm. shells for Ordnance.

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154. (U) 1st Ind., 10 Jan. 1945
Fr: Col. G.K. Heiss,
Exec. Asst., Ord. Dept.
Office, Under Secy. of War
To: AAF, AC/AS, M&S, Wash.
(File: M&S)

Under Secy. of War's office approved M&S plan of not renewing contracts for C-46 wing panels and air rescue boats with Higgins Aircraft.

155. (U) Ltr. 15 Jan. 1945
Fr: Higgins Aircraft, Inc.
To: AAF, AC/AS, M&S, Wash.
Attn: Res. Div.
(File: M&S)

Higgins Aircraft had given notice to Consolidated-Vultee to vacate the space leased by them for storage as the lease had expired and Higgins was in need of this space since war contracts had been secured. Assistance of Resources Division in vacating Consol.-Vultee was solicited.

156. (U) Memo 18 Jan. 1945
Fr: Brig.Gen. F.M. Hopkins,Jr.
Chief, Res.Div., Wash.
To: Navy Dept., BuAero, Wash.
Attn: Prod. Div.
(File: M&S)

BuAero, Navy Dept., was requested by Res. Div.,(Wash.) to secure other storage space for Consolidated-Vultee since increases in Ordnance program for production of shells and repair of trucks necessitated utilization of entire manufacturing area of Higgins.

157. (U) Memo 18 Jan. 1945
Fr: Brig.Gen. F.M. Hopkins,Jr.
Chief, Res. Div., Wash.
To: Army Service Forces, Wash.
Chief of Prod. Div.
(File: M&S)

Army Service Forces were advised that although AAF had on 8 Jan. 1944 concurred in RFC using 275,000 square feet of space in Higgins Aircraft plant, it had been further reviewed and decision made that all the main manufacturing area in Higgins was to be utilized for production needs.

158. (C) Investigation Rpt.
20 Feb. 1945
Fr: Lt.Col. C.A. Remaley
Office of the Inspector
General, Wash.
To: Acting Inspector General
(File: M&S)

Inspector General's office, Wash., made a special inspection of the administration of CPFF contracts with Higgins Aircraft in Feb. 1945. A detailed report of the production and inspection of all contracts was submitted. Numerous recommendations for improvement in the administration of the contracts were submitted.

159. (U) Ltr. 16 April 1945
Fr: Brig.Gen. F.M. Hopkins, Jr.
Chief, Res. Div., Wash.
To: Defense Plant Corp.
(File: M&S)

Res. Div. (Wash.) requested RFC to cancel any authorizations for rehabilitation and construction work which had been committed for Ordnance production of 105 mm. shells at Higgins Aircraft as Ordnance Dept. had indicated in the attached letter that the project had been cancelled, and Ordnance contract with Higgins was in process of termination.

160. (U) Memo 20 April 1945
Fr: Col. F.R. Denton
Dep. Dir., Prod. Div.
Army Service Forces, Wash.
To: AC/AS, M&S, AAF, Wash.
Attn: Res. Div.
(File: M&S)

Army Service Forces understood that 1,000,000 square feet of floor space would be available at Higgins Aircraft after 15 May 1945. RFC and Storage Div. of Army Service Forces had shown an interest and desire to acquire this space for establishing a surplus property disposal center for storage and sale of surplus

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industrial property. Res. Div., AAF, was requested to review the desirability and feasibility of releasing any of the space for this purpose and if not needed, AAF initiate action to effect transfer of this space.

161. (U) Ltr. 1 May 1945
Fr: Col. G.H. Moriarty
Chief, Res.Contr. Sect.
ATSC, WF
To: CG, AAF, Wash.
Attn: AC/AS, M&S, Res.Div.
(File: Res. Contr. Sect.)

Higgins attorneys submitted to AAF a proposal which had been worked out with DPC. The proposal included:
(1) Higgins lease agreement, Plancor # 1569, be terminated.
(2) All woodworking facilities be segregated and leased to Higgins commercially.
(3) Selected group of machine tools be leased to Higgins on commercial basis and balance be declared excess.
(4) Overhead and maintenance of main manufacturing building be assumed by DPC and thus, Higgins pay rental for actual square feet used.
(5) AAF sponsor only projects necessary for accomplishment of contracts placed with Higgins.
(6) Space not used by Higgins be released to RFC to storage and redistribution purposes.

Resources Div. (Wash.) was notified that ATSC concurred in termination of Higgins lease agreement and recommended approval of above plan.

162. (U) 1st Ind., 2 May 1945
Fr: Col. G.H. Moriarty
Chief, Res.Contr. Sect.,
ATSC, WF
To: AC/AS, M&S, Res.Div., Wash.
(File: Res.Contr. Sect.)

Res. Contr. Sect., ATSC, stated that negotiations were under way between Higgins Aircraft and DPC which would allocate 1,000,000 square feet of floor space to RFC for a Surplus Property Disposal Center.

163. (U) 1st Ind., 4 May 1945
Fr: Brig.Gen. F.M. Hopkins, Jr.
Chief, Res.Div., Wash.
To: ATSC, WF
Attn: Res.Contr. Sect.
(File: Res.Contr. Sect.)

Res. Div.(Wash.) requested information as to whether or not Higgins plant and facilities were excess to ATSC and if the entire plant was not excess, just how much was. On 9 May 1945 ATSC advised Res. Div. (Wash.) that declaration of excess was in order and was being handled by Mid-Western District Office.

164. (U) Memo 19 May 1945
Fr: Maj. F.H. Otto
Contracts & Facilities Div.
Office, Under Secy. of War
To: Hq., AAF, Wash.
Attn: Maj. M.M. Hay,
Res.Div.
(File: M&S)

Proposed Amendment No. 1 to Agreement of Sub-lease between DPC, Higgins Aircraft and Higgins Plastics, which included provision for 37,800 square feet in main manufacturing building, and 557 items of machinery and equipment for production of moulded carbon; and 63,000 square feet of space for production of lifeboats and a double steel paint spray booth, was forwarded by Office, Under Secy. of War to AAF for review.

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165. (U) TT 31 May 1945
Fr: Lt. W.M. Howell, Contracting Officer, ATSC, WF
To: Higgins Plastics Corp.
(File: Contract Files)

Letter termination notice on contract ac-3415, dated 22 Dec. 1944 which affected cancellation of 300 A-1 airborne lifeboats was rescinded on 31 May 1945 by ATSC Terminations Sect. The reinstatement of these lifeboats was to be accomplished without termination cost.

166. (U) TT 1 June 1945
Fr: Col. G.H. Moriarty Chief, Res.Contr.Sect., WF
To: Res.Div., Wash.
(File: Res.Contr.Sect.)

As of 1 June 1945 AAF was utilizing the following space in Higgins Aircraft plant:
(1) 209,410 sq. ft. for production of C-46 wing panels. This contract completed and being terminated.
(2) 369,076 sq. ft. for production of air rescue boats which was being completed. [This production being done in Higgins Plastics Corp. plant].
(3) 100,000 sq. ft. for new contract for solar stills
(4) Office and non-productive area to administer AAF contracts.

ATSC Res.Contr. Sect. notified Res. Div. (Wash.) that the balance of the plant was excess to AAF requirements.

167. (U) Memo 5 June 1945
Fr: Brig.Gen. F.M. Hopkins,Jr. Chief, Res.Div., M&S, Wash.
To: Dep.Dir., Prod. Div. Army Service Forces, Wash.
(File: M&S)

Army Service Forces was informed that total of 678,486 square feet of Higgins plant was being utilized by AAF and that the balance of at least 1,000,000 square feet was excess to AAF requirements and could be made available to RFC for storage area, if it had been determined that the excess floor space was surplus to the War Dept.

168. (U) Ltr. 6 June 1945
Fr: Brig.Gen. F.M. Hopkins, Jr. Chief, Res.Div., Wash.
To: Defense Plant Corp.
(File: Res.Contr.Sect.)

DPC was notified that Higgins facilities were excess to production requirements of AAF with exception of 678,486 square feet, airport and related installations, and office and non-production area for administrative purposes. [As indicated by ATSC letter dated 1 June to Res. Div. (Wash.) the contract for C-46 wing panels was being completed, and the air rescue boats were being manufactured in the Higgins Plastics Corp. plant, therefore, 100,000 sq. ft. for production of solar stills would be the space required in the Higgins main manufacturing plant by the AAF.] DPC would be informed by Under Secy. of War as to whether remaining facilities were surplus to requirements of War Dept. as a whole.

169. (R) Memo 22 June 1945
Fr: Brig.Gen. F.M. Hopkins,Jr. Chief, Res.Div., Wash.
To: Brig.Gen. E.M. Powers, [Ac/AS, M&S, Wash.]
(File: M&S)

Higgins had been given a letter contract for production of 172,678 kits of sea water distillation and thus would utilize 94,500 sq. ft. of floor space in northwest corner of Higgins Aircraft plant. Higgins Aircraft had previously been expanded by recommendation of AAF in the amount of $31,100,033 and another request

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for facilities expansion required for production of solar stills or distillation kits in the amount of $258,456.00 had been submitted by Higgins. ATSC (WF) recommended that approval of all agencies concerned be obtained.

170. (R) Memo 23 June 1945
Fr: Brig.Gen. F.M. Hopkins,Jr.
Chief, Res.Div., Wash.
To: War Production Board,
Construction Requirements
Committee
(File: M&S)

Construction Requirements Committee, WPB, was requested by Res. Div. (Wash.) to approve facilities exapnsion of Higgins in amount of $258,456. This approval was received on 27 June 1945, as shown by the attached memo.

171. (U) Memo 26 June 1945
Fr: Col. Denton
Dep. Dir., Prod. Div.
Army Service Forces, Wash.
To: Under Secy. of War
Attn: Contracts &
Facilities Div.
(File: M&S)

Under Secy. of War was advised by Army Service Forces that Plancor 1569 had been circularized to ascertain whether the War Dept. or any other agency had a need for the facility and since only the Storage Div., Army Service Forces had requested 150,000 square feet and 400,000 square feet of space for Dept. of Commerce and RFC, respectively, for surplus property disposal centers, Army Service Forces recommended that Under Secy. of War initiate action to relieve AAF of its responsibilities under DPC lease agreement and to accomplish the above request of Storage Div., Army Service Forces.

172. (R) Memo 30 June 1945
Fr: Brig.Gen.F.M. Hopkins,Jr.
Chief, Res.Div., Wash.
To: Under Secy of War
Attn: Chief, Contracts
& Facilities
(File: M&S)

Under Secy. of War was informed that DPC lease agreement Plancor 1569 with Higgins Aircraft was in process of termination, and as result of conference between Maj. Hay of Res. Div., M&S, Maj. H. Otto, Office, Under Secy of War and Mr. L.A. Kelly, DPC, it had been decided that DPC lease agreement Plancor 1569 be written in name of Higgins Plastics Corp. in the near future. Under Secy of War was requested to release $258,456 of available DPC funds for facilities at this plant for production of kits for sea water distillatio

173. (R) 2nd Ind., 5 July 1945
Fr: Brig.Gen. F.M. Hopkins,Jr.
Chief, Res.Div., Wash.
To: Office, Under Secy. of
War
Attn: Contracts & Facilities
(File: M&S)

On 5 July 1945 AAF concurred in the proposal as outlined in Proposed Amendment # 1 to agreement of sublease between RFC, Higgins Aircraft and Higgins Plastics. Office, Under Secy. of War was informed that the following space would be required by AAF: 94,500 sq. ft. for solar still production, 63,000 sq. ft. for airborne rescue boats, and 5,000 sq. ft. for approximately 2 months for termination inventory of C-46.

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174. (U) Memo 7 July 1945
Fr: Brig.Gen. F.M. Hopkins,Jr.
Chief, Res.Div., Wash.
To: Office, Under Secy.
of War, Wash.
(File: M&S)

Higgins Aircraft had been advised that after 1 June 1945 AAF would bear only that proportion of overhead at Higgins Aircraft as assigned to termination work of C-46 wing contract.

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175. (U) Ltr. 14 July 1945
Fr: Maj. F.H. Otto
Contracts & Facilities Div.
[Office, Under Secy. of
War]
To: Reconstruction Finance
Corp., Wash.
(File: M&S)

AAF request for release of $258,456.00 DPC funds to cover additional facilities for production of kits for sea water distillation was forwarded to RFC by Under Secy. of War's office with the statement that sufficient funds uncommitted under Plancor 1569 were available and thus an amendment to the War Dept. lease agreement would not be required.

176. (U) Resources Control Sect.
Rpt. # 170, 14 July 1945
Prepared by Industrial Service
Sub-section, Resources Contr.
Sect., ATSC
(File: Historical Office)

ATSC Resources Control Sect. activity report for the week ending 14 July 1945 showed that the DPC-owned Higgins Aircraft plant at New Orleans, Plancor 1569, at a total authorized cost of $31,100,033.00, had been declared excess.

177. (U) Ltr. 19 July 1945
Fr: Brig.Gen. F.M. Hopkins,Jr.
Chief, Res.Div., Wash.
To: ATSC, WF
Attn: Chief, Res.Contr.
Sect.
(File: M&S)

ATSC (WF) was informed that Office, Under Secy. of War had approved on 14 July 1945 Higgins Industries RCS Project 381C in amount of $258,456 and project had been forwarded to RFC for necessary action.

178. (U) Ltr. 28 July 1945
Fr: R.P. Patterson,
Under Secy. of War
To: Reconstruction Finance
Corp., Wash.,
Office of Defense Plants
(File: M&S)

RFC was given approval of War Dept. to sell, lease, or dispose of Higgins Aircraft plant, plancor 1569, with exception of space required for production of: kits for sea water distillation, airborne rescue boats and C-46 wing termination inventory for AAF; moulded carbon for Corps of Engineers; and rehabilitation of trucks for Ordnance Dept. Storage Div., Army Service Forces, had recommended that 150,000 sq. ft. of space be made available to Dept. of Commerce and 400,000 square feet to RFC for surplus property disposal center. War Dept. understood that RFC was agreeable to such a termination of the lease agreement and that RFC would make direct lease or leases with Higgins Plastics for portions of the facilities required to fulfill existing War Dept. contracts.

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Telephone conversation between Gen. Somervell & Mr. Andrew J. Higgins, Room 501 Willard Hotel, Washington, D. C. 12:20, Oct. 5, 1942.

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Mr. Higgins: . . your joking.

Gen. Somervell: No, I believe I'm right.

Mr. Higgins: You've no reason to be for your accomplishments. It's been a long time since I've had the pleasure to chat with you. I'm up here at the request of Roosevelt--he suggested that I come up. He was down there and I had the opportunity in the short time he was visiting us to show him some plans of this cargo plane that we've been working on quite some time. We've been keeping _____ notoriety away from it. Gen. Gross and Gen. Dillion--I've talked to them from time to time to let them know that we've been working on it, and we have it now. I have my engineers and staff up here at Washington with me, and the drawings and the data, and I don't think there will be any serious objections on the part of your men, Arnold, or the rest of them because it's all according to text and handbooks, altho it's large and unusual. And I'd much prefer approaching this thing with the Army, with you, and otherwise, and I don't know whether the Maritime Commission will want to horn in or not. I understand from the few friends I have in the Navy that they are very much interested in it, but it's a land plane, and it's a cargo carrier, so I imagine that would take it out of the category or the jurisdiction of the Maritime Commission.

Gen. Somervell: Oh, yes, that ought to be taken up with General Echols, or Gen. Arnold who is handling the airplane end of it.

Mr. Higgins: I called you first; and I have all this stuff up here at the hotel, it's quite a mass of stuff, General. Here's something that'll interest you. I could have one of them in the air in the matter of four and a half to five months.

Gen. Somervell: You've got all of your designs complete.

Mr. Higgins: I've got everything, yes.

Gen. Somervell: Well, that sounds like business. Do you want me to mention it . .

Mr. Higgins: Now here's another thing. I'll build it too without any cost to the government, but I'll have to get priorities and I'll have to get engines. We have--a lot of things we've done I don't know whether you've heard -- so called bottlenecks, we've pulled the cork out of the bottle, and we're building an engine now that's quite a remarkable thing so you won't have much. . . to stop that trouble that you've had in getting engines. We're also developing a 3,000 h.p. airplane engine.

Gen. Somervell: Sounds like a real one.

CONFIDENTIAL

Mr. Higgins: It is. 24 cylinder engine. It's a development of what we've been so successful with in the others, smaller marine engines. I've got all this stuff up here in the suite at the Willard Hotel, Room 501, and I've got, you remember Harry Atkins, he's--a lot of people [illegible]

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Mr. [illegible]ins: I've come across--I've had them all. And this design meets everyone's blessings.

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Gen. Somervell: That's a miracle

Mr. [illegible]ins: Even Seversky would beat a big bass drum for it.

Gen. Somervell: All right sir; now you want me to pass this on to General Arnold.

Mr. Wi[illegible]ins: Yes, I'd like--General, really I've got something here, and I don't know whether you remember it, but Bob Crawford and some of the boys down in New Orleans rember I was very successful in 1928 and again in 1929--I designed myself and built an all plastic flying boat at that time--just for the fun of it and not supposed to be an air engineer or anything else--I just built it. And it was successful. That gave me the benefit of a lot of research and I've gone into it since, and this plane can be built of non-critical materials and it is going to be dumbfounding when you see what we've got.

Gen. Somervell: It sounds promising to me, and I'll get hold of Arnold right away and let you know what you've said.

Mr. Wi[illegible]ins: Well the President was very, very enthusiastic about it. He saw the materials and he saw where we were using them--already using it in boats, motor torpedo boats, and other things, and when I see you I'll tell you a little amusing thing that happened when he was down there that might make you smile a little bit. A certain party looked at the material and he said it's marvelous, and asked a few questions. There was another party in the car with us and I handed it to him and he looked at it and he said, "well I don't know. I'd like to see it thoroughly tested--of course it will take a long time, and I'd have to be convinced". And the President with a very charming smile said, "Perfectly natural reaction." You can guess who that other party was.

Gen. Somervell: Yes, I have an idea.

Mr. [illegible]ins: General, thanks for this opportunity of talking to you, and I'm up here at your service.

Gen. Somervell: All right, sir, I'll get hold of Arnold and Nichols and let them know about this right away. It's their business primarily and I don't want to horn into it.

Mr. Wi[illegible]ins: Well I thought this way, you've got a lot of our boys scattered all around, and this plane--I'll give you a few high spots. It can carry 60 tons of cargo; go 4,000 miles and have enough fuel to get back. It can carry 18 tons of cargo 8,000 miles. The plane--it's landing speed is 50 miles an hour. Instead of picking up the paper every morning and seeing where some of these poor boys have had a plane dig a hole in the ground for them, we won't have much of that. You can land in a ploughed field or you can land on a desert, you can land even in stumps if you're lucky.

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Gen. Somervell: You'd have to be pretty lucky, wouldn't you?

Mr. H[illegible]ins: Yes, you'd have to be awfully lucky. If you'll see it, you'll see some new things. There's nothing radical about it. It's air-dynamically correct. I'd hate to extend the text and creed; but have to admit that this is one time that I've held to the textbooks.

Gen. Somervell: Well I know they'll be awfully glad to get the information. And I'll see that they do get it right away.

Mr. H[illegible]ins: Fine, thanks a lot, General. You're doing grand and marvelous work.

Gen. Somervell: Thanks. Good bye.

#

Copies furnished: Generals Arnold & Nichols.

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AAFMC-104-WPC-1-4-42-75M sets of 4

ORIGINAL

Authority for Purchase

No. 309737

RSM:mls:70-4

VENDOR

CONTRACT No.

PURCHASE ORDER No. 34484

DELIVERY VIA TERMS METHOD PROPOSAL

CONFIDENTIAL

BY THE ABOVE SPACE TO BE USED BY THE PURCHASE BRANCH ONLY

Item	Quantity	Unit	Estimated Unit Price	DESCRIPTION OF MATERIAL OR SERVICES TO BE PURCHASED.	Unit Price	Total Price
				W535 ac-34484(9396)		
				See Exhibit "A" attached hereto and made a part hereof.		
				Cost-Plus-Fixed-Fee Contract		
				"I" PROGRAM 1942 FY Aircraft Mfg Inc JAF		
				$169,601,600.00		

Total Estimated Cost ~~$169,228,800.00~~ CLASSIFICATION AA-1 and A-1-A 6A 21 USA 1 00 Act Total Actual Cost

B—FUNDS			A—FUNDS		C—FUNDS			Increase of Funds to Actual Cost Approved
EXPEND. ORDER No. MISCL. CHARGE No.	Project No.	Item No.	Project No.	Item No.	Project No.	Class No.	Item No.	
			110 Rel2	7403	122		7403A	

MATERIAL TO BE OBLIGATED FOR — WANTED NOT LATER THAN (Date) — Section Chief

DELIVER TO — Accounting Branch

Procurement Data Number of Sets — DATE FURNISHED — Budget Officer

Remarks on the following matter marked with "X" appear in the space below:

1. Recommended Sources of Supply X 2. Government furnished material X 3. Tools, patterns, etc., loaned by Government X
4. Should Serial Number be assigned X 5. Point of Inspection X 6. Increase Existing Orders X 7. General Remarks: X

1. Higgins Industries, Inc., New Orleans, Louisiana.
2. G.F.E. as noted in Curtiss-Wright Model Specification #27-251, dated May 9, 1942, together with Revision A, dated August 29, 1942.
3. None.
4. Serial numbers to be assigned.
5. Contractor's plant.
6. New contract.
7. Prices contained in this A/P in accordance with information transmitted to this office from Contract Section.
8. Authority for this procurement contained in Inter-Office Memorandum JHC:mpw:70-4, dated October 31, 1942, to Chief, Training and Transport Branch, P.E.S.

Proc. Auth. No.	AC 3005 P 110-09	A 0705-23	141,024,000 00
Proc. Auth. No.	AC 3006 P 122-09	A 0705-23	28,204,800 00
Proc. Auth. No.			

Upon due inquiry made it was found that the articles covered by this authority are not available from any other branch of the Government without impairing the efficiency of the service, or the immediate need of these supplies or the [illegible] does their purchase [illegible] any other branch of the Government.

CONFIDENTIAL

Date	Initiated	Approved	Approved
10/31/42	R. B. MALOY Project Engineer	W. W. WORLAN Colonel, Air Corps	O. R. COOK Colonel, AIR CORPS

Coordinated by Chief, Contract Sec. — Approved Accounting Br. — EDWARD H. WHITE Colonel, Air Corps

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2

EXHIBIT "A"

To be attached to and made a part of Authority for Purchase #309737, dated 10/31/42.

CONFIDENTIAL

1. 1200 airplanes, AAF Model C-76HI, to be constructed in accordance with Curtiss-Wright Model Specification #27-251, dated May 29, 1942, together with Revision A, dated August 29, 1942, at a unit cost of $113,000.00.
Total cost for 1200 airplanes . . . . . $ 135,600,000.00

2. Spare Parts in the amount of 20% of the money value of the airplanes listed in Item 1 above. . . . . $ 27,120,000.00

Total cost airplanes plus spare parts . . . . . $ 162,720,000.00

Contractor's Fee at ~~4~~ 2% . . . . . $ ~~6,508,806.00~~ 4,881,600.00

NOTE: The spare parts called for above shall be identical to the spare parts being furnished for the 1200 Model C-76CU airplanes being procured on Contract AC-27018.

3. The airplanes called for in paragraph 1 above shall be delivered in accordance with the schedule to be agreed upon by the Materiel Center and Higgins Industries, Inc., prior to preparation of a formal contract. It is desired that the S-K Schedule for the 1200 Model C-62 airplanes (proposed) be adhered to as closely as possible, with delivery of the first airplane within six months.

The spare parts called for in paragraph 2 above shall be delivered in accordance with the following:

A portion of the total quantity of each item of airplane spares listed on the Spare Parts Exhibit will be delivered prior to or concurrently with and in proportion to the quantity of airplanes delivered in each month. Where a fractional portion of more than one half a part is involved in this arrangement, a complete part shall be delivered.

4. A clause shall be included in the contract requiring that the C-76HI airplane be identical in all respects to the C-76CU airplane, and that this similarity be maintained throughout the contract. This shall be accomplished by supplying the Higgins Industries, Inc., with a complete set of engineering data and all subsequent revisions and changes thereto.

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TELETYPE MESSAGE

DATE:

FROM

ATTENTION:

LAND (APPROX. 2000 ACRES)	$ 0
LAND IMPROVEMENTS	2,870,000
BUILDINGS & BUILDING INSTALLATIONS	24,950,000
[illegible] IMPROVEMENTS	2,680,000
MACHINERY & EQUIPMENT	6,370,000
LABORATORY & TESTING EQUIPMENT, FURNITURE & FIXTURES	[illegible]
TOTAL	[illegible]

3

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TELETYPE MESSAGE

CONFIDENTIAL

DATE:

FROM Ind. Plan. Sec.

ATTENTION:

[redacted] WOOMBY CARGO AIRPLANES WILL BE [redacted]

[redacted] THE FACILITIES INCLUDED IN THIS PROPOSAL WILL BE ERECTED [redacted] AND WILL REQUIRE A COMPLETE PLANT FOR THE PRODUCTION OF [redacted].

[redacted] IT IS REQUIRED THAT THE FLOOR AREA OF ALL BUILDINGS WILL BE IN EXCESS [redacted].

[redacted] STANDARD PLANT CONFORMATION LEASE AGREEMENT, PLAN IV.

[redacted] LABOR FIGURES ARE NOT AVAILABLE AT THIS TIME AND WILL BE FURNISHED LATER.

[redacted] ADEQUATE TRANSPORTATION FACILITIES ARE AVAILABLE. AIRPLANES WILL [redacted] FOR RAW-MATERIAL DELIVERY AND TRANSPORTATION NEEDS ONLY BEING IN EXCESS [redacted].

[redacted] THE CAPACITY OF THE PROPOSED FACILITIES WILL BE 96 C-76 AIRPLANES PER [redacted] WITH AN ESTIMATED YEARLY SALES VALUE OF $[redacted].

[redacted] UTILITY REQUIREMENTS ARE NOT AVAILABLE AT

[redacted] (SEE SHEET 3)

3

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[redacted]

TELETYPE MESSAGE

CONFIDENTIAL DATE:

[redacted] FROM

ATTENTION: [redacted] DIVISION

[redacted] THIS TIME AND ARRIVES WILL BE SUBMITTED AT A LATER DATE.

[redacted] TYPES OF BUILDINGS ARE NOT KNOWN BUT THE USE OF CRITICAL MATERIALS WILL BE HELD TO A MINIMUM.

THE TOTAL OVERALL PROJECT WILL BE APPROXIMATELY $90,000,000 WHICH IS THE AMOUNT SET UP BY MR. DONALD NELSON; EVERYTHING ELSE IS PRELIMINARY. ASIDE FROM BUILDINGS ON THE SITE, THE PROJECT IS TO CONSIST OF:

AN AIRCRAFT PLANT

A PLASTIC PLANT

A PARTS PLANT AND MANUFACTURING LABORATORY (THIS ITEM WAS CO-ORDINATED WITH MR. NELSON BY MR. HIGGINS - DETAILS ARE ALSO TO BE WORKED OUT LATER BY ARE GOING).

THERE ARE TO BE 3 NEW RUNWAYS: [redacted] FEET LONG EACH, ONE 10,000 FEET LONG, ALL TO BE 150 FEET WIDE, OF CONCRETE, GOVERNMENT STANDARD SPECIFICATIONS.

[redacted] UNDER MENTIONED GOODS ABOVE, LAND SHOWN AT HERO AS THIS OFFICE UNDERSTANDS THAT LAND AND ANY REMAINING BUILDINGS AND EXISTING LAND IMPROVEMENTS WILL BE DEEDED TO THE [redacted] PLANT CORPORATION BY THE MARITIME COMMISSION FOR A NOMINAL SUM.

-3- (SEE SHEET 4)

4

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MDAC-S-WF-S-S-42-500M

TELETYPE MESSAGE

CONFIDENTIAL DATE:

IMSC 111907 FROM

ATTENTION: RESOURCES DIVISION

THE DESIGNING, ENGINEERING AND CONSTRUCTION OF ALL BUILDINGS IS TO BE DONE BY THE HIGGINS AIRCRAFT, INCORPORATED, AS LESSEE - AGENT FOR DEFENSE PLANT CORPORATION, AND WILL NOT INVOLVE ANY OTHER GOVERNMENT AGENCIES.

EVERYTHING POSSIBLE SHOULD BE DONE TO EFFECT THE TRANSFER OF THE PRESENT LAND, LAND IMPROVEMENTS, BUILDINGS, MACHINERY AND EQUIPMENT, PILING, AND STOCKS OF ALL KINDS NOW ON OR OFF SITE, TO THE AIR CORPS OR DPC AT THE EARLIEST PRACTICABLE MOMENT, AS IT IS UNDERSTOOD THAT SOME OF THE BUILDINGS ARE BEING TORN DOWN AND MATERIALS NEEDED FOR THE COMPLETION OF THIS PROJECT ARE BEING REMOVED.

WHATEVER ARRANGEMENTS ARE MADE FOR THE DEFENSE PLANT CORPORATION LEASE AGREEMENT, SUGGEST THAT A REPRESENTATIVE OF THE DEFENSE PLANT CORPORATION BE SENT TO THE SITE IN ADVANCE OF THE EXECUTION OF THE LEASE AGREEMENT IN ORDER TO PROTECT THE INTEREST OF THE FUTURE DEVELOPMENT UNDER THE AAF SPONSORSHIP. THIS OFFICE ALSO PREPARED TO SEND OFFICER REPRESENTATIVE FOR THE SAME PURPOSE AS SOON AS LEGAL ARRANGEMENTS HAVE BEEN MADE IF DESIRED.

RECOMMENDATIONS: BECAUSE OF THE URGENCY OF THIS PROJECT IT IS RECOMMENDED THAT

-4- (SEE SHEET 5)

5

[redacted]

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MDAC-5-WP-5-5-42-500M

CONFIDENTIAL

TELETYPE MESSAGE

INDT 111907

DATE:

FROM

ATTENTION: RESOURCES DIVISION

DEFENSE PLANT CORPORATION LEASE AGREEMENT BE NEGOTIATED AND CONSUMMATED [redacted] IN TOTAL AMOUNT OF $30,000,000 IN ORDER THAT EXISTING FACILITIES ON THE SITE [redacted] BE TAKEN OVER AT ONCE AND DISMANTLING OPERATIONS HALTED. ABOVE RECOMMENDATION MADE ONLY FOR PURPOSE OF SETTING UP FUNDS, CONSUMMATING LEASE AGREEMENT AND PERMITTING TAKING OF EXISTING FACILITIES. FURTHER RECOMMENDED THAT NEW COMMITMENTS UNDER DEFENSE PLANT CORPORATION LEASE BE NOT ALLOWED UNTIL APPENDIX "A" IS AVAILABLE.

INDUSTRIAL PLANNING SECTION

-5-

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CONFIDENTIAL

November 3, 194-.

MEMORANDUM FOR - Mr. Donald M. Nelson,
Chairman, War Production Board.

SUBJECT: Facilities for Higgins project in New Orleans.

1. This office is in process of negotiating with Mr. Andrew Jackson Higgins of New Orleans for the construction of 1,000 C-7b (second) transport airplanes of the Curtiss design, to be produced at the rate of 100 per month. These airplanes are on the S-2 program as now approved.

2. In connection negotiations at Wright Field for the facilities incident to the manufacture of these airplanes, Mr. Higgins has requested facilities for a parts plant and manufacturing laboratory. The total project, including the parts plant and manufacturing laboratory, involves 2,000,000 square feet of floor space at an overall cost of $35,000,000. This is considerably more facility than we are required for the manufacture of 100 C-7b airplanes a month.

3. Mr. Higgins has informed the Air Corps that [illegible] stated that the total over-all project [illegible] approximately $30,000,000 was the amount set up by [illegible] that the parts plant and manufacturing laboratory have been definitely [illegible] by Mr. Nelson.

4. It is agreed to initiate negotiations to settle on this project. However, in the procedure it will be necessary to justify it before Congress with higher authority. It is, accordingly, requested if you can furnish me your comments in regard to this project.

[illegible]

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INTER-OFFICE MEMORANDUM

ARMY AIR FORCES
HEADQUARTERS OF THE MATERIEL COMMAND
WASHINGTON

CONFIDENTIAL November 10, 1942

5

TO: Major General O. P. Echols,
Commanding General, AAF Materiel Command

SUBJECT: Higgins Aircraft Company, Inc.,
New Orleans, La.

1. With respect to the attached proposal of Higgins Aircraft, Inc., for the production of 96 C-76 airplanes per month, plus 20 percent spares, the cost of this project appears to be excessive.

2. The actual cost of obtaining capacity for production of 100-C-76 airplanes per month based on the Curtiss-Wright, Louisville, Ky., project is as follows:

Facility	Floor Area	Cost
Curtiss Assembly Plant	1,054,000	$11,531,000
Mengel Co.; fuselage subassemblies	250,000	1,845,000
Haskelite Corp.; wing panels, tail surfaces, &"duramold" plywood for this project and Fairchild trainers	284,000	2,706,000
	1,588,000	16,082,000

3. On the basis of adding the 20% spares for the Higgins project and not deducting for the Fairchild trainer production included in the Haskelite project, a liberal estimate would be reached by adding 15% to the overall Curtiss project to attain a production of 120 equivalent C-76 airplanes per month. This would result in figures of 1,827,000 sq. ft. of floor space at a total cost of $18,500,000 for a project similar to the proposed Higgins production. This would include an integrated aircraft plant and plastic plant, and should fall within a $20,000,000 cost figure.

4. The details of the parts plant and manufacturing laboratory are not known to this office, but in any event the $20,000,000 figure should cover all that is needed for the production of 120 equivalent C-76 airplanes per month, using temporary type wood and concrete construction.

5. The matter of providing a suitable airport also exists. The land improvements of $1,870,000 mentioned in the attached telstype certainly do not cover the cost of constructing a 3-runway airport with concrete runways up to 10,000 ft. long by 150 ft. wide. This would cost, if constructed as proposed, from four to five million dollars. It is the opinion of this

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Original
Higgins-285
PD-4 (2 pg)
MMD

office that three 5,000 ft. runways could be constructed for $2,500,000 to $3,000,000 and would adequately serve the purpose. The cost of airport development however would have to be added to the cost of the project, making a limit of $23,000,000 as a fair figure.

Frederick M. Hopkins, Jr.,
Brig. General, U. S. A.
Asst. Chief of Staff (R)

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NOV 11 1942

MEMORANDUM FOR ADMIRAL H. L. VICKERY, COMMISSIONER,
United States Maritime Commission

Subject - Transfer of Higgins Shipyard Site,
New Orleans, Louisiana.

1. The Army Air Forces has been negotiating with Mr. Andrew Jackson Higgins of New Orleans, Louisiana, for the construction of 1200 Curtiss Wright C-76 (wooden) transport airplanes to be produced at the rate of approximately 100 per month.

2. It is my understanding that approval of the Chairman, War Production Board has been obtained to use the facilities and shipyard site of the Higgins Corporation, New Orleans, Louisiana, for this aircraft production, and that the Maritime Commission is willing to transfer its interests to the proper agency.

3. Negotiations are under way to finance the above project through Defense Plant Corporation. It is therefore requested that the shipyard facilities and site be made available to the Army Air Forces and arrangements be made for transfer of these to Defense Plant Corporation.

[illegible] ARMY DEPT. WASH., D.C.
[illegible] ARMY AIR FORCES
[illegible] NOV 11

O. P. [illegible],
Major General, U.S.A.,
Commanding General.

[illegible] OFFICE
[illegible]

Out by Special Messenger

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WA 459 MATERIEL COMMAND HAAF WASHN D C NOVEMBER 1942 131714 Z LG

INDUSTRIAL PLANNING SECTION

ATTN - FACILITIES BRANCH

EXTRA PRIORITY

F-TWX-306...JCV.....RE TELETYPE IPS-TWX-111907/JRM/ DATED NOVEMBER 2, 1942, CONCERNING IPS PROJECT 381A, IGXXX HIGGINS AIRCRAFT, INC., YOU ARE ADVISED THAT GENERAL ECHOLS HAS ORDERED THIS PROJECT TO BE RENEGOTIATED ON THE BASIS OF A PRODUCTION OF 100 C-76 AIRPLANES PER MONTH, WHICH WILL APPROXIMATE THE CURTISS WRIGHT LOUISVILLE EXPANSION WHICH, INCLUDING THE MENGEL COMPANY AND HASKELITE SUBCONTRACTORS, WILL BE USED AS A GUIDE. GENERAL ECHOLS HAS STATED THAT THE OVERALL COST SHOULD NOT EXCEED $20,000,000. THE CURTISS PROJECT, INCLUDING MENGEL AND HASKELITE TOTALS $15,082,000.

SUBSEQUENT INFORMATION MADE AVAILABLE IN THIS OFFICE INDICATES THAT THE SITE PROPOSED TO BE USED FOR THIS PROJECT IS SWANXXX SWAMPY TERRAIN AND WILL REQUIRE APPROXIMATELY $2,000,0000 ADDITIONAL HYDRAULIC FILL. THE BUILDINGS WILL HAVE TO BE CONSTRUCTED ON PILING, WHICH WILL INCREASE THE COST OF CONTRUCTIONS AT LEAST $1XXX $2,000,000 OVER AND OXXX ABOVE ORDINARY CONSTRUCTION. THE CONSTRUCTION OF AN AIRPORT WILL COST ANOTHER 3 OR 4 MILLION DOLLARS FOR A THREE RUNWAY AIRPORT WITH 5,000 FOOT RUNWAYS. BECAUSE OF THE TRIANGULAR SHAPE OF THE POSXXX PROPOSED SITE IT IS DOUBTED WHETHER THREE RUNWAYS CAN BE CONSTRUCTED. THE NATURE OF THE SITE MAY LIMIT CONSTRUCTION TO TWO RUNWAYS, NEITHER OF WHICH WOULD BE IN THE DIRECTION OF THE PREVAILING WIND.

IN VIEW OF THE ABOVE, COLONEL JOUETT AND MR. HIGGINS OF SUBXXX SUBJECT COMPANY HAVE BEEN REQUESTED TO EXPLORE THE POSSIBILITIES OF CONSTRUC

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THIS PLANT ADJACENT TO ALVIN COLLENDER FIELD. A C.A.A. FIELD FIVE MILES SOUTH OF NEW ORLEANS NOW BEING DEVELOPED AND EXPECTED TO BE COMPLETED IN FOUR MONTHS, OR SOME OTHER EXISTING AIRPORT.

IT IS RECOMENDED THAT AN OFFICER BE IMMEDIATELY SENT TO NEW ORLEANS TO CONTACT COL. JOUETT OR MR. HIGI XXX HIGGINS WITH RESPECT TO THIS MATTER AND THAT OFFICER MAKE A TELETYPE OR TELEPHONE REPORT TO THIS OFFICE WEIGHING THE RELATIVE ADVANTAGES OF THE TWO SITES. IN MAKING THIS REPORT A STATEMENT SHOULD BE MADE AS TO THE NECESSITY AND EXTENT OF FILL OR PILINGS THAT WOULD BE REQUIRED IF CONSTRUCTION WAS TO BE ADJACENT TO ALVIN COLLENDER FIELD. A STATEMENT OF ACCESSIBILITY TO UTILITIES AND TRANSPORTATION IS ALSO DESIRED.

COL. JOIXXX JOUETT IS TO LEAVE WASHINGTON FOR NEW ORLEANS TODAY AND WILL PRESUMABLY INSPECT THE SITES SATURDAY OR SUNDAY. HE IS TO MAKE A TELEPHONE REPORT TO THIS OFFICE RELATIVE TO THE COMPANY,S INVESTIGATION ON MONDAY.

RESOURCES DIVISION

END PLS ACK 1

RE CD 1 OKDY78 MTP

Col Powers

Rec'd 11-3-41

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CONFIDENTIAL

NOV 14 1942 PLANNING EXECUTIVE RECEIVED

WA 439 MATERIEL COMMAND WAAF WASHN D C NOVEMBER 1942 132210 Z LG

INDUSTRAIL PLANNING SECTION

maj. Bowling

ATTN - FACILITIES BRANH

F-TWX-312...JCV.....WITH REFRENCE TO TELETYPE F-TWX-306 DATED 11-13-42 CONCERNING IPS PROJECT 381 A, (HIGGINS AIRCRAFT, INC.) YOU ARE ADVISED THAT PARTS PLANT AND MANUFACTURING LABORATORY AS PROPOSED BY MR. HIGGINS IS NOT TO BE INCLUDED IN THIS PROJECT WHEN IT IS RENEGOTIATED IN VIEW OF EXTENSIVE FACILITIES PREVIOUSLY USED FOR ORDNANCEWORK THAT ARE NOW BEING OFFERED FOR AIRPLANE COMPONENT MANUFACTURE, ETC.

THE PROJECT WILL BE RENEGOTIATED BASE ONLY ON FACILITIES REQUIRED FOR THE MANUFACTURE OF C-76 AIRPLANES AT THE RATE OF 100 PER MONTH.

RESOURCES DIVISION

Col Rawlings

11-14

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For Br File

CONFIDENTIAL

Ref: 3F9:jb:90-1-3
Steele High Building
~~EXCLUSIVE~~
November 14, 1942

Chief, Contract Section
Wright Field, Dayton, Ohio
Attention: Aircraft Branch
Mr. J. C. Seekamp

Facilities Required to Manufacture
C-76 Airplanes at Rate of 80
Per Month Plus 20% Spares

1. Reference is made to your request telephoned to this office November 13 requesting information to answer certain questions embodied in I-OK from Col. T. A. Sims' office dated November 7, 1942, regarding above subject. This office has no information regarding activity of California Shipbuilding Corporation regarding C-76 Airplanes and the facilities proposal of Higgins Industries, Inc., is at present being completely restudied and re-negotiated.

2. The information below is obtained from an analysis of the Curtiss-Wright program for production of C-76 Airplanes at Louisville, Kentucky. As noted from the columns below, Curtiss-Wright and its three major subcontractors are included.

	Curtiss-Wright	Kensel Company	Universal Molded Products	Baldwin Company	Total Combined Plants
a. Total money value of facilities	$11,531,[illegible]	$4,255,240	$1,677,272	$2,165,650	$19,737,520
(Covered Under Suppliers' Program - See a (3) below)					700,000
					$20,437,520

Of the $19,737,520 total figure above, attention is invited to the following:

(1) No airport or runway costs are included, since these facilities were provided by the City of Louisville.

Brown 11-14
Daniels 11-14
James 11-14

(2) The company-owned facilities contributing to the program represent about one-fourth of the total of $5,[illegible],000, the GFE-owned facilities being approximately three-fourths of the total of $14,719,000.

(3) In addition to the total cost figure given above, Curtiss-Wright anticipates furnishing capital facilities in amount of $600,000 to $700,000 to various minor subcontractors and suppliers under the Curtiss-Wright Suppliers' Program. Of this amount, about $150,000 has been allocated

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Chief, Contract Section
Wright Field, Dayton, Ohio
Attention: Aircraft Branch
Mr. J. C. Hennamp

Facilities (Cont'd)

to date to companies producing metal parts such as hydraulic actuating cylinders, landing gear parts, etc.

(4) Some existing building space was used in the Curtiss-Wright program and the new buildings constructed by Defense Plant Corporation were constructed less expensively than would be the case if this program were to be duplicated in the near future, using highly expedited three-shift construction.

		Curtiss-Wright	Mongol Company	Universal Molded Products	Baldwin Company	Total Combined Plants
b.	Value of Machinery & Equipment, Including Mach. Tools, Port. Tools, & Other Equip.	$2,822,874	$1,470,713	$ 693,632	$ 587,151	$5,574,375
c.	Floor Area: (Sq.Ft.)					
	Productive	886,900	552,[illegible]	206,020	383,503	2,028,661
	Non-Productive	186,800	100,172	47,[illegible]	60,351	[illegible]
	Total	1,073,700	658,[illegible]	253,[illegible]	443,854	2,[illegible]
d.	Employees Required for maximum production:					
	Productive	5,200	3,045	1,[illegible]	2,017	12,138
	Non-Productive	1,750	567	203	150	2,670
	Total	6,950	3,612	2,[illegible]	2,167	14,[illegible]

e. Present and contemplated contracts with Curtiss-Wright for C-76 Airplanes, as known to this office, are as follows: - Letter Contract 27035 dated March 7, 1942, for 200 C-76 Airplanes at a unit cost of $130,000. In addition, the 2-d Program indicates that it is contemplated to place an additional contract with Curtiss-Wright for 1,200 of these airplanes at a unit cost not known to this office.

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Higgins Building

November 11, 1942

Chief, Contract Section
Wright Field, Dayton, Ohio
Attention: Aircraft Branch
Mr. J. C. Lecamp

Facilities (Cont'd)

f. Contemplated delivery schedules: - In applying for the Government-financed facilities (on April 27, 1942) required for subject production, Curtiss-Wright stated that maximum production would be attained 450 days after project was approved, or in August 1943, upon assumption of approval of project in May 1942. The corporation did not furnish a schedule showing how deliveries would build up to the maximum. However, the S-2 Program does show such a schedule (see below) and the C-W schedule costs for reaching maximum production in August 1943:

			Calls
December 1942	2	April 1943	25
January 1943	4	May 1943	35
February 1943	8	June 1943	50
March 1943	15	July 1943	65
		August 1943	80

The above production figures from the S-2 Program are net, not including spares. In addition, subject company is to produce 20% spares so that maximum production will be the equivalent of a total production of 96 airplanes per month.

g. This office had prepared all of the information in paragraph 2 above for comparison purposes in connection with the Higgins Industries project. If your office or Col. Sims' office contemplates using the above information for that purpose, the following qualifications should be noted:

a. Building construction on a three-shift expedited basis will be more expensive; see paragraph 2 a (1) above.

b. Depending on the site chosen, the Higgins project may include a large or small sum for airport and runway facilities and any such sum will be entirely in addition to capital cost figures like those presented in paragraph 2 above.

c. Curtiss-Wright for [illegible] buying some parts from established parts suppliers, the manufacture [illegible] parts in plants, the capital cost of which is not included above. Also the Curtiss-Wright project does not include the capital costs of facilities required to slice the thin laminations

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Steele High Building
[illegible]

November 14, 1942

Chief, Contract Section
Wright Field, Dayton, Ohio
Attention: Aircraft Branch
Mr. J. C. Seadmap

Facilities (Cont'd)

of wood going to make up the plywood used. Therefore, if the Higgins project should include a parts plant, a complete plywood plant or any extensive plywood laboratory facilities, such capital costs would be in addition to the capital costs presented in paragraph 2 above.

F. H. Hawkins
Colonel, Air Corps
Chief, Industrial Planning Section

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(The following is a copy of the wire sent by Major J. L. Bowling from New Orleans, November 16, 1942, [illegible])

CONFIDENTIAL NOVEMBER 17, 1942

COMMISSION GENERAL MATERIEL DIVISION
ATTENTION RESOURCES DIVISION (WLPD Project)

REFERENCE P-GVE-506 JUV (HIGGINS ARMAMENT, INC., NEW ORLEANS, LOUISIANA, IPS PROJECT 181 A,
REQUEST [illegible] FOR PROJECT BASED ON [illegible] U. S. MARITIME SITE WHEN ALL MATERIALS AND
EQUIPMENT [illegible] VALUED AT $1,00, AND AFTER COMPLETE SURVEY OF THIS, DATA IS AS FOLLOWS:

ITEM A: PERMANENT FILLED - 3 RUNWAYS, EACH 150' WIDE BY 9500' LONG, FIRE TAXI-DRIVING AND APRONS, LIGHTING, DRAINAGE, FENCING, AND EMERGENCY FILL APPROXIMATELY $ 3,500,000.

ITEM B: SCHEDULE I - Land Improvements, Filling, Fencing, Lighting, Parking $ 1,000,000.

SCHEDULE II - Buildings 4,700,000 Square Feet, Plus Cafeteria, Architects and Engineering Fees and Contingencies TOTAL $11,000,000.

SCHEDULE III - Machinery and Equipment, Laboratory and Testing Equipment, Installation Charges, and Freight Charges $ 7,000,000.

SCHEDULE IV - Portable Tools and Miscellaneous Equipment $ 1,000,000.

10% OVERALL ON THE WHOLE PROJECT . . . . . $ 800,000.
$23,735,000.
GRAND TOTAL TO COMPLETE PROJECT. . . . . $25,700,000.

TRANSPORTATION FACILITIES MEET ALL REQUIREMENTS PROVIDED BY LOUISVILLE AND NASHVILLE RAILROAD FROM BUSINESS SECTION OF CITY TO PLANT, PLUS A FOUR-LANE HIGHWAY FOR BUS AND PRIVATE CARS TO PLANT.

MUNICIPAL UTILITIES AND TELEPHONES ON THIS PROPERTY - SEWERAGE - WATER, AND OTHER ITEMS PREVIOUSLY APPROVED BY MARITIME COMMISSION PROJECT WERE HELD IN ABEYANCE AND CAN BE PROMPTLY RESTORED IF COMPLETED AS A FEDERAL PROJECT.

LABOR AND HOUSING CONDITIONS ARE NOT CRITICAL AND MEET ALL REQUIREMENTS. THERE IS AN AMPLE RESERVOIR OF LOCAL LABOR AS 75% OF EMPLOYEES WILL BE WOMEN. NO CRITICAL HOUSING PROBLEM AT PRESENT IN NEW ORLEANS, NOR IS ONE ANTICIPATED.

PLANT SITE LOCATED 12 MILES FROM THE CITY AND CONSISTS OF APPROXIMATELY 1,200 ACRES, INCLUDING RIVER CANAL, THE LATTER BEING APPROXIMATELY 700' WIDE BY 40' IN DEPTH WHICH CONSTITUTES A NEW BRANCH TO THE INTER-COASTAL CANAL AND IS EITHER NECESSARY FOR [illegible]

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THE FIELD IS APPROXIMATELY 70% COMPLETED AND HAS BEEN BROUGHT TO AN ELEVATION 6' HIGHER THAN THE BUSINESS SECTION OF THE CITY OF NEW ORLEANS. THE EXISTING HYDRAULIC FILL HAS BEEN IN PLACE FOR SEVERAL MONTHS AND IS SOLID AND READY FOR IMMEDIATE USE. OVER 22,000 PILES HAVE BEEN DRILLED FOR BUILDINGS AND CAN BE UTILIZED. SUFFICIENT PILE NOW ON SITE TO COMPLETE ANY ADDITIONAL FOUNDATION WORK, IF NECESSARY.

RUNWAYS: THE AREA AND SHAPE OF PROPERTY WILL PERMIT ONE 11,000' RUNWAY IN DIRECTION OF PREVAILING WIND, WHICH WILL BE USABLE OVER A PERIOD OF SEVEN MONTHS OF THE YEAR WHICH IS BASED ON 71 YEARS OF RESEARCH BY U. S. WEATHER BUREAU; WHILE THE OTHER TWO RUNWAYS - 6600' AND 6400' - COULD BE CONSTRUCTED TO COVER DIRECTION OF OTHER WINDS FOR THE BALANCE OF THE YEAR. HOWEVER, 5500' RUNWAYS ARE PROVIDED IN THE ABOVE COSTS.

ALSO INSPECTED ALVIN CALLENDER FIELD LOCATED WEST BANK OF MISSISSIPPI RIVER BELOW NEW ORLEANS - ACCESSIBLE ONLY BY FERRIES AND TWO-LANE HIGHWAY, ELEVEN MILES, THROUGH CONGESTED TRAFFIC CONDITIONS - NO HOUSING FACILITIES - NO SEWERAGE, WATER, OR OTHER UTILITIES AVAILABLE. DISTANCE, BY WAY OF ONLY BRIDGE, 27 MILES FROM THE CITY TO FIELD. CALLENDER FIELD REQUIRES DRAINAGE AND NOW IS UN-USABLE IN RAINY WEATHER. FILL FOR BUILDINGS LOCATED THERE AND PILING WOULD BE REQUIRED. PROPERTY LOCATED IN BEND OF RIVER AND IS FREQUENTLY INACCESSIBLE ON ACCOUNT OF HEAVY FOG. CALLENDER IN PRESENT CONDITION NOT USABLE IN WET WEATHER AND PRESENT CONSTRUCTION NOT APPRECIABLE. THIS FIELD HIGHLY UNDESIRABLE AND IS INACCESSIBLE FOR THE DELIVERY OF RAW MATERIALS BY BARGE.

ALSO INSPECTED THE NEW MUNICIPAL FIELD NOW UNDER CONSTRUCTION AND WHICH IS LOCATED NORTH OF KENNER, LOUISIANA, LOCATED APPROXIMATELY 15 MILES FROM THE CITY OF NEW ORLEANS. THIS PROPERTY PRESENTLY BEING FILLED AND GRADED. THE SITE FOR STRUCTURES WOULD REQUIRE PILING AND FILLING FOR FOUNDATIONS OF BUILDINGS. SITE WILL ALSO REQUIRE DRAINAGE DITCHES AND PUMPING STATIONS TO ELIMINATE OVERFLOW OF WATER. THIS SITE ABOVE KENNER, AS WELL AS CALLENDER FIELD, BOTH UNSUITABLE FOR MANUFACTURING PURPOSES, AND THE FIELDS AND LOCATIONS LACK ALL UTILITIES, HOUSING, TRANSPORTATION, AND OTHER FACILITIES.

JESSE L. BOWLING
Major, Air Corps

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(JLB to br 11-17-42 12:30 P. M.)

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[redacted] AFHQ-7

[redacted] NOV 20 1942 [redacted]

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(Higgins Aircraft, Incorporated,
New Orleans, Louisiana
(IPS Project 38A-1)

The Under Secretary of War,
Attention: Chief, Special Legal and
Liaison Division
Attention: Lt. Col. Norman E. Tye
Room 3538 Munitions

1. Reference is made to memorandum for the Under Secretary of War dated November 16, 1942, recommending that negotiations be initiated looking toward the consummation of an agreement between the Defense Plant Corporation and the subject company, in the amount of $20,000,000. After further negotiations, it has been determined that the total cost of the project will be approximately $23,735,000. Data relative to the revised project is included in Telegram from the representative of the Industrial Planning Section dated November 14, 1942, copies of which are attached.

2. Therefore, it is recommended that the Defense Plant Corporation be consummated in the amount of $23,735,000, instead of $20,000,000, as previously requested.

For the Commanding General:

Frederick H. Hopkins, Jr.,
Brig. General, U. S. A.,
Asst. Chief of Staff (S)

Encl:
Cy Telegram fr WF
Representative; 11/14/42

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AAFMC-[illegible] 7-8-42-200M

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BR.

ARMY AIR FORCES
MATERIEL CENTER

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MEMORANDUM REPORT ON

SUBJECT: Higgins Aircraft, Inc., Micheaud, La. Airplane Factory and Flying Field IPS Project 381 A

Date November 25, 1942

SECTION Industrial Planning

SERIAL No. IPS F-25

Contract No.
Expenditure Order No.
Purchase Order No.

Pursuant to Wright Field Special Orders No. 295, Paragraph 51 dated Nov. 13, 1942

1. Purpose:

a. Instructions: On November 13, 1942, at 4:30 p. m., the Resources Division, Materiel Command, Washington, D. C., by teletype F-TWX-306 JCV, requested Chief, Facilities Branch, to send a project officer to New Orleans, Louisiana, to inspect and report on available sites for a new airplane plant and airfield; such plant facilities as may be provided to construct 100 C-76 wood cargo airplanes per month. Plant to be operated by Higgins Aircraft, Inc., as covered by letter of intent, issued by Contract Section, Wright Field, Dayton, Ohio. New facilities shall be covered by Lease Agreement between the Defense Plant Corporation and the subject corporation.

b. Background: IPS project 381 A was initiated by Chief, Army Air Forces and the Materiel Command, Washington, D. C. The Chief, Production Division, Wright Field, Dayton, Ohio, requested the Industrial Planning Section, Facilities Branch, to process the project to Resources Division, on November 2, 1942, by teletype INDT 111907 JRM, the total overall amount being $30,000,000, which is to be readjusted at a later date when additional data is available.

c. Inspection Sites: The undersigned project officer inspected four (4) sites and airfields in and near New Orleans, Louisiana, which shall be described separately as follows:

(1) Alvin Callender Field: Located 13 miles south of New Orleans on west bank of Mississippi River, near the village of Belle Chasse, Louisiana. To reach this field, a crossing of the Mississippi River by ferry is necessary and thence by two-lane highway. Traffic conditions are heavy. Field at present is in very poor condition and hardly usable. Some minor grading is being done. The field grade is approximately nine (9) feet lower than Mississippi River. Considerable hydraulic fill would be required in order to provide proper drainage, plus tanks and pumps to handle excess rainfall. Any new buildings would require wood piling for foundations, as well as concrete runways.

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Ground will have to be purchased for any new plant and facilities. No housing is available. Electric utilities, water, and sewerage are not available and would have to be installed. Transportation facilities would be very serious. The only other highway route available to reach this field would be via Huey P. Long bridge (free) and the distance is 27 miles from center of New Orleans. All locations for airfields south of Mississippi River not desirable for flying purposes due to continued heavy fogs in early morning hours and in the twilight hours of the day. This field is not desirable for Higgins Aircraft, Inc., plant facilities and airfield.

(2) New Orleans City Airport: Located within city limits, on Hayne Boulevard and Lake Pontchartrain; cost $12,000,000. This airfield and adjacent land can not be considered. It is being used by Army Air Forces, Bomber Command; quarters for enlisted personnel, officers, shops, etc., have already been constructed and are in use, being a part of the Coastal Defense System.

(3) New City Airport: Located 15 miles west of New Orleans at Kenner, Louisiana, on U. S. highway 61-51 and north side of Mississippi River. Field location very low at grade. Extensive construction work now under way by Brooklyn, New York, contractor, such as grading, filling, and drainage canals. No runways of any kind are in use. All buildings that may be constructed on this field will have to be on piling. Railroad spur could be provided and connected to main line of Illinois Central Railroad near field. No sewerage, water, or electric utilities are available as yet. No housing in Kenner, Louisiana, for plant employees for it is only a very small village. The day following my inspection of this site, it was taken over by U. S. Navy - Marine Corps Flying School. This location, therefore, can not be considered as a possible field for Higgins Aircraft, Inc., new plant.

(4) Micheaud Site or U. S. Maritime Shipyard: Located 11 miles east of New Orleans at Micheaud, Louisiana, on U. S. highway #90 and main line of L. & N. Ry. Site covers approximately 1200 acres, which includes water canals adjacent thereto. It has been filled and is six (6) feet above the Mississippi River level. Soil is solid and well packed and usable at once. The existing 29,000 36-feet piles, now in place can all be used to advantage. Concrete footings now in place can be used for new buildings. Electric utilities 13,800 KVA has been installed on property and usable. Federal and City work can complete sewerage system in short time. Steel water tanks and water supply are available. Transportation facilities are good from New Orleans. Local bus company has agreed to operate commercial busses to property. L. & N. Ry. will operate shuttle trains for 7-cent fare to plant and handle all employees. The barge canals can be used to advantage for bringing in logs for veneer mill, to be constructed as part of new plant facilities.

2. After giving due consideration to all factors, the Micheaud site is the most desirable for the Higgins Aircraft, Inc., new plant, facilities, and airfield. All construction work completed thereon can be utilized, which

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will enable production to be advanced approximately seven (7) months on C-76 cargo planes. Accordingly, the undersigned prepared Appendix "A" Summary sheet, indicating the probable costs, and forwarded by teletype to Resources Division, Materiel Command, Washington, D. C. on November 16, 1942, as follows:

"SUMMARY APPENDIX"

Flying Field: -

3 Runways 150' x 5500';	275,000 Sq. Yds.)	$2,400,000
Taxi Strips, Aprons, etc.,	50,000 Sq. Yds.)	
Lighting, Drainage, Fencing, and Hydraulic Fill		475,000
Hanger, Testing, & Adjustment Shop & Control Tower		650,000
Engineering Fee		140,000
Miscellaneous and Unforeseen		35,000
	Total Cost	$3,700,000

Plant Facilities: -

Schedule I:	Land (U. S. Maritime Commission)	$ None
	Hydraulic Fill	550,000
	Fencing, Lighting and Parking	250,000
	1% Overall; Cost Settlements	200,000
		$1,000,000
Schedule II:	Buildings:	
	(a) 1,700,000 Sq. Ft. at $6.00	$10,200,000
	(b) Cafeteria and Equipment	300,000
	(c) Architect and Engineer	400,000
	(d) Contingencies	100,000
		$11,000,000
Schedule III	Machinery and Equipment:	
	(e) Machine Tools and Equipment	$5,960,000
	(f) Laboratory and Testing Equipment	700,000
	(g) Installation and Freight	60,000
	(h) Contingencies	280,000
		$7,000,000
Schedule IV:	Portable Tools and Equipment:	
	(i) Portable tools and Attachments	$ 650,000
	(j) Moving and handling Equipment	350,000
		$1,000,000
	Total Cost	$20,000,000
	Recapitulation Grand Total Cost	$23,700,000

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Memorandum Report No. IPS F-25
November 25, 1942
Higgins Aircraft, Inc.

3. Status of the Project: Existing hydraulic fill in place several months; it is solidified to such an extent that 80% of the site is ready for use and all building construction can be started at once. The airfield runways can be placed without delay; 3 runways, each 150 feet wide by 5500 feet long can be constructed without interfering with contemplated new buildings. The proposed N. E. - S. W. runway will be usable seven (7) months of the year due to direction of prevailing winds and the other two runways can be used the other five (5) months. The site is not a swamp as reports have indicated; in fact, the terrain is level, dry and usable without further fill. However, at each corner of the property, additional hydraulic fill will be needed to cover low areas of site; about 15 acres out of 1200 will have to be filled. In conclusion, by utilizing the Micheaud site, for Higgins Aircraft, Inc., it is believed that this project can be greatly accelerated by using all completed construction on the premises, for in so doing, the plant facilities can be made available at least seven (7) months ahead of schedule and production of planes can be stepped up on the same basis.

Distribution:
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Midwestern Procurement District - 1
Chief, Production Division, W. F. - 1
Chief, Production Engineering, W. F. - 1
Resources Division - 2
Defense Plant Corporation - 1
Facilities Branch - 3

Concurrence:

.....

.....

Distribution

Prepared by .....
(Name)
J. L. Bowling, Major, A. C.

Approved by .....
Homer Shawhan, Lt. Col., A. C.
Chief, Facilities Branch

Approved by .....
E. W. Rawlings, Col., A. C.
Chief, Industrial Planning Sec.

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File 285
DEC 3 1942
A
Duplicate 361
Entry already made

November 27, 1942

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MEMORANDUM OF APPROVAL - No. 1002

1. Under the provisions of the various acts appropriating funds for Expediting Production, as consolidated by the Fifth Supplemental National Defense Appropriation Act, 1942, approved March 5, 1942, (Public No. 474, 77th Congress), the following project which has been approved by the Facility Clearance Board, under the War Department Program for Expediting Production in connection with the existing National Defense Program is approved:

> New project for the expansion of facilities of the Higgins Aircraft, Incorporated at New Orleans, Louisiana, for the manufacture of C-76 Airplanes. The total estimated cost is $23,735,000, of which there is to be obligated at the present time, under the agreement between the War Department and the Defense Plant Corporation, not to exceed. . .$11,867,500

2. The construction involved in this project will be limited in scope to the minimum necessary to meet the essential needs and will not be of a more substantial type than that which is adequate to provide for the bare necessities.

By direction of the Secretary of War:

ROBERT P. PATTERSON,
Under Secretary of War.

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C. P. F. Form No. 3
Approved by The Assistant
Secretary of War, Aug. 14, 1940
(Revised)

Contract No. [illegible]
(3-5)

ARMS Preference: [illegible]

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Allocation Classification
System Symbols: USA

AFP:

Classification:

COST-PLUS-A-FIXED-FEE

SUPPLY CONTRACT

(Army Air Forces)

WAR DEPARTMENT

Contractor: [illegible]

Contract For: [illegible]

Estimated cost:

Fixed-Fee:

Payments to be made by The Finance Officer, U. S. Army, [illegible]

The supplies and services to be obtained by this instrument are authorized by, are for the purpose set forth in, and are chargeable to the following Procurement Authorities, the available balances of which are sufficient to cover the cost of the same.

[illegible] 139,668,000.00
[illegible] 27,732,000.00
167,400,000.00

Note: Formal Contract supersedes Letter Contract Special Form dated November 2, 1942.

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COST-PLUS-A-FIXED-FEE

SUPPLY CONTRACT

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THIS CONTRACT, entered into this 28th day of November, 1942, by THE UNITED STATES OF AMERICA, hereinafter called the Government, represented by the Contracting Officer executing this contract, and * HIGGINS AIRCRAFT, INC.

* a corporation organized and existing under the laws of the State of

* Louisiana

* a ~~partnership consisting of~~

*

*

*

* ~~an individual doing business~~

of the City of New Orleans

in the State of Louisiana

hereinafter called the Contractor, witnesseth that:

*Delete all lines which do not apply.

*This contract was negotiated under the authority of the First War Powers Act, 1941, and Executive Order No. 9001, December 27, 1941.

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Contract No. W 535 ac-34484

CONTRACTOR: HIGGINS AIRCRAFT, INCORPORATED

X

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X
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X

Approval Recommended
December 17, 1942

O. P. ECHOLS
[illegible] USA
[illegible] CENTRAL
MATERIEL COMMAND

Approved_____
By direction of the Secretary of War under the provisions of the First War Powers Act of 1941 and Executive Order No. 9001, dated December 27, 1941.

Albert J. Browning
Colonel, General Staff Corps
Special Representative of the
Under Secretary of War.

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AAF Material Center
Engels High Building, Dayton, Ohio

November 30, 1942 2:15 PM

(HIGGINS INDUSTRIES, INC.
901 CITY PARK AVENUE
NEW ORLEANS, LOUISIANA
ATTENTION MR. ANDREW J. HIGGINS

E. W. Spalding
Colonel, Air Corps

.....CAPT. ORVILLE W. BARNETT OF THIS OFFICE WILL ARRIVE DECEMBER 1, 1942 TO CONFER WITH DEFENSE PLANT CORPORATION ENGINEERS, MARITIME COMMISSION ENGINEERS, AND YOUR OFFICE RELATIVE TO THE RELEASE OF CERTAIN MATERIALS AND EQUIPMENT ONLY ON HOMEBASE SITE, IPS PROJECT NUMBER 361 A.

AT A CONFERENCE HELD IN THE OFFICE OF THE MARITIME COMMISSION IN WASHINGTON ON NOVEMBER 27 IT WAS DECIDED TO TRANSFER THE ENTIRE 1800 ACRES TO THE DEFENSE PLANT CORPORATION FOR 25 YEARS AT A RENTAL OF $1.00 PER YEAR, AND IN THE CONSUMMATION OF SUCH AN AGREEMENT THE UNDERSTANDING WAS REACHED THAT THE MARITIME COMMISSION WOULD HAVE THE PRIVILEGE OF REMOVING WOODEN PILES AND OTHER ITEMS OF EQUIPMENT NOW DESIRED FOR THE ARMY AIR FORCES. THE MEETING IN YOUR OFFICE OF ALL CONCERNED WILL DETERMINE THESE FACTS. CAPT. BARNETT WILL REPRESENT WRIGHT FIELD IN THE FINAL DECISION OF MATERIALS AND EQUIPMENT, AND HE HAS FULL INSTRUCTIONS TO COLLABORATE WITH THE DEFENSE PLANT CORPORATION ENGINEERS AND YOU RELATIVE TO THE DIVISION OF SUCH ITEMS AS MAYBE NEEDED BY THE ARMY AIR FORCES.

REFERENCE IMPS 1800 JHB. END.

PRODUCTION DIVISION, WRIGHT FIELD

DAY LETTER GOVERNMENT PAID

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306 Balter Building
New Orleans, La.

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December 2, 1942

Mr. A. A. Willcox
Regional Engineer
Defense Plant Corporation
811 Vermont Ave., N. W.
Washington, D. C.

Re: Higgins Aircraft, Inc.
Michaud Plant
New Orleans, La.

Plant Site Report

Dear Mr. Willcox:

This plant site consists of 1075.22 acres, situated 11 miles from the center of the City of New Orleans and approximately 5 miles from the fringe of the residential section, City of New Orleans. The land, as originally purchased by the Maritime Commission, was typical Louisiana swamp land, but up until about twenty years ago had been drained and was a thriving sugar plantation. All of it has been cleared and about 51% of it filled to grade by dredging operation. An additional 20% is partially filled. The original subsoil conditions, while varying a little in different parts of the plot, show from 6 to 8 feet of a light muck, then 8 to 10 feet of clay, under which will be from 15 to 20 feet of fairly good sand, below which is an undetermined thickness of stiff clay. In the dredging operations, the large amount of water seems to be washing off some of the top muck and when the land is filled to grade with a good sand, it leaves a fairly satisfactory lot. I am attaching a sheet showing the total cost paid for dredging up to the point of the cancellation of the Maritime contract. This shows the figure of 4,389,600 yds., at a cost of $514,119.12, or an average of about 11.8 per yd. The Chief Engineer of the Higgins Corporation states that he thinks there is approximately four and one-quarter million yards yet to be filled, and if that is so, it should be done for, not to exceed, the sum of $600,000.00. The original cost of the land was $100.00 an acre, to which should be added $1799.94 attorney's fee and $71,464.00 for clearing. This will bring the total cost of the land, plus clearing and filling to grade, to about $1,000.00 an acre. This figure is without drainage or other treatment that might be necessary.

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The land is located on the main line of the L & N Railroad and will be bounded on one side by a state highway and on the other side by the proposed addition to the intercoastal canal across the lower tip to Louisiana. It can now be reached by water from Bayou Bienvenue.

I am advised by the Public Service Company that they have available ample electric current to take care of any needs required, but on account of the location of the land it will be necessary to go into rather an expensive sewer and water connection project. I will be able to render you a more complete report on this when I secure some figures which Mr. Codet, of Barnard, Codet and Neft, is hurriedly preparing for me as a preliminary idea of costs.

The project is also about 5 miles from the fringe of the houses of the City of New Orleans and, in my opinion, it will be necessary at some time to plan on the construction of a housing project near the site, although it is my understanding that, at least, for the initial starting of manufacturing operations, the L & N Railroad will run a shuttle service ample to take care of the needs.

I have not been able to find where any easements or grants of any sort have been given that will affect the use of the site.

After a very hurried survey of the estimated needs of the proposed commitment for the Higgins Aircraft, Inc., I am of the opinion that we will have considerable space to spare on this site for the addition of future manufacturing buildings if needed.

Attached find a cost of facilities sheet given to me by the Higgins Corporation, as of October 31, showing the expenditure of the Maritime Commission's operation and really how little the net expenditures are in comparison to the newspaper accounts of the costs. I thought this might be of interest to you. With a little planning, I believe that we can make use of the greater share of the material installed at the same location where now installed.

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Attached find another sheet showing an abstract of some items on the inventory list. It is my suggestion that when our lease agreement is signed with the U. S. Army that you should clear the transfer to Defense Plant Corporation of the construction equipment, agreeing to furnish the use of it and all repairs while used on this project, but having had it transferred to our possession at this time so we will be able to move it after completion of construction of this project. I believe this meets with the approval of the Army Air Corps. The items I particularly refer to are the lighting plants, the buckets, passenger cars, draglines and the trucks; also welding machines. Attached find a map of Orleans and St. Bernard Parishes with a location of the site marked in red. Also, an aerial photograph of the site taken at the time the Maritime Commission's contract was cancelled.

Any additional information that I secure, I will transmit to you as soon as received.

Very truly yours,

GEORGE F. SHELLEY
Supervising Engineer

Attachments

Air Mail - Special Delivery

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December 4, 1942.

CONFIDENTIAL

Defense Plant Corporation
Attention: Mr G. F. Shelly
306 Balter Building
New Orleans.

Gentlemen:

In line with our conversation, we are submitting herewith plans of the property owned by the Canal and Lake Realty Co., Inc. whom we represent, which land we feel certain would make a most desirable site for the manufacturing of cargo planes by the Higgins Industries.

In this tract of land there are 366 acres. All Utilities are available in front of the land. The main railway line of the Southern Railroad System runs through the front portion of the land, as you will note from the map. We are also enclosing maps of the City of New Orleans marking off the land we are submitting and also showing the location and proximity of the Nash-Kelvinator Plant.

We can deliver this land for the price of $850.00 per acre, as a whole. Should it become necessary that you need more than 366 acres for your project, we can obtain an additional 378 acres in the rear of this land, running back to and fronting on the new Gentilly Highway #91. However, this land referred to is held for a much higher price than the land we are offering.

I will be glad to meet with you at any time to discuss this matter further and furnish you with any details which might be lacking in this submission.

I am obtaining the complete information of the ownership of the land bounded by the East bank of the Industrial Canal, Dommen Road, Gentilly Highway and the New Orleans Airport. As soon as I have maps and data on this land I will refer same to you.

Thanking you for your courtesy in entertaining our proposal, we remain,

Very truly yours,

LEO FELLMAN & CO.

By: G. M. Baccich

GMB/CG

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December 15, 1942
APE:vdm:90-3-34

NOTES ON: (Higgins Aircraft, Incorporated
New Orleans, Louisiana
PRS Project Number 381 A
(Telephone conversation between Colonel E. J. McGrew, OCE
and Captain Almus P. Evans)

1. Mr. Higgins sent request for steel to Mr. Watson, WPB, who referred it to General Echols. It was submitted to Facilities Division, WPB, which so far stands pat on timber. Colonel Vaughan was so notified by Colonel Textor and Mr. Searles and in turn has informed Mr. Higgins.

2. It is understood that Mr. Higgins is in Washington "with fire in his eye". More information may soon be available for Colonel McGrew understands that Bob Linton in charge of project for Albert Kahn is also in Washington. Progress on plans is held up pending final decision on steel.

APE

ALMUS P. EVANS
Captain, Air Corps
Chief, Structures Evaluation Sub-unit
Facilities Unit

12/15

Copy to:
Colonel Rawlings

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WAR PRODUCTION BOARD

WASHINGTON, D. C.

December 17, 1942

IN REPLY REFER TO

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Major Gen. O. P. Echols
Materiel Command
4121 Munitions Building
Washington, D. C.

Dear General:

On my recent trip through the South, I visited the Higgins layout at New Orleans, and while I will report to you in greater detail thereon in the course of the next few days at your convenience, you might like to have this thought to add to your many considerations in connection with this project.

The Higgins war work and experience is essentially on small motor torpedo boats using gasoline engines of almost aircraft type, with installations of instruments, pipe fittings and all the various other details very much along aircraft lines, such as giving consideration to vibrations, light weight, etc. In addition, armament installation involves to a very great extent 50 calibre guns of aircraft type. While tolerances and finishes are not up to aircraft standards, the fact remains that as far as shipbuilders are concerned, the Higgins Company is at the present time doing the kind of work that is nearer aircraft work than any other of the many shipbuilding yards I have visited.

In addition to that, I had occasion to meet many of the personnel and find that Mr. Frank Higgins, Jr. in particular is very experienced on aircraft, so that the general impression I got was that your contemplated construction of aircraft by the Higgins Industry, Inc. could be counted on as being successful, showed excellent judgment on your part, and was worthy of being expedited to the utmost in order to get their resources added to the present aircraft picture.

In addition, I visited the ex-Nash-Kelvinator plant--now Consolidated Aircraft--and was not at all impressed with the good construction of the factory or even of its layout, although my visit was a very brief one. The layout is considerably cut up due to many columns and the construction has appeared to take considerably longer than steel roof trusses would have taken.

In the case of Higgins, if the whole project is sufficiently worthwhile to do anything on, it would seem to be sufficiently worthwhile

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to negotiate it to the utmost, as it was quite evident that whereas they could move quite a little of the Higgins factory using steel framing ready to start work in April, it would take well into September before the whole construction of the factory would be completed. Since the wood constructed factory used 4500 tons of steel and the steel construction about 12,000 tons of steel, and since the time element in the delivery of these carrying aircraft would appear more vital, even than how well they fly (providing they can at least give us some ability) it occurred to me on the ground that 8,000 tons additional [illegible] to me like the Higgins work was fully justified, as it is my belief that you will get better results out of this outfit than most people would anticipate off hand.

This is strictly confidential idea of reporting just for your own information.

Sometime next week when you have the time, I will be at your disposal to discuss this matter further if you wish me to.

With best regards.

Sincerely yours,

Grover Loening
Aircraft Consultant
War Production Board

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Memorandum of information secured from a review of soil boring and pile driving records at HIGGINS LIBERTY SHIPYARD PLANT.

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A casual review of numerous soil boring records at the Higgins Plant indicate the average elevation of the site is only slightly above sea level, with a layer of muck and humus averaging about 7 feet deep from the surface; soft blue clay from 7 feet to 18 feet; a mixture of sand and clay from 18 feet to 36 feet and stiff blue clay from 36 feet to 46 feet. These are average depths of a number of test borings over a considerable area. As a general rule borings were not taken deeper than 46 feet from the surface.

A brief examination of available pile driving records indicate that satisfactory bearing capacity was, in general, obtained, although there was evidence of irregular behavior of piles during driving operations. For instance several piles in one footing would require 28 blows per foot for the last 3 feet while adjacent piles would require only 5 blows per foot for the last 3 feet. This behavior is not unusual for pile driving in New Orleans and vicinity.

From information obtained the designed load was for 15 tons per pile. Also received information that as a rule driving was stopped when resistance reached as much as 50 blows per foot.

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Information obtained from a review of the well drillers log shows that drilling was carried down to a depth of 2,300 ft. The various strata encountered, after passing the top layer of humus, consists of soft blue clay, mixed sand and clay, shale, shells, mixed clay and shells, and hard shale at 1,700 feet. No record of soils was noted after 1,700 feet.

J D Lockwood

J. D. LOCKWOOD
Supervising Engineer.

Higgins Aircraft
381A

From the D.P.C. office
New Orleans
New Orleans 20
Dec. 28 1942

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January 1, 1943

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Higgins Aircraft, Inc.
Plant Site Michoaud, La.
PRS Project 381 A
Production Resources

PRS-F-29

Pursuant to Wright Field Special Orders
No. 327, Paragraph 10, dated Dec. 19, 1942

1. In compliance with aforesaid orders, Captain Travis G. Walsh proceeded to New Orleans, Louisiana on December 21, 1942, on temporary duty to assist with factors pertaining to the preparation of an Appendix "A" for subject project and conferences pertaining thereto.

2. On December 23, 1942, Captain Walsh conferred on the telephone with Mr. Morris Gottesman, Secretary-Treasurer of the Higgins Aircraft, Inc. at their City Park office and was informed that Colonel Jouett had not returned from the eastern conferences relative to the question of steel vs. timber framing, a question still pending.

3. Mr. Joseph J. Dugas conducted Captain Walsh to the office of the Michoaud Plant site where informal discussion took place with Mr. R. L. Atkinson, Chief, Facilities Engineer, Higgins Aircraft, Inc. regarding the proposed fresh water supply and sewerage disposal facilities. Officials of Higgins Aircraft, Inc. reported that the development of a machine tool list had been retarded due to the lack of any detailed drawings from the Curtiss-Wright Corporation which are required for processing. Mr. Frank Higgins indicated that points and photostats of the aforesaid data had been reported as forwarded from Curtiss-Wright but had not yet been received.

4. Following brief conferences at the City Park office of Higgins Industries, Inc., Captain Walsh conferred with Mr. George F. Shelley, local supervising engineer for the Defense Plant Corporation at his Nash-Kelvinator (Consolidated Aircraft) office.

5. On December 24, 1942, Captain Walsh resumed his conference with Mr. Shelley which in the main involved matters pertaining to water supply and sewerage disposal.

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6. A trial cost analysis based on areas and estimates as they related to Schedules II(a) and II(b) of the Appendix "A" developed by Captain Walsh from limited information available at the time indicated that unit building-ing costs appeared moderate as compared with similar projects. The architects having developed preliminary drawings and data in New Orleans had returned to their Detroit office, therefore certain details pertaining to areas of boiler house, office and engineering spaces, etc. were lacking.

7. On December 26, 1942, a conference requested by Mr. Andrew J. Higgins, Sr., was held in the City Park office of the Higgins Industries, Inc. attended by the following individuals:

Mr. Andrew J. Higgins, Sr.	Higgins Aircraft, Inc.
Mr. Frank O. Higgins	" " "
Mr. Joseph J. Dugas	" " "
Mr. George F. Shelley	Defense Plant Corporation
Capt. Travis G. Walsh, A.C.	Army Air Forces, Wright Field

a. Mr. A. J. Higgins, Sr. reviewed progress to date with particular reference to discussions with the War Production Board at their New York office, regarding the use of steel framing for the proposed new Micheaud plant of Higgins Aircraft, Inc. He reported that the question of steel framing was still pending and that the discussions would be resumed on Monday in the office of the War Production Board at New York with the architects' representative, Mr. R. E. Linton attending the meeting.

b. Mr. Shelley described the proposed water services to be obtained with the use of certain F. W. A. funds available for the purpose. The proposed service, according to information furnished by F. W. A. Regional Director Sloan, would provide 2,500,000 gallons daily and it was agreed that this represented the most effective water supply for the project.

c. Captain Walsh recommended a confirmation by telephone from Mr. R. F. Sloan, Jr., Regional Engineer of F. W. A. at Dallas, Texas, regarding the availability of $317,000.00 in F. W. A. funds to be used toward the water service requirements. A telephone conversation between Messrs. Shelley and Sloan took place during the meeting, indicating that the fund was still available, which fact Mr. Sloan agreed to confirm by telegram on Monday.

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8. On December 28, 1942, Captain Walsh met with Mr. George F. Shelley in the D. P. C. office at the Nash-Kelvinator (Consolidated Aircraft) plant for a general review of the various conditions in connection with the Higgins Aircraft, Inc. project.

9. A visit was made to the Micheaud site where boring test charts were examined and the question of water service again reviewed with Mr. R. L. Atkinson.

10. Returning to the D. P. C. office a long distance telephone conversation with Mr. H. E. Linton, the architects' representative attending a W. P. B. meeting in New York revealed that steel framing had been approved for the project with the exception of purlins which are to be specified as wood. Mr. Linton reported that a preliminary PD-200 for critical materials had been drafted and was being forwarded.

11. During the conference a telegram was received from F. W. A. Regional Engineer Sloan confirming the fact that $298,200.00 was available in F. W. A. funds for constructing a water main to the Micheaud plant remaining from a total appropriation of $317,000.00.

12. Sewerage disposal will be developed on the basis of independent facilities on the project site, with the effluent discharged into the Bayou Micheaud, which improvement is estimated to cost approximately $200,000.00.

13. The New Orleans Public Service, Inc. will assume any additional electric power that may become necessary.

14. The question of humidity control involving a possible expenditure of $1,500,000 remains unsettled, subject to further investigation.

15. Due to the delay of drawings from Curtiss-Wright for the C-76 previously reported, it was agreed that the Appendix "A" would be submitted with allowances established for Schedules III and IV, and that the subject

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corporation would assemble the machine tools lists progressively, forwarding the partial lists with estimated costs and the required delivery dates as they are developed.

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Ditto Sheets for Further Distribution:
PRS Executive Office (2)
Midwestern Procurement District
Chief, Production Division, W. F.
Resources Division (2)
Defense Plant Corporation
DPC Supvr. Engr. at Higgins Aircraft, Inc.
Facilities Branch (3)
Lt. Col. Moriarty, Chief, Ind. Res. Branch
Acting Chief, Facilities Unit (5)

T. G. Walsh, Capt. A.C.
Prepared by T. G. Walsh, Capt. A. C.

Approved by Jesse L. Bowling, Maj., A. C.
Acting Chief, Facilities Unit

Approved by G. H. Moriarty, Lt.Col., A. C.
Chief, Ind. Resources Branch

Approved by E. W. Rawlings, Col., A. C.
Chief, Production Res. Section

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WAR DEPARTMENT
OFFICE OF THE CHIEF OF ENGINEERS
WASHINGTON

WASHINGTON, D. C.

REFER TO FILE NO.

SPEED

CONFIDENTIAL January 7, 1943

Higgins Aircraft Corporation,

New Orleans, Louisiana.

Attention: Mr. A. J. Higgins, President.

Subject: Higgins Aircraft Corp., New Orleans, La.
Planner 1569

Dear Sirs:

In accordance with your request for Mr. Nadigan's approval, as called for by the Defense Plant Corporation, Engineering Section, Circular No. 97, the proposed designs and plans have been reviewed and it is understood that the modified principles of design will be adopted as set out in Section 4 of the Design Control Report, dated December 23, 1942, attached herewith.

A copy of the Army and Navy Munitions Board directive on critical materials, dated June 29, 1942, is inclosed.

If and when a lease agreement with Defense Plant Corporation is executed, this letter may be considered the approval required by Defense Plant Corporation, Engineering Section, Circular No. 97.

For Mr. M. J. Madigan, Special Assistant to the Under Secretary of War:

Very truly yours,

EDWARD J. MeHAEN, JR.,
Lt. Col., Corps of Engineers,
Chief, Defense Plant Section.

Inclosures:
Design Control Report
ANMB Directive

cc:
A. E. Drager DPC (2)
Albert Kahn, Assoc.
Gen. F. C. Hopkins
Maj. J. L. Bowling (2)
Mr. C. C. Van Vechten
Maj. H. M. Boynton

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DESIGN CONTROL REPORT

HIGGINS AIRCRAFT CORP.
New Orleans, Louisiana.

PLANDOC 1569

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December 23, 1942.

1. GENERAL

a. Conference was held in the offices of Higgins Industries, Inc. and at proposed plant site in New Orleans, Louisiana, December 9, 10 and 11, 1942.

b. The Sponsoring Service is Army Air Forces.

c. The Lessee is Higgins Aircraft Corp., New Orleans, Louisiana.

d. The Architect-Engineers are Albert Kahn Associates, Detroit, Michigan.

e. The prime Contractor has not been selected.

f. The following persons were present at the conference:

A. J. Higgins, President, Higgins Industries, Inc.
Frank O. Higgins, Plant Mgr., " " "
Col. J. H. Jouett, Vice-President, Higgins Aircraft Corp.
J. J. Magne - Higgins Industries, Inc.
R. L. Atkinson - " " "
M. P. Chotzy - " " "
O. A. Allsard - " " "
Mr. George Mecheen - Albert Kahn Associates
Mr. Hasselmeier - " " "
Robert Linton - " " "
Mr. F. A. Fairbrother - " " "
Mr. J. Matte - " " "
Mr. J. Soulsom - " " "
Mr. F. Pohe - " " "
Mr. V. Wagner - " " "
Mr. H. D. Oliver - Raymond Concrete Pile Co.
Mr. L. G. Finley - " " " "
Mr. O. E. Symms, Regional Mgr., Carrier Corp.
Mr. C. A. Miller, Engineer, Carrier Corp.
Major B. F. Fawcett, C.E., Office of the Chief of Engineers, Defense Plant Section, New War Department Building, 21st and Virginia Ave., N.W., Room 5252, Telephone Republic 6700, Extensions 77762, 76165.
Lt. Col. E. J. McCrew, Chief, Defense Plant Section.

2. PRODUCT TO BE MANUFACTURED

a. The product to be manufactured is Cargo Aircraft.

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b. The special requirements necessary in manufacturing affecting structure is the fire hazard presented by the plywood cargo airplanes during manufacture and assembly; humidification or dehumidification because of the special wood plane to be manufactured and the fire hazard present in the glueing, painting and dope departments.

3. PRESENT STATUS OF PROJECT

Plans are in the very preliminary stage awaiting results of this conference and determination of the many conditions at and adjacent to the site. Contracts for construction have not been placed although most of the piling for the main structure has been driven for a previous project that was cancelled. General fill of the site was about eighty per cent done on this same cancelled project but work has again been commenced on it by the lessee in anticipation of lease arrangements with the Defense Plant Corporation. This fill is being placed hydraulically with dredgings from adjacent seaways. Provided negotiations can be completed, work will start about January 1, 1943 and be completed about June 1, 1943.

4. MODIFIED DESIGN AGREED UPON

a. Due to the very preliminary stages of design, leaving a number of details subject to information not yet obtained, this report is not complete. Subsequent reviews at the proper time will cover such designs and details not reported herein.

The proposed site is located on 1200 acres of land which formed part of the old Richmond Plantation. The plot is approximately triangular in shape bordered on the northeast by the old U. S. Highway 90 forming the hypotenuse and on the east and southeast by the recently dredged Vickery Seaway constructed for the original Shipbuilding Project by the Maritime Commission to provide access to the sea. This property is approximately 8 miles east from the center of the city and is within the city limits.

The structures except for a few auxiliary buildings will be located near the north of the property and borders on the highway. The main line of the L & N Railroad cuts across the north corner of the site in an east and west direction from which point a siding is to be brought to the rear of the main building. Two airplane runways are proposed 4500' and 7000' in length respectively. The short runway will be laid in a northwesterly direction with the longer runway crossing it at approximately right angles and near the center of the plot. Proper clearances of structures for these runways will be observed.

Adjacent to the highway about 2000 feet west of the proposed new plant, there are two existing wood structures that will probably be used as personnel and storage buildings.

As previously stated the original site is being filled hydraulically with dredgings from the Vickery Seaway raising the ground grade on average of 3½ feet above the water table. Soil conditions are bad and all

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structures except light wooden buildings must be carried on piling. It has also been previously stated that a number of wood pilings were driven to carry the proposed structures for the shipbuilding project now abandoned. The main structure for the present project will therefore be located in such a manner as to use as many of these piles now in place as possible.

Because of the existence of the old U. S. Highway 90 which is in excellent condition, no additional roadway to the plant site is necessary although driveways within the plant property will be required. Sufficient railroad rails are on the site to build the sidings described above, provided they will be turned over to the Defense Plant Corporation by the Maritime Commission when transfer of properties is made. Because of the necessity of constructing a long pipe line to supply natural gas involving a prohibitive amount of critical materials, and because of the relatively small amount of gas required, propane gas delivered to the site in tank cars will be employed, subject to final approval of the War Production Board. Acetylene gas will be generated at the plant. At the present time it is reported that the FWA is preparing to furnish the funds for and construct a 16" water line a distance of approximately 21,000', with booster stations, to supply sanitary and boiler feed water. Wells may be required on the site to supply water required for dehumidification equipment. Partial treatment of sewage will be necessary before the effluent is emptied into the Pickory Bayou. The surface drainage has not been determined at present although the small differential of 2½ feet between the ground level and canal presents a serious engineering problem. At present it is planned that a primary overhead electrical feed line carrying 110 KV will be constructed by the local utility company a distance of approximately 1½ miles to five substations located on the roof of the Manufacturing Building.

There is sufficient room for future expansion of the plant northeast of the proposed main structure.

The following structures or facilities to be described in detail in this report or in subsequent reports are as follows: Main Manufacturing Building, Office and Engineering Building, Hangar Building, Boiler House, Lumber Kiln, Acetylene Generating, Veneer Building, Substations, Guardhouses, and Airplane Hangar.

Manufacturing Building

This is the main structure of the project and may be described as a rectangular shaped building 1165' wide by 1095' long facing on the highway and approximately 2500' back. The size of this building as described will be subject to change by subsection at Wright Field and provisions of the Appendix "A" not yet completed. Across the entire front and between the Manufacturing Building and highway will be the two story office and Engineering Buildings. The rear wall of the Engineering Building and front wall of the Manufacturing Building are the same. Elevations and details of the offices and Engineering Buildings will be given later on in the report. The main structure will be one story about 30' high with wooden roof construction throughout at a height of 20' to bottom chords. Column spacings will vary in length but over approximately

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two-thirds of the area and to the rear of the building intended for subassembly, the bays will be 40' by 105', and in the plane assembly area 125' by 105'. At the end of the subassembly area a mezzanine of approximately 140,000 square feet will be built for small machining processes.

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Untreated wood piles either have been or will be driven for support of all columns. Piling will have reinforced concrete caps. It will probably be necessary to drive piling for some heavy machines. No basement areas are contemplated.

The main floor on filled ground will be plain concrete except under heavy jig areas where 6" x 6" - 10/10 wire mesh reinforcing is necessary. Main floor finish will be troweled concrete. The exterior walls will be wood studding between columns covered on the outside with wood sheathing, waterproof paper and asbestos-cement shingles or sheets, resting on a brick wall of such height (not to exceed 8') that it can be carried on unreinforced concrete spandrels. Studding on interior will be left bare. These walls will have no windows except in possibly a few places where they will be built of wood. All columns, beams, girders, trusses, bracing, ties and struts for the roof will be structural steel. Roof deck may be 2" wood plank or gypsum plank if available without priority for replacement of metal edge. Purlins will be wood. Roofing will be 3 ply built up type flashed with nonmetallic materials. No skylights or monitors are required. Mezzanine will be built of reinforced concrete. Interior partitions for tool rooms and the like will be of wood studding and either covered with sheathing or poultry wire. Partitions forming painting, glazing and dope departments may be of nonmetallic fireproof construction if desired. Doors throughout shall be wood with wood frames except those between main Manufacturing Building and glue and dope shops; between Manufacturing Building and Engineering Offices and between Manufacturing Building and Lumber Kiln. Here the doors and frames may be black iron clad with wood cores. Hangar doors at final assembly may have steel reinforcing with nonmetallic sheathing. Expansion joints in the building will be nonmetallic.

A monorail system over subassembly and main assembly areas is planned. Chutes from mezzanine to main floor will be wood. Not more than three elevators from main floor to mezzanine for material handling may be installed if considered absolutely essential. Industrial trucks will be used at dry kilns only. It is possible that subfloor conveyer chains will be required in main assembly bays.

Finish hardware throughout shall comply with the [illegible] Builders' Hardware Manual with the additional proviso that no door closers are to be used except at fireproof doors and all locks are to be the plain bit key rim locks either mortise or surface type. Trench and pit covers will be wood. No steel jamb guards, platform edgings, curb edging, safety treads or wheel guards will be used.

Handrailing for stairs and elsewhere will be wood. Stairs may be wood. Ladders will be wood and thresholds if required will be wood or concrete.

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Because of insufficient data, report of electrical layout will be made later except that transformers may be mounted on roof with structural steel supports. High bay combination incandescent and mercury fixtures to operate at 220 volts designed to provide 35 foot candles at working plane has daylight may be used in machine areas.

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Fire protection must depend upon that installed at the plant since the nearest city hydrant is 4½ miles distant. The entire factory area is to be sprinklered either by the open head deluge system embodying rate-of-rise control or the regular wet pipe system. In addition to this the plant is to be looped with a fire line for outside hydrants and sprinkler feed. There will also be provided some hose lines inside the factory taken off sprinkler risers. All hose accessories and reels shall be of ferrous materials. Fire lines shall be asbestos cement, provided deliveries will be satisfactory, otherwise standard weight cast iron may be used.

The ventilation system because of the blackout type building will be forced air with duct work of noncombustible materials. Dehumidification will be necessary in the Plywood Sealer department. References to this system will be made in subsequent reports when more definite data can be determined with reference to requirements.

Heating for the Office and Engineering Building will be required but none will be needed for the Manufacturing Building. Mill toilets will have vitreous china fixtures, loop vented with cast iron or transite pipe, vitrified clay or concrete pipe inside and outside. Due to the small differential between ground level and outfall, further study is to be given to the proper method of taking care of the roof and exterior surface drainage. This will be covered in a later report. Hot and cold water piping will be black iron. Underground piping outside of building will be transite, if available, otherwise it will be cast iron.

As previously stated, the site is bounded on two sides by the county; therefore, fencing will be needed only along the boundary bordering the highway. This fence may be of wood or 6' high chain link fence weighing not more than .33 lbs. per sq. ft., mounted on wood posts and having three strands of barbed wire at the top attached to wood supports. Walkways are to be plain concrete. Driveways will be crushed shells or plain concrete. Parking area shall be crushed shell properly rolled, covered with 3" plain concrete. The railroad sidings previously described will be approximately 10,000' in length, and as heretofore stated, there is sufficient material on the job, which if procured from the Maritime Commission, will obviate the necessity of additional purchases. However, if this is not accomplished, used rail must be procured not to exceed 80 lbs. per yard.

Process steam will be needed in the subassembly area that is to be brought from the boiler house in black iron pipe and insulated with sponge felt or magnesia block. Compressed air, acetylene, oxygen, and propane gas for manufacturing will also be carried in black iron pipes. All valves 2" and over will be iron bodied, and under 2" to the extent that they can be procured. Tanks for fuel oil will be used steel.

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M.M. + D.

Water tanks will be surface type either of wood or plain concrete. Used steel tanks must be procured for the storage of gasoline.

As previously stated, the Manufacturing Building will have no windows; therefore no provisions will be made for blackout.

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Office and Engineering Buildings

These structures will be located at the front of the plant as previously described and between the main Manufacturing Building and the highway. These structures were originally laid out to be two stories high, 1155' long and 50' and 60' wide respectively for office and engineering with a space between of 40' and interconnected with hallways.

The sizes as described will be subject to change by authorities at Wright Field and provisions of the Appendix "A" not yet completed. Exact details have not been determined.

These buildings will rest on a plain concrete slab to act as a "floating" foundation. Exterior walls will be common brick with a common wall forming the rear of the engineering and front of the manufacturing building, solid common brick carried the entire length of the front wall of the manufacturing building and returning one bay on either side to act as a fire wall.

The first floor of these buildings will be plain concrete with wood columns supporting the wood second floor and wood roof. Partitions and ceilings will be wood stud covered with wall board. Exterior walls will be painted masonry. Concrete floors may be covered with asphalt tile. The second floor of wood can either be finished flooring or low grade pine floor covered with asphalt tile. The roof will be the 3 ply built up type with noncombustible flashing. There will be some fireproof vaults for blue prints and valuable records, which will be built of brick with reinforced concrete floor and roof. All doors except at these vaults will be wood. Vault doors may be automatic. All trim throughout shall be plain and simple with multiple number types avoided wherever possible.

Provisions for hardware will be the same as noted for the Manufacturing Building except that pin tumbler locks may be used in offices where considered necessary for protection of valuable records.

All windows throughout shall be wood. Stairs from the first to second floor may be fireproof and have fireproof enclosures protected with blank iron clad doorways and door closers. Miscellaneous handrail, stairways, ladders, and thresholds shall be wood.

Electrical work will be covered by a subsequent report but it will be with open wiring. Lighting may be fluorescent in Engineering departments and incandescent in offices with 40 foot candles provided in the former and 25 foot candles in the latter as working plane.

These buildings will not be sprinklered. Standpipe and hose will be provided, connected to the exterior fire mains. All heat, ventilation,

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and hose racks will be of ferrous materials.

Because of the distance from the boiler house to supply steam for manufacturing purposes, a separate boiler will be provided for heat with hot air distribution. Oil will be used for fuel. Boiler stack will be of masonry. The heating system will be designed on the basis of providing 70 degree heat at a minimum outside temperature of 20 degrees.

The same provisions for plumbing as mentioned for the Manufacturing Building will prevail except that interior sanitary drains may be standard weight cast iron.

The general features of design for these structures will be simple with only the minimum conveniences provided for proper functioning.

Other Structures

As stated earlier in this report, other structures in connection with this project as enumerated, will be covered by subsequent reports when more complete information as to requirements and conditions permit their design features to be determined. The Hangar Building must be detached from the main Manufacturing Building by not less than 100' and is to have the same general type of construction as the Manufacturing Building.

c. Approved exceptions to prohibited list - Structural steel.

d. Design features requiring further study:
Dehumidification and reinforcing for airplane runways.
As stated earlier in this report, other structures in connection with this project as enumerated, will be covered by subsequent reports when more complete information as to requirements and conditions permit their design features to be determined.

With reference to the Manufacturing Building and report made on the electrical requirements for the Office and Engineering Buildings, further study is to be given the electrical requirements and heating distribution system.

5. [redacted]

It is considered that no appreciable change in cost has been made by the above design modifications.

B. F. PARROTT,
Major, Corps of Engineers,
Defense Plant Section.

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January 4, 1943

APPENDIX "A"
DEFENSE PLANT CORPORATION
EMERGENCY FACILITIES
HIGGINS AIRCRAFT, INCORPORATED
NEW ORLEANS, LOUISIANA

CONFIDENTIAL

NATURE OF FACILITIES:

The proposed facility consists of a one story structural steel frame Manufacturing Building with an overall length of 1883' 0" and width of 1095' 0" involving an area of approximately 1,855,900 sq. ft., which includes a reinforced concrete mezzanine floor of 184,000 sq. ft. and an outside loading dock. In addition to the above, the following buildings are included: (1) A two story Office Building of exterior masonry walls and mill construction floor and roof involving 85,950 sq. ft.. (2) A two story Engineering Building of similar construction to the Office Building involving 115,500 sq. ft.. (3) A Flight Hangar of similar construction to the Manufacturing Building of 83,000 sq. ft. in area. (4) A Dry Kiln Building joining the Manufacturing Building of timber construction with an area of 48,000 sq. ft.. (5) An Oxygen and Acetylene Manufacturing Building of masonry and timber construction, with an area of 2800 sq. ft.. (6) A Repair Hangar of Masonry and timber construction, with an area of 16,720 sq. ft.. (7) A group of four timber structures for a veneer plant consisting of a Saw Mill, Vertical and Circular Veneer Slicing Mill and a small Boiler House.. (8) A Boiler House for the Main Plant of masonry and reinforced concrete construction with an area of 12,500 sq. ft. (9) Three small timber Guard House structures.

LOCATION:

The project to be located on a site bordered on the Northwest Boundary by Gentilly Highway and on the East and South Boundaries by the Admiral Land Basin and the Vicksry Seaway, respectively, all within the limits of the City of New Orleans, Louisiana.

FOR THE PRODUCTION OF:

The proposed facilities are being provided for the production of C-76 plastic plywood cargo planes at a contemplated rate of 100 planes per month.

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January 4, 1943

DEFENSE PLANT CORPORATION
EMERGENCY FACILITIES
HIGGINS AIRCRAFT, INCORPORATED
NEW ORLEANS, LOUISIANA

Schedule I - LAND AND LAND IMPROVEMENTS
(Depreciation Rate - None)

	Rental per year	$
(a) Land		1.
(b) Land Improvements		825,000.00
Total		$ 825,000.00

Schedule II - BUILDINGS, ETC.
(Depreciation Rate - 5%)

(a) Buildings	7,549,960.00
(b) Building Installation (not mechanical)	5,234,975.00
(c) Leasehold Improvements	2,582,687.00
(c-1) Off Leasehold Improvements	220,000.00
(d) Service Coats	635,000.00
Total	$16,222,625.00

Schedule III - MACHINERY, EQUIPMENT, ETC.
(Depreciation Rate - 12%)

(a) Machinery and Equipment	$ 3,765,175.00
(b) Building Installation (mechanical)	825,000.00
(c) Laboratory and Testing Equipment	220,000.00
(d) Furniture & Fixtures	1,206,700.00
Total	$ 6,004,875.00

Schedule IV - PORTABLE TOOLS AND AUTOMOTIVE EQUIPMENT
(Depreciation Rate - 25%)

(a) Portable Tools	440,000.00
(b) Automotive Equipment	82,600.00
Total	$ 522,600.00

GRAND TOTAL.....$25,735,000.00

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January 4, 1942

APPENDIX "A"
DEFENSE PLANT CORPORATION
EMERGENCY FACILITIES
RIGGINS AIRCRAFT, INCORPORATED
NEW ORLEANS, LOUISIANA

SUPPLEMENTARY SUMMARY
ALLOCATING COSTS APPLICABLE TO THE
"AIRPORT FACILITIES"

Schedule I(b)	Land Improvements	$ 825,000.00
	Total Schedule I	$ 825,000.00
Schedule II(a)	Buildings (Flight Hangar)	$ 388,685.00
Schedule II(b)	Building Installations (Not Mech.) Flight Hangar	99,055.00
Schedule II(b)	Air Field Lighting	165,000.00
Schedule II(c)	1. Leasehold Improvements (Runways, etc.)) 5. Leasehold Improvements (Fencing) 9. Leasehold Improvements (Drainage)	2,074,875.00
Schedule II(c-1)	Off-Leasehold Improvements (Incoming Service)	11,000.00
Schedule II(d)	Architect's Fee and Service Costs	75,000.00
	Total Schedule II	$2,813,615.00
	Grand Total	$3,638,615.00

Note: Each of the above figures includes 10% contingencies except Schedule II(d) to which no contingencies are applicable.

JAN 14 1943
APPROVED
INDUSTRIAL PLANNING SECTION
MATERIEL DIVISION
AIR CORPS, U. S. ARMY

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LEO FELLMAN 1903 - 1934

STANLEY M. LEMARIE
W. HERMAN SPRICH
MRS. LEO FELLMAN

LEO FELLMAN & CO.
REAL ESTATE
820 UNION STREET
NEW ORLEANS

MAGNOLIA 3904

January 5, 1943.

CONFIDENTIAL

Col. E. W. Rawlings,
Chief, Production Resources Section,
Wright Field,
Dayton, Ohio.

Dear Col. Rawlings:

We are enclosing herewith copies of two letters in which we submitted sites which we thought would be desirable for the location of a factory building for the construction of cargo planes by the Higgins Industries.

In making this submission, we took into consideration, the accessibility of these sites, and the housing conditions, in comparison to the site much further out at Michaud, which does not have these advantages.

As you will note from the City map which we are enclosing the Nash Kelvinator - Consolidated site is only a few hundred feet distant from one of the sites we have offered. They purchased this site from the Levee Board through condemnation proceedings for the price of $425,842.25. The site comprises 46 acres. The land we are offering is priced at less than one-tenth of that cost.

If you should be interested in going into these submissions, we will be glad to furnish you with any other details upon request.

Very truly yours,

LEO FELLMAN & CO.

By: G. M. Baccich
G. M. Baccich

GMB/e

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INTER-OFFICE MEMORANDUM

WAR DEPARTMENT, AIR CORPS
Office, Assistant Chief
Materiel Division

CONFIDENTIAL

WPM/TEB/rg 90-3-1

Wright Field, Dayton, Ohio
Steele High Bldg.
Date January 7, 1943

TO: Chief - Facilities Unit
Industrial Resources Branch, PRS
Steele High Building, Dayton, Ohio

SUBJECT: Higgins Aircraft, Inc.
New Orleans, Louisiana
(PRS Project No. 361-A)

1. Reference is made to I.D.C. dated January 5, 1943, relative to subject company's request for government financed facilities amounting to $23,735,000.00.

2. This company has been selected by highest authority to produce 100 C-76 plastic plywood cargo airplanes per month, and is starting from the ground up to arrange for this production, which necessitates the erection of an entirely new plant for the purpose.

3. This project has been coordinated with Colonel R. W. Propst, Production Division, who expresses approval of this project.

4. In view of the above stated facts, this office recommends favorable consideration of subject company's proposal.

W. P. MUTHER
Major, Air Corps
Act'g Chief, Industrial Capacity Unit

Incl. ret.

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Ref: CWB:jeh:90-3-3-1

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January 8, 1943

SUBJECT: Higgins Aircraft, Incorporated
New Orleans, Louisiana
PRS Project 361 A

TO: Lee Pellman & Company
329 Union Street
New Orleans, Louisiana
Attention: Mr. G. M. Bacich

1. Your letter of January 5, 1943, is hereby acknowledged. Your interest in the subject project is appreciated by this office, however the requirement of the airport in connection with the project has made the presently selected Michaud site, already owned by the Government, a most desirable site so far as the Government is concerned.

For the Chief of Production Division:

R. W. RAWLINGS
Colonel, Air Corps
Chief, Production Resources Section

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Facilities

DEFENSE PLANT CORPORATION
306 Balter Building
New Orleans, La.

CONFIDENTIAL

January 14, 1943

Colonel Jesse L. Bowling, Acting Chief
Facilities Unit, Industrial Resources Branch
Production Resources Section Material Center
Steele High Building
Dayton, Ohio

Re: Plancor No. 1569
Higgins Aircraft, Inc.

Dear Colonel Bowling:

I have been informed that we should change the title from Major to Colonel and I want to congratulate you on your promotion.

Yesterday the DPC approved the Appendix "A" and also the Contractor's contract on this project and work has started. We approved some purchase orders and commitment, amongst which is the one for the steel, Bethlehem Steel being the low bidder.

Considerable discussion has already started about the possible drainage system to be installed in the airfield part of the site and if you have any information that will help us out or any officer who is familiar with southern airport drainage problems, I will be glad to have him come to the site or send me what information he has.

In connection with the airport project, I am contacting F. J. Schnitzer, District Engineer, Civil Aeronautics Administration, so that he can give me any information that he has on local conditions.

On account of the hurriedly drawn Appendix "A" that we are operating under, there will be quite a few things turning up during the early part of the construction program that will require changes or additions. If it is practicable for you to have some of your organization on the site with some authority to act on these problems, I believe it will be desirable.

FOR VICTORY BUY UNITED STATES WAR SAVINGS BONDS AND STAMPS

Very truly yours,

George F. Shelley

GEORGE F. SHELLEY
Supervising Engineer

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January 20, 1943

MEMORANDUM

Re: Higgins Aircraft, Incorporated
Airplane Manufacturing Plant
New Orleans, La.
Plancor No. 1569

CONFIDENTIAL

At a meeting held in New Orleans on January 13th, 1943, the following tentative dates were established concerning certain phases of the construction program :

MAIN MANUFACTURING BUILDING

Description of Work	Completion Date
Start pile driving along south side of Building for mezzanine floor	Jan. 22, 1943
Start immediately thereafter erection of reinforced concrete mezzanine floor and complete this work by	March 9, 1943
Start shipment of structural steel	March 9, 1943
Start erection of structural steel	March 16, 1943
Complete erection of structural steel, Sections 1, 2, and 3	April 10, 1943
Complete erection of structural steel	May 24, 1943
Complete roof deck and enclosing walls over mezzanine from south wall of building to column row 13 by	April 24, 1943
Complete roof deck, ground floor and enclosing walls of building for entire structure by	June 24, 1943

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Memorandum January 20, 1943

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OFFICE BUILDING

Description of Work	Completion Date
Complete two story office building by	April 17, 1943

(S) R. K. Linton

1931
RKL:RS

CC: Messrs. Frank O. Higgins, S. L. Atkinson, G. K. Horr (10), Mr. L.G. Finlay (2), L.F.H. Perry (2), Bethlehem Steel Company (Mr. Hiese, Mr. Johnson, Mr. Martin), Oliver (2), Supt. Mow.

CC: Messrs. Louis Kahn, Lewis, Fairbrother, Potz, Matte, O. Freuthun, Boomhower, Wagner, Halliday, Saulson, Sloman, T. Anderson.

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INTER-OFFICE MEMORANDUM

ARMY AIR FORCES
MATERIEL CENTER
Office of The Commanding General

DB:tvh:56
Wright Field, Dayton, Ohio
Date February 24, 1943

CONFIDENTIAL

TO: Chief, Production Resources Section, Production Division, Steele High Building, Dayton, Ohio

SUBJECT: Control of Moisture Content During Fabrication of Wood Aircraft Parts in the New Orleans Area

1. In a conversation with Mr. B. Eschenbachel of the Construction Division of the War Production Board on February 12, 1943, he requested that this office submit to him through your office comments on the problems involved in the control of moisture content of wood aircraft parts in fabricating plants located in the New Orleans area.

2. Conforming to that request, the following comments are offered on the subject of control of moisture content during fabrication of wood aircraft parts:

a. It is considered a general principle of wood aircraft construction that stresses on glue joints, warping tendencies and misfit of parts will be reduced to a minimum and the overall serviceableness of the product improved if the wood parts are fabricated at a moisture content equal to the equilibrium moisture content that the product will reach in service. Since the usual service condition is not constant, this ideal cannot be completely realized and the average moisture content in service must be taken as the most desirable moisture content for fabrication. In aircraft the average moisture content of wood parts varies over a range and that range depends in part on the location where the airplane is placed in service. For a considerable portion of the continental area of the United States, the range of moisture content under service conditions is approximately from 8 to 12 percent and consequently many of the specifications for wood parts and for the fabrication thereof contain the provision that the moisture content shall be between 8 and 12 percent. It is recognized that in certain parts of the United States these average conditions may not prevail and for these areas, as well as for extremes that might be encountered in other countries, the moisture contents required by current specifications are not the best that could be selected. It is also recognized that if the area and conditions of service of any wood aircraft could be accurately known and limited, the moisture content requirements could be more closely defined.

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The wood parts of a plane to be stationed in Arizona, for example, would then be fabricated at comparatively low moisture contents and for planes to be stationed near the Gulf Coast the wood parts would be comparatively high at the time of fabrication. Since the area of service of an airplane cannot at present be predicted accurately, the range in moisture content of from 8 to 12 percent as established by current specification is considered a generally desirable range. It is pointed out that this control of moisture content is related primarily to the serviceableness of the aircraft rather than to requirements imposed by woodworking glues.

b. From an operating standpoint, the degree of control of moisture content of wood parts during fabrication means, first, a careful seasoning of the lumber. In the fabricating plant, it means humidifying devices to increase the relative humidity in the work- and storage-rooms particularly during that part of the year when artificial heat is necessary to provide for the comfort of the workers. Over a greater part of the continental area, dehumidification is unnecessary because the equilibrium moisture content of wood in a closed building seldom exceeds 12 percent, the upper limit provided by current specifications.

c. In a few areas in the United States, as in New Orleans for example, climatic conditions may be such that the equilibrium moisture content of wood in the interior of closed buildings may exceed 12 percent during certain periods of the year. Records are available indicating that the average moisture content of wood in dwellings in New Orleans varies from approximately 11.5 to 13.5 percent (Fig. 3, page 5, U. S. Department of Agriculture Circular No. 239, entitled "Moisture Content of Wood in Dwellings). The range varied with the type of house and the location within the dwellings with an average range from 12 to 13 percent in the living areas (Figures 5 and 6, U. S. Department of Agriculture Circular 239). Accurate comparisons are not available but it seems probable that the average conditions in a factory in the New Orleans area would resemble those in the living area of a dwelling. From these data, therefore, it would be expected that wood parts in a factory lacking apparatus for the control of relative humidity would reach moisture contents somewhere between 10.5 and 14 percent.

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Chief, Production Resources Section
"Control of Moisture Content During Fabrication of
Wood Aircraft Parts in the New Orleans Area"
February 24, 1943

d. To maintain wood parts within the specified limits of 8 to 12 percent in the fabrication of aircraft in the New Orleans area, therefore, would appear to require the moisture content slightly below the normal equilibrium range. It is to be pointed out that this does not imply the necessity for complete dehumidification of an entire factory. Relative humidity can be decreased by an increase in temperature as well as by a decrease in absolute humidity. If the decrease in relative humidity required is only slight, only a moderate increase in temperature, of course, is necessary. Further, while it might prove impractical to increase the temperature sufficiently throughout the entire working area, the principle can be applied in storage rooms where the bulk of lumber and wood parts can be stored when not in actual fabrication.

J. B. [illegible]SON,
Chief, Materials Laboratory,
Engineering Division.

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433 - 3rd Street, N.W.
Room 101
March 29, 1943 LBr-17

CONFIDENTIAL

MEMORANDUM

TO: Charles E. Wilson, Executive Vice Chairman
Social Security Building

FROM: Mathias N. Nieuwenhaus, Deputy Director
Lumber and Lumber Products Division

SUBJECT: HIGGINS AIRCRAFT COMPANY
New Orleans, Louisiana

During the past few weeks considerable quantities of machinery and equipment have been requested by the above concern for the manufacture of the C-76 cargo planes. Higgins Aircraft has a contract to build 1200 of these cargo carrying planes with a maximum production of approximately one hundred ships per month. Several conferences have been held to determine what justification could be made for the issuance of the necessary priorities to obtain the requested equipment.

The major portion of these PD-4A applications covered equipment necessary for the actual fabrication and production of the component parts of these planes. Due to the fact that a definite shortage exists on such facilities, all of the applications requested to date have been approved.

However, certain requests were made for sizeable quantities of equipment and machinery necessary for the production of veneer and plywood. After screening these requests with the plywood and veneer section, the General Industrial Equipment Branch, and after consultation with the Scheduling Unit at Dayton, all of these requests were denied. The reasons for denial can be summed up as follows:

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1. Aircraft plywood is now being manufactured by a number of qualified manufacturers under humidity control and the plywood thus manufactured can be carefully packed in a moisture resistant package and would be received by Higgins in the proper condition for used aircraft manufacture in the Higgins Industries plant at New Orleans, Louisiana. The Higgins Industries plant would necessarily have to be air-conditioned and humidity controlled in order to properly manufacture wood aircraft parts and completed planes. Therefore, when the plywood is received in proper condition in New Orleans the Higgins Industries plant would be properly conditioned and the moisture content of the plywood would be maintained in the same condition as received.

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2. The present facilities for the manufacture of aircraft plywood are more than ample to take care of Higgins' requirements. At the present time the Scheduling Unit at Wright Field has reported that two million square feet per month of plywood in additional business can be placed. Furthermore, three plants have found it necessary to convert their facilities to commercial plywood due to the fact that they do not have sufficient aircraft orders to keep them busy.

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3. Two of the three largest manufacturers and three most experienced manufacturers of aircraft plywood have purchased equipment for the manufacture of large plywood panels and this equipment is now in the stage of being fabricated today. The Roddis Company's new large press will be in operation approximately April 15. The large press of the Crescent Panel Co., Louisville, Kentucky will be in operation approximately June 1. The plywood and veneer section and the Aircraft Scheduling Unit concurred in establishing priorities for this equipment as it was felt that these large presses would be essential for the cargo program. Each of these presses have a capacity to produce the monthly aircraft requirements of Higgins Aircraft. Higgins Aircraft requirements for plywood and veneer are approximately 4,229,000 sq. ft. for 1943 and will reach between one and one-half million sq. ft. and a maximum of two million sq. ft. per month when peak production is reached. At the present time their 1943 requirements could be picked up in two months from the available facilities in the industry without including Crescent Panel Company and Roddis Company except where very large sheet areas are required. It must be noted also that both of these plants mentioned have been set up to handle the cargo program using their own funds.

4. It is not to the best interest of the war effort to tie up critical materials and the manhours which would be required by the manufacturer of the plywood and veneer equipment when more than ample facilities are available and where a guarantee of sufficient plywood, which will meet the aircraft specifications to fill Higgins entire program, can be made.

5. The Higgins Aircraft Company is not a manufacturer of aircraft plywood, and having no experience in this field, will find it necessary to secure skilled labor to handle this type of work. In spite of their claims that they do not intend to pirate labor, it is necessary for them to have experienced personnel handling the highly critical nature of their plywood and veneer requirements. It will either be necessary for them to secure this labor from existing plywood plants or it will be necessary for them to spend considerable time in training personnel. This will naturally result in a wastage of manhours and raw material in view of the fact that such facilities are available in other plants throughout the country.

6. An additional point must be raised on the criticism which would be leveled on the War Production Board by over thirty-five aircraft plywood and more than fifty veneer manufacturers who have expanded their facilities and trained their personnel at their own expense to meet a projected aircraft requirement that included the cargo plane classification. Due to the

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fact that the all or activity has been seriously curtailed with a decidedly detrimental effect to the plywood industry, such increasing of facilities as have been requested at this time would bring sharp criticism from many points.

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Col. Jewett, representing Higgins Aircraft, has advised that their real interest in these plywood facilities is to provide them with a means of controlling the production and quality of both plywood and veneer. It must be noted, however, that all aircraft plywood must meet certain specific specifications which are covered by AN-[illegible]-5lib, and this specification must hold true whether plywood is purchased by Higgins or manufactured through their own facilities. Therefore, it hardly seems to present any great effort from a production control standpoint.

CONCLUSION: The following alternatives are offered:

1. That Higgins Aircraft secure their plywood requirements on direct contract from two or more of the plywood manufacturers throughout the country.

2. That Higgins Aircraft contract for the full output of one of the largest plywood manufacturing concerns.

3. That Higgins Aircraft purchase outright the existing facilities of one of the larger plywood manufacturers and manufacture plywood and establish their required control over output from this source, such a plywood plant having one of the most modern equipment can be made available (according to the plywood and veneer section, this plant could be obtained through outright sale or through the requisition of facilities by the WPB if necessary, in view of the fact that they are not at the present time operating to full capacity nor are they being operated on an efficient basis. This point, of course, bears additional investigation.

Aircraft Plywood report of March 20, 1943 attached.

Approved by: _____
E. J. Fishbaugh, Chief
Aircraft Lumber Production Section

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ARMY AIR FORCES
HEADQUARTERS, MATERIEL COMMAND

INTER-DESK MEMORANDUM

File 215

TO: Brig. Gen. R. E. Harvey

SUBJECT: Higgins - Plywood

Date: April 3, 1943

1. With reference to the attached respecting the plywood matter for higgins, I have seen a copy of a memorandum from Col. Jeffe, the Ex. Secretary for Mr. Wilson, to Mr. Gardner (who is assigned at the present time to Mr. Wilson's staff as one of those dollar-a-year men), indicating that Higgins will be given this plywood plant based on "not on capacity but on the basis of manufacturing operations". I am asking Mr. Gardner to furnish me a copy of this memorandum for our files and so far as I can see, Mr. Higgins is going to have a plywood plant. Inasmuch as Mr. Wilson is the Executive Vice-Chairman of the War Production Board, his decision in view of his responsibilities will be respected.

Frederick M. Hopkins, Jr.,
Brig. General, U. S.A.
From: Asst. Chief of Staff (R)

W-7135, A.F.

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GENERAL OLIVER ECHOLLS

ARMY AIR FORCE WASHDC

THE FOLLOWING TELEGRAM WAS SENT TO SENATOR OVERTON OF LOUISIANA QUOTE ASSOCIATED PRESS DATED WASHINGTON APRIL FIRST CARRIED ACCOUNT SENATOR WILEY OF WISCONSIN CHARGED THAT DONALD NELSON HAD MADE A SERIOUS MISTAKE IN PERMITTING HIGGINS AIRCRAFT INC TO BUILD AND EQUIP A PLYWOOD FACTORY IN NEWORLEANS STATING SUCH PLANT WAS NOT DEFINITELY NEEDED, THAT THE APPROVAL GIVEN WOULD COST INTO MILLIONS OF DOLLARS, THAT INDUSTRY EXPERTS ADVISED ESTABLISHMENT OF SUCH PLANT WAS A DIRECT THREAT TO WAR PRODUCTION THAT RECORDS OF THE W P B AND THE AIRCRAFT SCHEDULING UNIT AT WRIGHT FIELD PROVED PRESENT INDUSTRIES WERE PRODUCING MORE AIRCRAFT PLYWOOD THAN NEEDED, THAT THE KEYMEN AND PERSONNEL REQUIRED WAS MANPOWER PROBLEM, AS KEYMEN AND PERSONNEL WOULD HAVE TO BE ACQUIRED FROM PRESENT NORTHERN PLYWOOD MANUFACTURERS STOP SENATOR JOHN H OVERTON OF LOUISIANA HAS TELEGRAPHED TO THE UNDERSIGNED ANDREW J HIGGINS SR A COPY OF A TELEGRAM GIVEN HIM AND APPARENTLY SENT TO OTHER UNITEDSTATES SENATORS. THE TELEGRAM WAS SIGNED BY LAWRENCE OTTINGER, PRESIDENT OF THE UNITEDSTATES PLYWOOD CORPORATION AND ALSO REPUTEDLY ONE OF THE MOST ACTIVE MEN IN THE PLYWOOD INDUSTRY, ITS ORGANIZATIONS AND COMBINES. IT IS ALLEGED AND BELIEVED BY MANY THAT THE UNITEDSTATES PLYWOOD CORPORATION HAS CONTRACTS WITH OR OTHERWISE HANDLES THE OUTPUT OR HAS SOME

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CONTROL OVER THE SALES OF MANY PLYWOOD MANUFACTURERS NOT ACTUALLY OWNED OUTRIGHT BY THE UNITEDSTATES PLYWOOD CORPORATION STOP IT IS SIGNIFICANT THAT OTTINGER WOULD REFER TO HIS PREVIOUS CONNECTION WITH PLYWOOD AND VENEER SECTION OF THE WAR PRODUCTION BOARD. HE DID NOT REFER TO THE FACT THAT AT THE PRESENT TIME THERE ARE SEVERAL PRINCIPALS IN THE PLYWOOD AND VENEER SECTION OF THE WAR PRODUCTION BOARD THAT WERE RECENTLY ACTIVE IN THE VENEER AND PLYWOOD INDUSTRY AND ALSO IN THE PLYWOOD MANUFACTURERS ASSOCIATIONS STOP THE TELEGRAM SENT BY OTTINGER TO SENATOR OVERTON FOLLOWS: QUOTE THE HIGGINS INDUSTRIES OF NEWORLEANS LOUISIANA HAVE BEEN GRANTED EQUIPMENT BY EXECUTIVE ORDER FOR THE MANUFACTURE OF PLYWOOD OVER THE PROTEST OF THE WAR PRODUCTION BOARD AND THE AIR-CRAFT SCHEDULING UNIT AT WRIGHT-FIELD THE PLYWOOD INDUSTRY INCLUDING MANY SMALL MANUFACTURERS HAS AT ITS OWN EXPENSE SO EQUIPPED ITSELF THAT ITS PRODUCTION IS NOW SEVERAL TIMES PRESENT OR ANTICIPATED REQUIREMENTS THE GRANTING OF MACHINERY AND EQUIPMENT AS WELL AS THE BUILDINGS FOR A PLYWOOD PLANT TO HIGGINS WHO HAS NO EXPERIENCE WITH LOUISIANA AS A VERY BAD LOCATION IS A WASTE OF PUBLIC FUNDS AND INTERFERENCE WITH THE WAR EFFORT AND INVOLVES THE USE OF A LARGE QUANTITY OF CRITICAL MATERIALS NEEDED FOR OTHER PURPOSES AS WE OPERATE LARGE PLANT IN YOUR STATE WE REQUEST YOU IMMEDIATELY TO FILE A VIGOROUS PROTEST WITH SENATOR TRUMAN AND DONALD NELSON THE UNDERSIGNED WAS UNTIL RECENTLY TECHNICAL CONSULTANT TO THE PLYWOOD AND VENEER SECTION OF THE WAR PRODUCTION BOARD UNQUOTE SIGNED

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LAWRENCE OTTINGER UNQUOTE STOP CONTRARY TO SENATOR WILEYS MISINFORMATION THE VENEER AND PLYWOOD MACHINERY INCLUDING BUILDINGS WILL COST CONSIDERABLY LESS THAN FIVE HUNDRED THOUSAND DOLLARS NOT AS STATED INTO THE MILLIONS OF DOLLARS STOP IT IS A WELL KNOWN FACT THERE IS LARGELY IN THE NORTHERN STATES AND ON THE PACIFIC COAST A CONSIDERABLE AMOUNT OF VENEER AND PLYWOOD FACILITIES AND MANY IF NOT MOST OF THESE MUST SECURE THE LOGS AND THE VENEER FOR THE PLYWOOD FACILITIES IN LOCATIONS REMOTE FROM THE LOCATION OF THE PLANTS STOP THE MOVEMENT OF LOGS FROM POINT OF GROWTH OVER LONG DISTANCE IS DOUBLE BURDEN ON THE RAILROAD TRANSPORTATION SYSTEM PARTICULARLY AS BUT FIFTY PERCENT OF THE FINEST SELECTED LOGS CAN PRODUCE VENEERS THAT WILL PASS THE RIGID INSPECTION FOR AIRCRAFT USE STOP LESS THAN FIVE PERCENT OF AIRCRAFT VENEER IS PRODUCIBLE FROM THE NUMBER ONE AND UP RUN OF THE FOREST. NEWORLEANS IS THE CHIEF AND CHEAPEST PORT OF ENTRY FOR CENTRAL AND SOUTH AMERICA MAHOGANY. WHY SHIP THESE LOGS TO THE NORTH AND AGAIN BURDEN THE RAILROAD TRANSPORTATION WITH A REHAUL ON THE VENEER OR THE PLYWOOD STOP TEMPERATURES AND HUMIDITY CANNOT BE CONTROLLED IN RAILROAD CARS; AGAIN THERE IS CONSIDERABLE BREAKAGE IN TRANSPORTATION STOP THE PLYWOOD MANUFACTURING GROUPS AND THEIR SPOKESMEN IN THE PLYWOOD AND VENEER SECTION OF THE WAR PRODUCTION BOARD CLAIM THERE IS SUFFICIENT CAPACITY FOR THE PRESENT AIRCRAFT MANUFACTURING NEED. IF THIS IS SO THEN WHY HAS IT BEEN THE CASE REPEATEDLY AND WHY IS IT THE CASE RIGHT AT THIS TIME THAT WE HAVE BEEN UNABLE TO SECURE PROPER QUANTITIES OR DELIVERIES OF PLYWOOD

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PANELS OF POORER, THAT IS,, AN EASIER SPECIFICATIONS FOR OUR USE IN BULKHEADS IN MOTOR TORPEDO BOATS OR GET ADEQUATE DELIVERIES IN SUFFICIENT QUANTITIES OF ORDINARY GUM AND/OR FIR PLYWOOD PANELS FOR BUILDING BARGES FOR THE ARMY STOP OUR PLANTS HAVE SHUT DOWN REPEATEDLY BECAUSE EVEN THE LARGEST OF PLYWOOD MANUFACTURERS DO NOT MAKE DELIVERIES OF A COMMON MEDIUM GRADE SPECIFICATION OF PLYWOOD PANELS FOR VITALLY NEEDED LANDING CRAFT. THESE ARE NOT CLAIMS OR ALLEGATIONS BUT FACTS THAT CAN BE PROVEN BY US AND THE UNITEDSTATES NAVY AND THE UNITEDSTATES ARMY STOP SOMETIME AGO IN DESPERATE NEED, WE FINANCED A SMALL PLYWOOD PLANT IN LOUISIANA BUT FOUND PURVEYORS OF THE NECESSARY VENEERS FOR MAKING PLYWOOD ASKED EXORBITANT PRICES FOR SAME AND MANY VENEER PLANTS WITH SURPLUSES ON HAND REFUSED TO SELL. WE REFUSED TO GIVE ONE OF THESE VENEER MANUFACTURERS A LETTER THEY REQUESTED FOR THEIR ASSISTANCE IN THEIR EFFORT TO GET ALLOCATION OF SHIP TONNAGE FOR ADDITIONAL MAHOGANY LOGS. WE MADE THIS REFUSAL BECAUSE OF THE EXORBITANT PRICES THEY ASKED STOP WE UNDERSTAND THAT THE OPA HAS NOT AS YET PUT CEILING PRICES ON VENEER STOP WHAT ARE THE FACTS AND THE RECORDS OF THESE PEOPLE WHO TALK ABOUT WASTE OF TAXPAYERS' FUNDS; AND SPEAK OF RETARDING THE WAR EFFORT. BEFORE PEARL HARBOR ONE BIG VENEER CONCERN REQUIRED A HIGH PRICE OF FORTY TWO DOLLARS AND FIFTY CENTS PER THOUSAND FOR ONE EIGHTH MAHOGANY VENEER, ROTARY CUT FROM THE RUN OF SAWMILL LOGS. IN SEPTEMBER 1942 THEY RAISED THE PRICE ON THE SAME MATERIAL TO SIXTY NINE DOLLARS PER

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THOUSAND AND STRANGELY OTHER PRODUCERS ASKED SIMILAR PRICES. AS A COMPARISON, BEFORE PEARL HARBOR HIGGINS INDUSTRIES WERE BUILDING TANK CARRYING LIGHTERS AT A COST OF THIRTY TWO THOUSAND DOLLARS. SINCE PEARL HARBOR THIS EQUIPMENT HAS BEEN IMPROVED AND ENLARGED AND THE COST HAS BEEN PROGRESSIVELY REDUCED DOWN TO EIGHTEEN THOUSAND TWO HUNDRED DOLLARS PER UNIT. SIMILAR REDUCTIONS HAVE BEEN MADE ON ALL ARTICLES WE MANUFACTURE IN SPITE OF INCREASING COST OF MATERIALS AND LABOR. WE RECENTLY VOLUNTARILY REFUNDED TO THE NAVY OVER THREE MILLION DOLLARS ON CONTRACTS COMPETITIVELY TAKEN AT LOWEST PRICE. IMPROVED MANUFACTURING TECHNIQUE, CONTROL OF AND LOW OVERHEAD COSTS, PATRIOTIC AND HARDWORKING EARNEST CRAFTSMEN HAVE MADE THESE LOW COSTS POSSIBLE, COUPLED WITH MAXIMUM QUANTITY PRODUCTION; AND AGAIN, ALL MADE POSSIBLE BECAUSE ON OUR OWN INITIATIVE AND AT OUR OWN RISK AND EXPENSE, WE CREATED AND OBTAINED FACILITIES NECESSARY FOR THE ACCOMPLISHMENTS, STOP CONTRARY TO SENATOR WILEY'S OPINION OR STATEMENT THIS SMALL NEW PLANT IS DEFINITELY IF NOT DESPERATELY NEEDED TO INSURE SUCCESS IN RAPIDLY, PROPERLY AND CHEAPLY COMPLETING CONTRACT FOR ARMY'S PLYWOOD CARGO PLANES. WE CAN CONTROL AND DEVELOP HIGH STANDARDS AND EFFECT ADVANCEMENTS AND IMPROVEMENTS IN THE MAKING OF BONDED WOOD FOR THE IMPROVEMENT AND ADVANCEMENT OF AIRCRAFT FABRICATION AND CONSTRUCTION STOP A PLANT AT NEWORLEANS WILL NOT BE PAYING FREIGHT ON WASTE OR OFF-FALL STOP CONTRARY TO EXPRESSED OPINION OF SENATOR WILEY WE DO NOT AND WILL NOT NEED ADDITIONAL KEYMEN AS WE ARE VERY COMPETENT AND

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WELL STAFFED AND HAVE BEEN CONDUCTING RESEARCH AND HAVE ACHIEVED IMPORTANT DEVELOPMENTS AND IMPROVEMENTS BY OUR OWN EFFORTS AND AT EXPENSE OF HIGGINS INDUSTRIES INC AND AT NO COST TO THE GOVERNMENT, AGAIN CONTRARY TO MR OTTINGER'S STATEMENT THAT WE HAVE NO EXPERIENCE I WAS AN IMPORTANT FACTOR IN THE TIMBER BUSINESS AND MANUFACTURING AND EXPORTING ALL FOREST PRODUCTS SINCE 1907 STOP I ALSO HAD EXTENSIVE DEALINGS WITH THE GERMAN TRUSTS OR CARTELS IN PLYWOOD AND HAVE HAD SOME DEALING AND CONSIDERABLE KNOWLEDGE OF GERMAN CARTELS INTEREST IN CONTROL OF SYNTHETIC RESINS AS USED IN MANY PLANTS OF THE AMERICAN PLYWOOD INDUSTRY. IT IS VERY STRANGE THAT THE PLYWOOD CARTELS ARE SO ACTIVELY OPPOSED AND CONCERNED THAT THIS FACILITY, LONG NEEDED AND JUSTIFIED BY ALL ECONOMICS SHOULD BE ESTABLISHED HERE IN THE SOUTH. THIS POSSIBLY ACCOUNTS FOR MR OTTINGER'S STATEMENT THAT LOUISIANA IS A VERY BAD LOCATION STOP PRESUME MR OTTINGER WILL ADMIT PLYWOOD AND VENEER PLANTS IN THE NORTH HAVE TO DEPEND ON THE SOUTH FOR A BIG PERCENTAGE OF THE LOGS STOP OTTINGER'S STATEMENT THAT THE SCHEDULING UNIT AT WRIGHT FIELD PROTESTED THESE FACILITIES IS NOT CORRECT STOP HE ALSO STATES THAT EQUIPMENT WHICH HAS BEEN ON ORDER AND WHICH IS NOW NEARLY COMPLETED OR READY FOR SHIPMENT INVOLVES THE USE OF A LARGE QUANTITY OF CRITICAL MATERIALS AND THAT THIS IS UNFAIR TO OTHER EXISTING PLANTS THEN WHY IS THIS A CRIME IN FACE OF THE GREAT AMOUNT OF MACHINERY FURNISHED TO MANY OF THE NORTHERN PLYWOOD CORPORATION GROUP OR MANUFACTURERS ASSOCIATED OR POSSIBLY

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COMBINED WITH HIGGINS. A REPRESENTATIVE OF HASKELITE MADE THE STATEMENT TO US RECENTLY THAT THEY HAD OBTAINED FROM THE GOVERNMENT APPROXIMATELY FOUR MILLION DOLLARS OF VENEER MACHINERY TO GO INTO A PLANT IN A NORTHERN STATE LOCATION ALTHOUGH THEIR SOURCE OF SUPPLY FOR TIMBER MOST LIKELY LIES LARGELY IN THE SOUTHERN STATES. THE LOG SUPPLY FOR OUR SMALL PLANT AT NEWORLEANS WILL COME LARGELY BY BARGE OR BY RAFT DOWN THE MANY RIVERS FROM THE BANKS OF WHICH AND THE ADJACENT TERRITORY WHERE TIMBER ABOUNDS STOP THE LUMBER AND THE OFF FALL BELOW AIRPLANE GRADE VENEERS, WILL RELIEVE ANOTHER ALLEGED CRITICAL ITEM STOP IT IS A RECOGNIZED FACT THAT THERE ARE MANY CHANGES DURING MANUFACTURE OF AIRPLANES. IF WE DEPENDED ON REMOTELY LOCATED SUPPLIERS FOR VENEERS OR PANELS, SUCH TO BE EXPECTED CHANGE ORDERS WOULD MULTIPLY THE DIFFICULTIES, WHEREAS A SMALL PLANT HERE BEING ELASTIC AND FACILE FOR OUR NEEDS WILL PREVENT DELAYS STOP THE HIGGINS INDUSTRIES AND ITS LARGE ORGANIZATION AND PLANTS WERE BUILT WITHOUT ONE CENT OF GOVERNMENT SUBSIDY. THIS ORGANIZATION HAS ABSORBED CONSIDERABLE COSTS OF RESEARCH AND DEVELOPMENT AND HAS MANY YEARS OF EXPERIENCE NOT ALONE IN TEMBER AND LUMBER BUT IN VENEERS, BUT MORE PARTICULARLY IN THE LATEST TECHNIQUES AND PRACTICE IN BONDING OF ALL SPECIES OF WOODS STOP THIS HAS BEEN A CONTRIBUTION FOR THE BENEFIT OF ALL IN THE WAR EFFORT. THIS SMALL PLYWOOD FACILITY IS NEEDED TO ADVANCE AND IMPROVE THE FABRICATION AND THE MANUFACTURE OF CARGO PLANES OF WOOD FOR THE ARMY AIR CORPS. THE FACILITY IS TO BE

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PROVIDED BY THE DEFENSE PLANT CORPORATION. THERE IS NO CONTRACT WITH THE DEFENSE PLANT CPORPORATION WHATSOEVER FOR ANY OF OUR INTERESTS TAKING OVER THESE FACILITIES AT ANY TIME DURING OR AFTER THE WAR. WE VOLUNTEERED AND INSISTED ON NEGOTIATING THE LOWEST FEE CONTRACT FOR THE MANUFACTURE OF THESE PLANES STOP DESPITE MANY HANDICAPS ACCIDENTALLY OF INTENTIONALLY IMPOSED, WE ARE CONSIDERABLY AHEAD OF SCHEDULE IN BUILDING FACILITIES AND PREPARATION FOR MANUFACTURING THE AIRPLANES, AND IF WE ARE NO HINDERED BY IGNORANCE OR BY GREED OR BY RED TAPE COMMA WE WILL CONSTRUCT THESE PLANES EXCELLENTLY COMMA FAST AND AT A SURPRISINGLY LOW COST STOP THE GOVERNMENT AND THE TAXPAYERS WILL BENEFIT BY OUR EFFORTS AND THE WAR MAY BE WON THE SOONER STOP WE INTEND TO SUBMIT TO THE UNITEDSTATES ATTORNEY GENERALS OFFICE A CONSIDERABLE ACCUMULATION OF FACTS AND CIRCUMSTANCES THAT SOMETIME AGO FORWARNED US OF THE OBJECTIONS AND OBSTRUCTIONS AND THE PROTESTS THAT HAVE BEEN MADE AND ARE NOW BEING MADE STOP WE ASK ON THE BASIS OF SIMPLE COMMON SENSE THAT CONTINUED PROTESTS AND HINDRANCES BE STOPPED REGARDLESS OF THE POSSIBLE INCONVENIENCE OUR OPERATION OF A GOVERNMENT OWNED FACILITY MAY CAUSE CERTAIN MANUFACTURERS DURING OR AFTER THE WAR STOP WE ASK YOU TO ANALYZE MR OTTINGERS STATEMENT THAT QUOTE THE PLYWOOD INDUSTRY INCLUDING MANY SMALL MANUFACTURERS HAS ITS OWN EXPENSE SO EQUIPPED ITSELF THAT ITS PRODUCTION HAS NOW SEVERAL TIMES THEIR PRESENT OR

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UNQUOTE THE QUESTION ARISES [illegible] THEY DO THIS TO STIFLE THE BUILDING OF VENEER AND PLYWOOD FACILITIES AT A SEAPORT AT WHICH THE MAHOGANY LOGS ARRIVE AND AT NEW ORLEANS THE LOCAL POINT FOR MANY RIVERS DOWN WHICH COULD BE RAFTED LARGE QUANTITIES OF TIMBER THAT NOW IS BEING PICKED OVER FOR THE CHOICE LOGS TO BE SHIPPED TO THE NORTH BY RAILROADS STOP AT THE RISK OF BURDENING THIS TELEGRAM I DO NOT CONSIDER EXTRANEOUS THE COMMENT THAT THERE IS A WIDE RANGE OF INTERPRETATION AND CONSIDERABLE LATITUDE ALLOWED UNDER THE PRESENT ARMY AND NAVY SPECIFICATIONS OF PLYWOOD PERIOD OBTAINING PLYWOOD FROM DIFFERENT SOURCES INVOLVES MANY IMPORTANT MATTERS SUCH AS MOISTURE CONTROL AND THE VARIANCE OF HUMIDITY AT THE PLANTS IN DIFFERENT LOCATIONS AND THE EXPOSURE OF PANELS OR FABRICATIONS NOT ALONE TO THE HAZARDS OF FREIGHT BREAKAGE BUT TO CHANGES CAUSED BY VARIOUS FLUCTUATIONS IN HUMIDITY AND IN TEMPERATURE PERIOD ON THE CONTRARY WE WILL CONTROL ALL THE CONDITIONS FROM THE FELLING OF THE TREE TO THE FINISHED PLANE COMMA MAINTAIN UNIFORM AND HIGH STANDARDS AND DEVELOP NEW PROCESSES AND IMPROVEMENTS SO THAT THE PLANES WE BUILD CAN BE FLOWN BY YOUR SON OR MINE WITH SAFETY STOP WE HAVE BEEN ADVISED BY THE VARIOUS MANUFACTURERS THAT HAD BEEN IN DEFAULT ON DELIVERIES THEIR INABILITY WAS DUE TO SCARCITY OF LOGS COMMA SCARCITY OF VENEERS OR LABOR TROUBLES STOP THESE FACILITIES AT NEW ORLEANS

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WILL NOT HAVE ANY OF THESE BURDENS STOP WE HAVE THE TIMBER AVAILAFLE CHEAPLY TRANSPORTABLE FROM POINT OF GROWTH BY FLOTATION OR BY BARGING STOP WE HAVE AMPLE STORAGE AND NO LABOR TROUBLES PERIOD LABOR HERE FOR THIS OPERATION IS ABUNDANT AND LOYAL AND WE ARE NOT EXPOSED TO THE THREAT OF STRIKES BECAUSE THERE EXISTS HERE A PROPER UNDERSTANDING AND COOPERATION BETWEEN MANAGEMENT AND LABOR STOP OTTINGER HAS CHARGED THE GRANTING OF MACHINERY AND EQUIPMENT IS A WASTE OF PUBLIC FUNDS PERIOD IN THIS CONNECTION HIGGINS INDUSTRIES AS A PRIVATE CONCERN ENDEAVORED TO SECURE THIS EQUIPMENT A CONSIDERABLE TIME AGO AT ITS OWN COST BUT THIS ATTEMPT WAS BLOCKED STOP IN THIS CONNECTION HIGGINS INDUSTRIES STILL STANDS READY TO PURCHASE THE EQUIPMENT FOR THEIR OWN ACCOUNT AND COST IF IT WERE NOW POSSIBLE TO SO ARRANGE STOP AT THIS POINT FOR CLARIFICATION HIGGINS INDUSTRIES IN ALL THEIR PLANTS AND ACTIVITIES ARE A PRIVATE CONCERN AND HAVE RECEIVED NO FEDERAL FINANCIAL HELP OR ANY SUBSIDY STOP BE IT UNDERSTOOD THAT HIGGINS AIRCRAFT IS ACTUALLY AN AGENT OF THE GOVERNMENT BUILDING FACILITIES FOR THE DEFENSE PLANT CORPORATION WITHOUT FEE AND OPERATING SAME ON A CONTRACT WITH THE ARMY AIR CORPS TO BUILD 1200 CARGO PLANES AT A FEE OF THREE PERCENT WHICH FEE WE INSISTED UPON AND IS CONSIDERABLY LOWER THAN ANY OTHER SIMILAR CONTRACT STOP IN ADDITION SEVERAL IMPORTANT OFFICERS INCLUDING A J HIGGINS SR

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PRESIDENT HAVE BEEN WORKING FOR THE AIRCRAFT CORPORATION WITHOUT A SALARY COMMA THEIR REWARD BEING AN EXPECTED SUCCESSFUL PRODUCTION IN THE WAR EFFORT STOP BY INCORPORATING THESE FACILITIES IN THE DEFENSE PLANT CORPORATION PROJECT PRODUCING FOR THE ARMY AIR CORPS COMMA THERE WILL BE NO EXCESSIVE PROFITS AS MAY BE DESIRED ELSEWHERE COMMA THE LOW COST PRODUCTION OF PLYWOOD AND VENEERS COMMA BURDENED ONLY WITH THE LOW AGENTS FEE OF THREE PERCENT STOP PLYWOOD MANUFACTURERS ATTEMPTED TO JUSTIFY THEIR TERRIFIC HIGH COST OF AIRCRAFT PLYWOOD ATTRIBUTE IT NECESSARY DUE TO THEIR ACKNOWLEDGED HEAVY LOSSES FOR NON DISPOSAL OF REJECTIONS AND OFF FALLS AND FREIGHT COST BURDENS STOP THESE FACILITIES ARE A PROPER ECONOMICAL DEVELOPMENT FOR THE SOUTH AT ANY TIME BUT ARE A VITAL ONE IN TIME OF WAR STOP IN VIEW OF THE GREAT EFFORTS MADE TO BLOCK THIS PROJECT DONALD NELSON AND HIS DEPUTY CHARLES WILSON DISPLAYED BOTH COURAGE AND GOOD JUDGEMENT IN APPROVING THE PROJECT.

ANDREW J HIGGINS PRESIDENT HIGGINS INDUSTRIES INC

This telegram was not sent to Capt.

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THE [illegible] SUBJECT TO THE REGULATIONS OF THE COMPANY OVER WHOSE LINES IT IS TRANSMITTED BY TELEGRAPH OR CABLE

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C O P Y/jeh

INTER-OFFICE MEMORANDUM
ARMY AIR FORCES
OFFICE OF THE COMMANDING GENERAL

DB:tvh:56
Wright Field, Dayton, Ohio
April 10, 194[illegible]

CONFIDENTIAL

TO: Chief, Production Resources Section, Production Division, Steele High Building, Dayton, Ohio.

SUBJECT: Control of Relative Humidity in Factories Manufacturing Wood Aircraft

1. Present specifications and directives applying to the use of wood in aircraft structures recommend that the moisture content of wood parts be held within the range from 8 to 12 percent during fabrication.

2. In most locations in the United States, this can be accomplished by providing for humidification during the winter months. Artificial control of relative humidity within the manufacturing plant is usually unnecessary during the summer months. Even though the relative humidity may be comparatively high for limited periods, wood that was originally dried to a low moisture content will seldom reach a moisture content above 12 percent in interiors of well constructed, serviceable factories or homes within the limits of continental United States.

3. If, in certain locations, some degree of dehumidification should be considered desirable for the construction of wood aircraft, it is considered that a maximum relative humidity of 65 percent and a maximum temperature of 85° F. would be satisfactory. These maxima of temperature and relative humidity correspond to an equilibrium moisture content of 11.5 percent in wood. If a supply of wood, that was originally dried to a moisture content below this figure, was brough into such an atmosphere the moisture content would slowly approach the equilibrium value but few, if any, of the pieces would reach a moisture content in excess of the equilibrium value. Consequently the operation would conform to existing specifications and directives so far as the moisture content of the wood was concerned.

4. It should be pointed out, too, that wood in the green conditions or seasoned to moisture contents above 12 percent would slowly approach the equilibrium moisture content value and none of the pieces would fall below it. Wood parts, however, should enter a fabricating plant in a properly seasoned condition and at moisture contents below 12 percent.

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I.O.M. to Chief, Production Resources Section
"Control of Relative Humidity in Factories
Manufacturing Wood Aircraft "
April 10, 1943

CONFIDENTIAL

5. In this connection, it should be pointed out that it will be more economical to achieve a desired moisture content in a dry kiln or a conditioning room rather than a conditioned factory space. In other words, material should be dried to approximately the desired moisture content before being brought into the factory, the conditioning equipment in the factory space being used to maintain the desired moisture content rather than to change the moisture content from some other value to that desired.

J. B. JOHNSON,
Chief, Materials Laboratory,
Engineering Division.

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FOH:hsm

April 13, 1943.

CONFIDENTIAL

SUBJECT: Contract W-535 AC-34484
Air Processing System
Higgins Aircraft, Inc.

TO: Production Division Section,
Army Air Forces Materiel Center,
Wright Field, Dayton, Ohio

Attention: Brig. Gen. K. B. Wolfe, Chief.

1. The War Production Board, at a meeting in their New York offices held on March 31 and April 1, 1943, decided that an Air Processing System is essential in the manufacturing building of this plant to maintain the moisture content of wood used in the manufacture of C-76 Plywood Cargo Planes within the limitations specified by the Army Air Forces, and granted approval to Higgins Aircraft, Inc., to purchase equipment for and install such a system. Full details of this meeting are presented in the attached copy of the proceedings.

2. As an Air Processing System is now known to be a manufacturing necessity but was not provided for in the original Appendix "A" governing this project because at that time it was not considered absolutely essential, it now becomes apparent that a addendum should be made to said Appendix "A" and additional funds be allocated to cover this installation. The following details are presented to acquaint you with all phases of this subject:

a. Lt. Col. Edward J. McGraw, Jr., Chief, Defense Plant Section, Corps of Engineers, Washington, D. C., was in New Orleans on December 9, 10 and 11, 1942, and at a conference for the purpose of deciding design details of this project, it was agreed that dehumidification would be necessary in the plywood and wood sealing departments and that reference to this system would be made in subsequent reports when more definite data could be determined with reference to requirements. We had been exploring the possibility of developing a sealer that would not affect glueing operations and informed Col. McGraw that we were experimenting with one that showed promise. Final tests conducted later however, did not justify our expectations.

b. With the failure of these sealer tests, it became obvious that to maintain the moisture content of the wood used in our manufacturing operations within the 8% to 12% limitations specified by the Army Air Forces, in a climate such as prevails in New Orleans, where the average humidity over a period of 50 years has been 72%, a dehumidification system would be the only solution to this problem. This is substantiated by Report on Humidity Control dated February 24, 1943, from Materials Laboratory, Engineering Division, forwarded to us with your letter of March 4, 1943, reference CWS:bb:20-3-3-1.

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3. In view of the foregoing, we respectfully request that the enclosed addendum to Appendix "A" be approved and that additional funds of $2,313,563.00 be placed at our disposal for the purpose of installing an Air Processing System.

FRANK O. HIGGINS,
Vice-President,
Higgins Aircraft, Inc.

Enclosures

cc - Major J. L. Bowling, Chief,
Facilities Unit,
Production Resources Section,
Army Air Forces Materiel Center,
Wright Field, Dayton, Ohio.

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CONFIDENTIAL

File 285

WAR DEPARTMENT

HEADQUARTERS, ARMY AIR FORCES

INTER-OFFICE MEMORANDUM

CONFIDENTIAL

To...Major Gen. H.H. Arnold.....

Date...April 23, 1943..

...Higgins Aircraft, New Orleans, La.

1. This confirms my conversation with you with respect to the above manufacturer. The facilities that we are providing at an estimated cost of $23,000,000 will be completed by late summer. These are very expensive facilities because of the fact that they are built on made delta land.

2. In my visit to the facilities, it seemed to me that there was an absolute lack of any engineering staff as yet. If Higgins ever makes an airplane, it will not be before the mid-summer of 1944. At the present time we anticipate a maximum production of 100 C-76 transports per month. You know the situation with respect to [illegible] airplane. It occurred to me that if we gave Higgins a fully engineered airplane, possible, the "Mosquito", we will avoid some terrific criticism which is going to come if these expensive facilities do not, as I heartily believe they will, make themselves pay for themselves. If we give Higgins the facilities and then give him a fully engineered airplane, those actually flying and doing a pretty good job in the War, the responsibility for producing rests then with Mr. Higgins.

3. The intent of this Memorandum is simply to figure out some way of our keeping out of trouble later on.

FREDERICK M. HOPKINS, JR.,
Brig. General, U. S. A.

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WAR DEPARTMENT

April 27, 1943

CONFIDENTIAL

AIR MAIL - SPECIAL DELIVERY

Subject: Airfield in Connection with the Higgins Cargo Plane Plant, New Orleans, Louisiana

The Chief of Engineers
U. S. Army
Washington, D. C.

Attention of Colonel L. A. Pick,
Construction Division, Military Branch

1. The following preliminary data and rough cost estimates are submitted in accordance with instructions from Colonel Berrigan of the Southwestern Division office by letter dated April 22, 1943, subject: "Airfield in Connection with Higgins Plant, New Orleans, Louisiana". We were requested to submit as quickly as possible a preliminary report furnishing the estimated costs and construction time for constructing three 150 ft. x 7,000 ft. runways adjacent to the Higgins Cargo Plane Plant at New Orleans, Louisiana. The cost estimates were to be based on alternate gross design loads of 74,000 lbs. and 120,000 lbs.

2. On April 24, 1943 representatives of this office inspected the proposed airfield site and discussed prevailing soil and construction conditions with representatives of the New Orleans District Office who have previously done a considerable amount of work in this area. The site is located at what is probably one of the worst sites for runway construction of the many swamp and marsh areas in coastal Louisiana. The site is at approximately Elevation Zero, mean gulf level, and is too soft and wet to support cypress timber growth. The top 15 feet consists of an unconsolidated silt and muck. This material is so soft that a cane fishing pole or small steel rod can be pushed into it by hand for a depth of 15 to 20 feet.

3. The site is roughly triangular in shape. It is bounded on the northwest by the administration and factory buildings of the new partly constructed aircraft factory, on the south by the [illegible] ly dredged channel for the intracoastal waterway (which varies at

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this point from 15 to 50 feet deep and has been widened to approximately 600 feet to obtain material for filling the site), and on the east by a borrow pit approximately 40 feet deep and 600 feet wide. All buildings now constructed or proposed for this plant are supported entirely on piling. The area within these boundaries is not large enough to accommodate three 7,000-ft. runways. The layout prepared by engineers for the defense plant corporation which takes full advantage of the available area provides for one runway approximately 6,400 feet long and two runways approximately 4,700 feet long. Since these runways end at borrow pits or other obstructions, no clear zones are provided.

4. The site is now being filled to an elevation of approximately 6 feet above mean gulf level by four large hydraulic dredges. The material being pumped on the site at this time is composed of unconsolidated silt, which in many places is so soft that a man cannot walk upon the material after it has dried for several months. This material is unsatisfactory for runway fills. These fills, as they are being constructed, will probably settle unevenly for many years as a great deal of consolidation will take place in both the fill material and underlying stratum of unconsolidated silt and humus. The underlying material and fill material cannot support a runway pavement constructed to meet the specified design loads. For this reason, the possibility of placing any type of pavement directly upon the existing fill material is considered impracticable.

5. This office believes that satisfactory runways can probably be constructed at the subject site by one of the two methods discussed below:

a. Sand Fill Method.- One method consists of dredging out the existing fills along with approximately 15 feet of the underlying material to a bottom width of 150 feet and for the full length of the runways to be constructed. This area, which would necessarily have a very flat side slope due to the nature of the material, would be refilled with sandy soil pumped from pits approximately 2 miles north of the site. All work of excavating and filling would necessarily have to be accomplished with hydraulic dredges. In addition, the sand fill would have to be consolidated with well points in order to effect this consolidation within a reasonable period of time.

b. Piling Method.- The other possibility is to construct a reinforced concrete runway on piles approximately 80 feet in length and spaced so as to distribute loads not greater than 15 tons per pile. A runway constructed by this method would be, in effect, a continuous slab bridge.

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Higgins-285
RD 120-4/8/43

Subject: Airfield in Connection with the Higgins Cargo Plane Plant, New Orleans, Louisiana.

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6. In order to construct three runways 150 ft. by 7,000 ft., it would be necessary to fill a large part of the intracoastal waterway and a large portion of old borrow pits. In addition, it would be necessary to relocate the intracoastal waterway. The estimated costs of constructing three 7,000 ft. runways 150 ft. wide by the two methods are as follows:

a. Pile Method.-

74,000 lb. gross load

Refilling excavated areas and old borrow pits with selected material	$ 1,800,000
Relocating 2 miles of Intracoastal Waterway	200,000
Piling (80 ft. long) 62,000 ea. @ $120	7,440,000
Concrete, 175,000 cu. yds. @ $18	3,150,000
Steel, 19,500,000 lbs. @ $0.10	1,950,000
Grading and Miscellaneous	500,000
Subtotal	$ 15,040,000
Government Costs and Cont. 15%	2,260,000
TOTAL ESTIMATED COST:	$ 17,300,000

120,000 lb. gross load

Refilling excavated areas	$ 1,800,000
Relocating 2 miles of Intracoastal Waterway	200,000
Piling (80 ft. long) 93,000 ea. @ $120	11,160,000
Concrete, 200,000 cu. yds. @ $18	3,600,000
Steel, 22,000,000 lbs. @ $0.10	2,200,000
Grading & Miscellaneous	500,000
Subtotal	$ 19,460,000
Govt. Costs and Contingencies, 15%	2,920,000
TOTAL ESTIMATED COST:	$ 22,380,000

b. Sand Fill Method.-

Refilling excavated areas and old borrow pits	$ 2,700,000
Relocating 2 miles of Intracoastal Waterway	300,000

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Higgins 251
RR-120-5/44

Subject: Airfield in Connection with the Higgins Cargo Plane Plant, New Orleans, Louisiana.

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Excavating and Wasting 3,000,000 cu. yds. of unsuitable material	$ 900,000
Select Material Refill, 3,000,000 cu. yds.	1,800,000
Consolidation of Sand Fill by Well System	450,000
Drainage	750,000
Grading & Miscellaneous	750,000
Subtotal	$ 7,650,000
Govt. Costs & Contingencies, 15%	1,150,000
TOTAL ESTIMATED COST (Less Concrete Pavement)	$ 8,800,000

74,000 lb. gross load

Concrete Pavement, 400,000 sq. yds. (includes Govt. costs and contingencies) 8" thick	$ 1,500,000
TOTAL ESTIMATED COST, With 74,000 lb. gross load pavement	$ 10,300,000

120,000 lb. gross load

Concrete Pavement, 400,000 sq. yds., 11" thick (includes Govt. costs and contingencies)	$ 2,000,000
TOTAL ESTIMATED COST, With 120,000 lb. gross load pavement	$ 10,800,000

7. In the event consideration is given to the construction of three runways on the layout now prepared by the engineers for the defense plant corporation, the following cost estimate is furnished for your information. This construction would consist of one runway approximately 6,400 feet long and two runways approximately 4,700 feet long. These runways could be constructed without refilling or relocating the existing borrow pits and intracoastal canal. It would not be possible, however, to provide any graded clear zones at the ends of the runways or to provide clear zones at the ends of the runways which would be free from obstructions and flight hazards. Based on the two types of construction discussed above, the estimated construction costs are as follows:

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RD-120-6/qqq

Subject: Airfield in Connection with the Higgins Cargo Plane Plant, New Orleans, Louisiana.

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a. Pile Method.-

74,000 lb. gross load	$ 13,600,000
120,000 lb. gross load	$ 17,400,000

b. Sand Fill Method.-

74,000 lb. gross load	$ 6,500,000
120,000 lb. gross load	$ 7,200,000

From our understanding of the use of this airfield, it would appear that consideration should be given to the construction of one runway 150 ft. by 7,000 ft. with graded end zones and full clearances at the ends of the runway. In order to accomplish this, it will be necessary to fill in a large portion of the borrow pit on the east side of the field, but it would not be necessary to fill or relocate the intracoastal canal. The estimated cost of constructing one runway 150 ft. by 7,000 ft. is as follows:

a. Pile Method.-

74,000 lb. gross load	$ 7,000,000
120,000 lb. gross load	$ 8,500,000

b. Sand Fill Method.-

74,000 lb. gross load	$ 4,200,000
120,000 lb. gross load	$ 5,100,000

8. None of the above estimates include the pavement of shoulders, aprons, or taxiways, inasmuch as no information has been furnished concerning the need for these facilities. The construction time for the construction of three 150 ft. x 7,000 ft. runways is estimated to be 30 months by the pile method and 36 months by the sand fill method. The construction time for the construction of three shorter runways conforming to the layout presently proposed by the defense plant corporation engineers is estimated to be 21 months by the pile method and 30 months by the sand fill method, for a gross load of 74,000 lb. and 22 and 30 months respectively for the 120,000 lb. loading. While definite information cannot be obtained on this subject, our representatives were informally advised that the completion of the plant is scheduled for December, 1944 or approximately

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Subject: Airfield in Connection with the Higgins Cargo Plane Plant, New Orleans, Louisiana.

19 months from this date. The completion of the first cargo plane would necessarily be subsequent to this date.

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9. A resume of the estimated cost and construction time for the various types of construction, predicated upon the ability to obtain all the materials and equipment that can be used on the project, is listed as follows:

Length of Runways	Gross Loading	Construction Method	Est. Cost, Millions of Dollars	Est. Const. Time, Months
3 - 7,000'	74,000	Pile	17.3	30
3 - 7,000'	74,000	Sand Fill	10.3	34
3 - 7,000'	120,000	Pile	22.38	31
3 - 7,000'	120,000	Sand Fill	10.8	36
(1-6,400') (2 - 4,700')	74,000	Pile	13.6	21
(1-6,400') (2 - 4,700')	74,000	Sand Fill	6.5	30
" "	120,000	Pile	17.4	22
" "	120,000	Sand Fill	7.2	30
*One-7,000'	74,000	Pile	7.0	15
*One-7,000'	74,000	Sand Fill	4.2	18
*One-7,000'	120,000	Pile	8.5	16
*One-7,000'	120,000	Sand Fill	5.1	18

* With Clear Zones.

Due to the location and nature of the work involved, it is the opinion of this office that a contract cannot be made based on unit prices and that it will be necessary to make a contract based on equipment rental prices or a similar method.

10. Since all the land in this vicinity is of substantially the same nature, there appears to be no suitable alternate site within 10 miles of the proposed Higgins site. Your attention is called, however, to the fact that this office is constructing a C.A.A. airfield at the town of Kenner, Louisiana some 20 miles distant from the Higgins site. The proposed construction at this C.A.A. field consists of four concrete paved runways 150 ft. x 5,000 ft. capable of supporting a gross load of 50,000 lbs. The construction of the concrete pavement is scheduled to start about June 1st and the scheduled completion date for the project is December 15, 1943. It is believed that consideration should be given to transporting plane sections by truck to this site and effecting final assembly there. The capacity of these runways could be increased to 74,000 lbs. gross load by increasing the pavement thickness to 8 inches at the estimated increase in cost of $80,000. The capacity of these runways could be increased to 120,000 lbs. gross load by increasing the pavement thickness to 10 inches at an estimated increase in cost of $240,000 for the project. Inasmuch as concrete paving operations

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Higgins 285
(D-1208/40)

Subject: Airfield in Connection with the Higgins Cargo Plane Plant, New Orleans, Louisiana.

are expected to start at this site on or about June 1, 1943, a decision would have to be made prior to that date concerning any change in pavement thickness.

11. It is emphasized that all of the above estimates are of a preliminary nature based on short field survey and rough tentative designs. This office is proceeding with a more detailed investigation and complete engineering report which will be submitted to your office through the Southwestern Division Office at the earliest practicable date. It is possible that these further investigations may result in a considerable change in the above estimated costs and proposed designs.

W. G. Saville
Colonel, Corps of Engineers
District Engineer

Incl.
Rough Location Map (in dup.)

CC: The Division Engineer
Southwestern Division
Dallas, Texas - with 1 copy
of incl.

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ENGINEERING REPORT
for
AIRFIELD
in connection with
HIGGINS AIRCRAFT PLANT
NEW ORLEANS, LOUISIANA

CONFIDENTIAL

Prepared by

GALVESTON DISTRICT
U. S. ENGINEER OFFICE
MAR, 1943

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OUTLINE OF ENGINEERING REPORT

ON

AIRFIELD FOR HIGGINS AIRCRAFT FACTORY

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EXHIBIT 1 - General Locality Map
EXHIBIT 2 - Aerial Photograph of Site
EXHIBIT 3 - Runway Layout, three 7,000' runways
EXHIBIT 4 - Runway Layout, Runways within site
EXHIBIT 5 - Soil Borings Layout
EXHIBIT 6 - Log of Soil Borings

APPENDIX A - Field Load Bearing Tests
APPENDIX B - Field Slab Settlement Tests
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ENGINEERING REPORT

AIRFIELD FOR HIGGINS AIRCRAFT PLANT

NEAR NEW ORLEANS, LOUISIANA

CONFIDENTIAL

AUTHORITY.-

This engineering report is submitted in accordance with instructions contained in paragraph 5 of letter dated April 22, 1943 from the Division Engineer, Southwestern Division, to the District Engineer, Galveston, Texas, subject: "Airfield in Connection with Higgins Plant, New Orleans, La.". This letter requested that the engineering report contain the estimated cost and construction time and other engineering features involved in the construction of three 7,000-ft. runways with a gross loading of: (a) 74,000 lbs., and (b) 120,000 lbs.

LOCATION AND DESCRIPTION OF PROJECT.-

The proposed site is located approximately 12 miles east of the city of New Orleans, Louisiana, on old U. S. Highway 90, as shown on Exhibit 1, General Locality Map. The site is approximately 1,000 acres in size and is shown in detail in the photograph inclosed as Exhibit 2. This site was originally chosen as a shipyard for Higgins Industries, Incorporated. The site was purchased by the Maritime Commission for that purpose and construction was started by placing a hydraulic

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fill approximately 6 feet in depth over the site. During the summer of 1942 the project was halted by the War Production Board and at that time approximately 60 percent of the site had been filled. The area in the background of Exhibit 2 which appears white in color represents the fill that was placed in 1942. In 1943 the Defense Plant Corporation took over the site and construction was begun on an aircraft factory to be operated by the Higgins Corporation. The remaining portion of the area of the site was then filled in 1943 by the Defense Plant Corporation and at the present date this fill is almost 100 percent complete. The aerial photograph, Exhibit 2, taken May 2, 1943, shows the new fill primarily in the foreground which is identified by its dark gray color, due to the presence of moisture. At the present time the Defense Plant Corporation and the Higgins Corporation are preparing plans and specifications for the construction of three runways, one 6,400 feet in length and two 5500 feet in length, within the boundaries of the site.

REGIONAL FACTORS.-

A. Transportation Facilities.- The site is adjacent to Gentilly Road, previously old U. S. Highway 90, which is a 4-lane, concrete highway connecting with the new U. S. Highway 90 at the east boundary of the site and again 2 miles west of the west boundary of the site. The

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new U. S. Highway 90 is a 4-lane paved concrete highway leading into New Orleans approximately 12 miles west of the site. It is understood that shell surface roads will be provided [illegible] the aircraft plant and some of these shell roads have already been constructed. The site is served by a main line of the L & N Railroad, which is a double track from the site to New Orleans. Several spurs have been constructed within the site for the use of the aircraft plant. The site is bounded on the south by the new cut of the Intracoastal Canal which is available for use between New Orleans and the site.

B. Construction Materials.- Materials for use in the airdrome construction can be barged to the site or shipped in by rail. Quotations received in New Orleans during May, 1943 reveal that sand can be delivered f.o.b. the site for $1.53 per cu.yd. and gravel for $1.83 per cu. yd. Clam shell from Lake Borgne can be supplied f.o.b. the site for $1.50 per cu. yd. Some oyster shell and a better grade of clam shell can be obtained from Lake Pontchartrain but at a higher cost. Cement can be readily shipped to the site from several cement mills.

C. Water Supply.- Authority has been received by the city for the immediate construction of a 12-inch water supply line from the city of New Orleans.

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Information was obtained from the Higgins Company engineers that this line would carry a minimum pressure of 25 lbs. at full load and have a capacity of 750,000 gallons per day. The exact consumpti n of the proposed aircraft factory and appurtenances could not be obtained, but information was obtained that a surplus of water capacity is available.

D. Power and Fuel.- Power is provided to the site by a 138,000 K.V.A. line from the Gulf States Utilities Company. The exact consumption of the proposed aircraft installation is not known, but information was obtained that a considerable amount of surplus power is available. There is no natural gas available and fuel oil will be used as a source of fuel at the site. This fuel oil will be transported to the site by barge.

E. Sewage Disposal.- A sewage disposal plant is being constructed at the east end of the site by the Higgins Corporation and Defense Plant Corporation. Information was furnished this office that the plant would have a maximum capacity of 1,000,000 gallons per day and that some surplus is available above the anticipated load of the aircraft factory and appurtenances.

F. Labor.- Information obtainable at the present indicates that no shortage of labor is expected in this area for the

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construction of this project. Some difficulty has been experienced on the present aircraft plant in obtaining bricklayers; [illegible] the only class of labor which has shown a marked shortage. No major labor troubles have been experienced and the cost of labor is not expected to rise above the present levels, which are not excessive.

SCOPE OF INVESTIGATIONS.-

Subsequent to the receipt of instructions from the Southeastern Division Office by letter dated April 22, 1943, this office has consulted with all engineers and agencies that have data pertaining to this site and the proposed construction, has obtained all data available, and has conducted all explorations and tests reasonably possible in the time allotted for the preparation of this engineering report. Representatives of the New Orleans District Office were contacted, and the boring and dredging data obtained by that office in connection with the dredging of the Intracoastal Canal along the south boundary of the site were secured. A considerable amount of data was obtained from representatives of the three organizations at the site of the Higgins Industries, the Defense Plant Corporation, and the architect-engineers [illegible] which included driving and load tests on test piles and logs of borings

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made at various places on the site. These data are all included in Exhibit 6. The representatives of all three agencies at the site were most cooperative. In cooperation with representatives of this office, several concrete test slabs were made and loaded and time-settlement data obtained. The results of these tests are included in Appendix B. In addition, six bearing plate tests (made with the Galveston District bearing test rig) and auger borings every 500 feet down the proposed runway locations were made by representatives of this office, and copies of the results of these investigations were furnished to the Defense Plant Corporation representatives. Undisturbed core samples were taken by this office and these samples tested in the laboratory for moisture content, soil constants, and consolidation characteristics. (See Appendix C). In addition to the above, this office has consulted with various engineers who have constructed road bed fills on similar types of ground and their recommendations on the subject were given due consideration.

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DESCRIPTION OF THE SITE.-

The site consists of approximately 1,000 acres of land exclusive of canals in a roughly triangular shape. (See Exhibit 2 and 4). It is bounded on the south for its entire length of 8200 feet by the new location of the Intracoastal Canal, along the east by Wolfe Canal which serves the log pond and veneer mill of the plant, and on the northwest by Gentilly Road (old U. S. Highway 90) and Bayou Sauvage for a distance of approximately 2 miles.

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The sections of Intracoastal Canal, which lies on the south boundary, known locally as the Higgins Canal and the Wolfe Canal, which lies along the east boundary, have been widened to approximately 750 feet in serving as borrow areas for the fill material which has been placed on the site. Prior to placing the fill, the entire site was marsh and swamp land with an elevation of approximately 0/00 to +2 Mean Gulf Level; it has been filled to a general elevation of +6 to +7 Mean Gulf Level. The Higgins Aircraft Plant, which is under construction at the present time and scheduled for completion approximately August 15, is located in an area of about 250 acres in the northeast corner of the site. Under any of the presently contemplated runway layouts, approximately 250 acres in the northwest portion of the site along Gentilly Road outside of the glide angles of the runways will be available for building construction. It can be seen from the above description and exhibits that any expansion of the present site will entail a considerable amount of expense and construction time. In order to enlarge the airdrome area, which would have to be done to construct three 7,000 ft. runways, it would be necessary to relocate approximately 2-1/2 miles of the Intracoastal Canal in the approximate position as shown on Exhibit 3. The character of the land available for expansion is approximately the same as that

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on the present site except that the depth of peat and humus which comprises the top layer is somewhat greater than the depth of that layer on the present site area. This additional land is being used solely for trapping at the present time, but it is estimated that acquisition will cost approximately $40.00 per acre.

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HYDROLOGICAL AND METEOROLOGICAL CONDITIONS.-

The site is located at the delta of the Mississippi River. Soil has been formed from river deposits and is alluvia. Occasional scatterings of shell are found in depths down to 60 feet below the surface. Bayou Sauvage on the northwest boundary was probably at one time a channel of the Mississippi River entering Lake Borgne. All of the area south of Gentilly Road to Bayou Bienvenue and as far as 1 mile west of the site is drained by Bayou Bienvenue, and numerous small waterways into Lake Borgne to the east, the whole area being a flat cypress swamp with a mean elevation of about ⅄1 m.s.l. Hydraulic gradient is less than 0.1 percent and the ground water elevation is at, near, or above the surface. The particular area comprising the Higgins Aircraft Factory site served as a sugar plantation during the 19th Century but was abandoned and subsequently reverted to marsh land. The average seasonal temperature in this area is 69.4° F. with

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a maximum temperature of 102° F in June and July, and a minimum observed temperature of 7° F in February. The average annual rainfall is 57.36 inches for the 95-year period of record, with a monthly average varying from a low of 3.52 inches in October to a high of 6.59 inches in July. Snowfall is very rare in this area. The attached windrose, included on Exhibits 3 and 4, is that windrose for the New Orleans area compiled from information in "The Airway Meteorological Atlas of the United States", prepared by the Department of Commerce, Weather Bureau, Washington, D.C. A summary of the prevailing wind directions and velocities is as follows:

	0-3 mph	4-15 mph	16-31 mph	Total
N-S	--	23 %	5%	28%
NW-SE	--	21.5%	3.5%	25%
NE-SW	--	18 %	3%	21%
E-W	--	13 %	1%	14%
Calm	12%	-- %	--	12%

SOIL AND FOUNDATION CONDITIONS.-

A. General Description.- Prior to the placing of the hydraulic fill in 1942 and 1943, the top layer of the site for a depth varying from 2 feet to 12 feet consisted of unconsolidated peat and humus, predominantly organic matter occasionally mixed with clay. The thickness of humus increased with the

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distance away from Bayou Sauvage and Gentilly Road. Wide variations in moisture content were found, from 200 percent to 700 percent were encountered in this humus. Below this layer of peat and humus is a layer of clay ranging from 10 feet to 60 feet in thickness. This clay varies in consistency from extremely soft to fairly stiff, generally increasing in stiffness with depth below the surface. Below the clay is encountered a layer of fairly clean sand varying considerably in thickness. The principal characteristics of the soils in this area are the non-uniformity and lack of any regular stratification. Occasionally a thin layer of sand may be encountered within the clay itself. No stripping was done on the area of the site prior to placing the hydraulic fill in 1942 and 1943. During the placing of the fill some of the peat and humus within the top few feet floated to the surface and was thereby removed. There has undoubtedly been some consolidation of the underlying layers due to the weight of the new fill.

The material in the new fill varies in depth generally from 5 to 7 feet. In obtaining material for the new fill, approximately the top 14 to 15 feet of humus and clay were removed from the borrow sources and spoiled in areas outside of the site. The fill material itself

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consists then of all material obtained below the 14-ft. elevation down to a depth of approximately -40 elevation. Approximately 3/4 of the fill material consists of sand and 1/4 of clay. An attempt was made to place predominantly sandy material along the locations previously chosen for the runway locations, but an investigation of the existing conditions revealed that the present fill material is spotted. The logs of test borings obtained by representatives of this office, together with similar data obtained from Higgins Company and the New Orleans District Office, are inclosed as Exhibit 6.

B. Characteristics of Individual Materials.-

Peat and Humus.- This material comprised the top layer of the site prior to placing of the fill and consists of partially decayed vegetation of all descriptions. Although this humus is intermixed with clay in a few areas, a majority of the humus deposits are free of clay or other material. It is extremely fibrous and porous and, although quite pervious in an expanded condition, its permeability decreases rapidly with an increase in consolidation. Moisture samples taken by the New Orleans District Office prior to digging of the new Intracoastal Canal revealed moisture contents varying from 200 percent to 700 percent

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in this material. The fibrous nature of the humus is best described by the fact that this material cannot be readily cut with a knife but can be cut with scissors. Many areas of the humus, however, contain fairly large sticks, roots, and even sections of logs. It is not possible to run a mechanical analysis or Atterberg limit test on this material, but consolidation tests were run and the results are tabulated in Appendix C. It will be seen that a considerable amount of consolidation may be expected in this material due to the present fill and with the addition of any other superimposed load. Some consolidation has already taken place under the weight of the present fill, but additional consolidation is expected over a period of years.

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Clay.- The clay stratum which underlies the humus varies in thickness from 10 feet to 40 feet and generally varies in consistency from very soft clay near the top to a fairly stiff clay at the bottom of this layer. The material described as very soft clay has a moisture content very close to the liquid limit of the material. The characteristics of the Atterberg limit tests and the results of consolidation tests

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on this material are inclosed in Appendix C. It can be seen that any consolidation in this material will be very slight and that a relatively small amount of consolidation can be expected from the load superimposed by the present new fill. Due to the fact that a fairly uniform thickness of fill covers the site, and since the clay is at a considerable depth below the surface of the fill, no failure by shear may be expected in this material except possibly in a few isolated locations near the banks of the borrow pits.

Sand.- The surface of the sand layer is generally found from 20 to 60 feet below the surface of the original ground and the sand deposits are generally fairly clean and free of clay or silt. The characteristics of the sand itself are shown in Appendix C, and it may be seen that is is an excellent subgrade material. As it is fairly clean it has a fairly high permeability, but it is also "sharp" and well graded with a top size of approximately 40 mesh. When properly consolidated and drained, this material within itself will have a relatively high bearing value.

Existing Fill.- As mentioned above, the existing new fill consists of all material taken from below a depth of approximately 16 feet in the borrow sources. This

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fill material, therefore, consists of some clay and a considerable portion of sand. From borings taken on the new fill, however (see Exhibit 6), it was found that very little of the area contained a mixture of sand and clay. Although the fill itself is spotted to a marked degree, it is generally found that the majority of the new fill is sandy material and that there are numerous pockets varying considerably in size which consist almost entirely of clay.

C. Correcting Existing Fill.- In the event it is planned to place any type of pavement on the existing fill, certain corrective measures must first be carried out in order to obtain even reasonably satisfactory results. It will first be necessary to cut deep drainage ditches parallel to the proposed runways in order to expedite the drainage of the sand layer and assist in consolidating and stabilizing the fill. If possible, these drainage ditches should be placed at the future locations of the storm sewers, which are normally 250 feet outside of and parallel to the centerline of the runways. Two additional ditches should probably be dug just outside of the edges of the proposed pavement. After draining, it will then be necessary to definitely locate the pockets of clay by borings and improvised traffic tests under a heavily loaded vehicle, and remove and replace these pockets of clay with sandy material to

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a minimum depth of 6 feet. These corrective measures should be carried out over a width of 300 feet at each runway and taxiway location. After all areas on which pavement is to be placed have thus been corrected so as to produce a uniformly sandy material 6 foot deep in the fill, steps must then be taken to obtain the maximum amount of consolidation. A suggested method of accomplishing this result is to roll the fill with increasingly heavy tractors followed by heavily loaded scrapers to produce stresses that will produce compaction at a considerable depth below the surface. The final rolling should be done with pneumatic-tired rollers, making sure that the top layer of fill is at its optimum moisture content.

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D. Corrective Measures for Proposed Future Fills.- In the event it should be decided to enlarge the site to accommodate 7,000-ft. runways, a portion of these runways will be located on areas outside of the site on which no fill has been placed. If this is done, it is suggested that all existing humus and clay in these areas be removed to a depth of approximately 14 feet below the surface and refilled with sandy material to Elevation +6 or +7 feet above the present ground surface. If this is done, consideration should be given to some method of expediting the consolidation of this new fill such as by well points, vibration, blasting, etc. After the fill is

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in place, it should be drained and thoroughly consolidated in much the same manner as outlined under C above.

E. Piling and Piling Tests.- Within the past two years the Higgins Corporation has driven approximately 800 test piles and have made load settlement tests on a large number of these piles. On a majority of the test piles it was found that a 30 ton load was generally required before appreciable settlement occurred and that about a 50 ton load was required before a very marked and rapid settlement occurred. Some of the piles, however, showed considerably less bearing value than the average. Based on these tests, the Defense Plant Corporation has used an allowable bearing capacity of 15 tons per pile in the design of their buildings. All buildings on the site are supported on piles and the length of piles used varies between 40 and 60 feet. A majority of the piles are supported by point bearing on an underlying sand layer, but some of the piles 60 feet in length are supported entirely by skin friction in the clay. This office concurs in the necessity for supporting on piles any large building that may be contemplated for construction in this area.

F. Drainage.- It has previously been pointed out that the water table is fairly high in this area and it can never be materially lowered, inasmuch as the site is bounded on three sides by canals and bayous. At the present time, however, the existing new fill on

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the site has a water table approximately 18 inches below its surface, or 4 or 5 feet above the water table in the surrounding bodies of water. It is, of course, highly desirable to lower the water table several feet in the existing new fill in order to achieve greater consolidation and stability. The suggested method of accomplishing this result by the cutting of ditches is discussed under C, above.

The type of permanent drainage recommended in connection with the pavement will consist of removing the surface rain water only through the use of storm sewers and inlets located at a minimum distance of 250 feet from the centerline of the runways. This method of design will cause some ponding in these areas following periods of exceptionally heavy rainfall but will provide uninterrupted use of the runways and an economical design. With this method of drainage design it is anticipated that there will be no change in the moisture content of the underlying humus and clay except as effected by the consolidation due to the weight of the fill and pavement. It would be undesirable to lower the moisture content of the humus layer as that would cause excessive consolidation of that layer.

SOIL FACTORS AFFECTING DESIGN.-

In designing a pavement to be placed upon the present hydraulic fill, provisions must be made to insure against

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failure due to three different factors: (a) Failure due to insufficient bearing power in the new fill itself; (b) Failure by shear in the underlying humus and clay; and (c) Failure by excessively uneven settlement due to consolidation of the underlying layers. These factors are discussed below as follows:

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Failure in the New Fill:- As previously discussed, the new fill is composed predominantly of sandy soil and has a minimum depth of 5 to 6 feet. It contains, however, numerous pockets of clay which will have to be removed in order to provide a satisfactory minimum bearing power. If this is not done, an excessively high cost pavement will be required. It is difficult to estimate, at the present time, the exact amount of material that must be removed and replaced with sand in order to eliminate the unstable pockets, but it is believed that this can be done in a fairly satisfactory fashion if proper control is exercised during construction. At this time it is planned to locate and remove these pockets of unsatisfactory material to a depth of 8 feet within a strip 300 feet in width along each runway. In connection with the present fill a stock pile of approximately 300,000 cubic yards of sandy material is being provided for use in replacing these unsatisfactory areas. It is believed that this amount of material is sufficient for

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correcting strips 300 feet wide under either of the runway layouts considered in this report. The existing fill must also be carefully drained and consolidated as previously outlined prior to the placing of base or pavement. It is anticipated that the completed fill will continue to gain in strength throughout the succeeding years due to the additional consolidation and drainage that it will receive under traffic and time. The bearing ratios and values for K used in Appendix D are based upon the minimum expected values immediately following construction for the various designs considered.

Failure by Shear in the Humus and Clay.- Due to the inability of obtaining a satisfactory number of undisturbed samples for reliable tests, no laboratory shear tests were run. It is believed that if the runways are kept at least 500 feet away from the banks of the canals and borrow areas, there will be no danger of failure due to shear in the underlying humus and clay, for the following reasons:

(a) The new hydraulic fill consists of a uniform layer of material which acts as a surcharge and precludes the possibility of shear failure except near the banks of the borrow areas.

(b) No failure was revealed by the slab loading tests described in Appendix B even with the additional factor of vibration added.

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(c) The strongest evidence against the possibility of shear failure presented is several large loads which are resting on a portion of the fill placed in 1942. These loads consist of two extremely large stock piles of sand and gravel over 60 feet in height and one large stock pile of shell near the bank of Wolfe Canal. Furthermore, there is a railroad spur at the northeast corner of the site placed on two feet of shell ballast which is successfully carrying heavy loads with the added factor of vibration. Although the depth of peat and humus in this particular area is less than the average depth under the rest of the site, the fact that these loads produce many times the stresses that may be expected from the largest expected load on the runways is believed to be sufficient evidence that no shear failure may be expected in the runway areas.

Settlement Due to Consolidation.- The third factor that must be considered in a design placed on the new fill is the future total settlement and the differential settlement that may be expected due to the consolidation of the underlying humus and clay by the weight of the new fill plus the weight of the pavement and the distributed plane loads. The principal purpose of making the load

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tests on the slabs as described in Appendix B was to obtain a reasonable estimate of the expected total settlement and to estimate the expected differential settlement in the various portions of the fill. In addition, consolidation tests were run on the various materials and the results of these tests are included in Appendix C. It can be seen from a study of both the slab loading tests and the consolidation tests that a majority of the consolidation will take place in the layer of peat and humus. Due to the fact that the depth of humus under the site varies roughly from 2 to 10 feet, there will undoubtedly be differential settlement under the future runways and the earlier the pavement is constructed, the greater will be the settlement. For this reason it is believed that any pavement constructed immediately upon the existing fill, even after the fill has been corrected and consolidated, should be considered the first stage of stage construction and that additional construction or re-leveling of the surface will be necessary at a future date after most of this settlement has taken place. In all of the concrete pavement designs included herein a minimum of steel is provided to allow the concrete to be dragged across the subgrade during temperature changes and to allow the concrete to hold together and to be "mud-jacked" to a level surface following future consolidation.

RUNWAY LAYOUTS.- CONFIDENTIAL

The present runway layout proposed by the Defense Plant

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Corporation consists of two 160' x 5500' ft. runways and one 160' x 6400 ft. runway (all without shoulders), built within the boundaries of the site. It is understood, however, that they are giving consideration to some change in their proposed runway layout. The letter requesting this engineering report stated that three runways, 7,000 feet long, were to be considered, and the proposed layout for this construction is shown on Exhibit 3. In order to construct three 7,000-ft. runways, it will be necessary to relocate the Intracoastal Canal, fill in certain portions of this canal and the borrow ditch, and remove the humus and replace with sand fill on a considerable acreage south of the present canal. In relocating the canal, sufficient room was provided to allow for a possible future enlargement of the three runways to 8,000 ft. in length within the new boundaries of the site. Due to the fact that the relocation of the Intracoastal Canal and the large amount of dredging incidental to the construction of 7,000 ft. runways will entail a considerable amount of time and costs, complete cost estimates are provided within this report for the construction of three runways within the boundaries of the present site, these three runways being 7,000 feet, 6,000 feet and 5200 feet long. This layout is shown on Exhibit 4. In the event these lengths of runways prove satisfactory

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to the using agency, it is believed that this layout should be given consideration for the reasons stated above, and also because of the possibility of objections from navigation interests to relocating the canal. By any method of construction that is finally adopted, it is estimated that the construction of three 7,000-ft. runways will require 8 months longer construction time than will the construction of three runways within the present limits of the site. This time estimate is based on the assumption that an ample supply of dredges will be available despite the present shortage. Both of the layouts considered in this report (Exhibits 3 and 4) provide for full clearances and glide angles, in conformity with the requirements of the Engineering Manual which apply to the construction of airfields at assembly plants and modification centers. Attention is called to the fact that these criteria do not require a clear zone, but that the 40 to 1 glide angle begins at the end of the runways. A considerable portion of the dredge excavation item included in the cost estimates is for the purpose of filling in portions of the borrow canals in order to provide standard lateral clearances from the centers of the runways. The designs and cost estimates discussed herein pertain to runways 150 feet wide with 75-ft. shoulders on each side designed to carry one-half the design wheel load of the runway. The taxiways are designed to be 100 feet wide for a loading 25 percent greater than that used for the runways. 12-1/2 ft. shoulders are provided on each side of the taxiways and these shoulders are designed to carry one-half the design wheel load of the taxiways.

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The [illegible]ron shown in the layout is not [illegible]nsidered in the inclosed cost estimates or design as it is considered part of the plant.

RUNWAY DESIGNS.-

After due consideration of the various engineering factors involved, final study was given to three different methods of runway construction at this airfield:

Method No. 1: Excavating 20 feet deep and refilling with sand under all runways;

Method No. 2: Stage construction with concrete pavement placed immediately with a leveling up course of asphaltic concrete placed at some future date;

Method No. 3: Stage construction with flexible base pavement placed immediately followed by the placing of concrete pavement at some future date.

Method No. 1.- Due to the fact that the layer of humus was not removed prior to placing the existing hydraulic fill, it is believed that it would be necessary to remove all of the existing fill and humus to a depth of approximately 20 feet and refill with sand under all the runway areas, in order to provide a pavement with a maximum amount of stability and minimum amount of future movement and detrimental settlement. A cost estimate is inclosed for this method of construction, but this method is not recommended for use in this particular case due to the excessive costs involved, the excessive construction

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tims involved, and to the fact that a fairly satisfactory pavement can be placed by stage construction methods upon the existing fill. In designing the pavement thicknesses under this method (Appendix D), a K value of 200 was used in designing the concrete pavement and a California Bearing Ratio of 13 was used in the flexible base shoulders.

Methods No. 2 and 3 - Stage Construction.- Due to the fact that considerable additional consolidation may be expected in the layer of peat and humus from the weight of the existing fill, the pavement and plane loads, and because the layer of underlying peat varies considerably in thickness throughout the site, any pavement placed immediately will be subject to some future differential settlement. For this reason it is believed that stage construction methods should be employed in the construction of a pavement upon the existing fill. If this fact is recognized, it is believed that a satisfactory, usable pavement can be constructed upon the existing fill provided: (a) extreme care is taken to thoroughly drain the existing fill by means of ditches as previously outlined, (b) all pockets of clay are located and replaced and (c) the existing fill is thoroughly consolidated and compacted by rolling with increasingly heavy wheel loads. The grades of the initial pavement should be established as a result

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of a detailed study of the thickness of the humus layers in the various areas in order to anticipate the expected future differential settlement. For any method of construction, the utilization of the 7,000-ft. runway layout (Exhibit 3) will involve the use of some areas outside of the existing site. The construction in these areas for any plan adopted, should consist of first removing the existing peat and humus and soft clay down to a depth of approximately 15 feet, then refilling these areas with sand to an elevation of approximately 7 feet above the present surface.

Method No. 2 - Stage Construction with Concrete Pavement Placed Immediately, Followed by Repair and Leveling with Asphaltic Concrete at Some Future Date.- Under this method of construction it is planned to drain, remove the pockets of clay and consolidate the existing fill, as previously outlined, followed by the immediate placement of concrete runways and taxiways and shell shoulders of the thickness listed in the inclosed cost estimates and Appendix D. For this construction, a K value of 100 was used in designing the concrete pavement and a California Bearing Ratio of 13 was used in designing shell shoulders. Inasmuch as it is difficult to anticipate the values that will be obtained after the fill has been corrected and consolidated, it is definitely recommended that tests be made just prior to placing the pavements and after the

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subgrade work has been done, in order to more accurately determine the thickness of the pavement to be used. Four inches of shell is to be placed on the existing sand fill under the concrete pavement, in order to facilitate construction and prevent the construction equipment from cutting into the subgrade. This method of construction has the advantage of more quickly placing at the disposal of the using agency a pavement capable of carrying the design wheel loads for intensive operation and use. This method has the disadvantage, however, of not producing as satisfactory a final pavement as Method No. 3, because all of the pockets of clay will probably not be discovered and removed and they cannot be subsequently removed from under the concrete pavement. There will be differential settlement in the slab and undoubtedly considerable breakage of the concrete pavement. Some maintenance work, such as mud-jacking or replacing certain areas, may be required during the interval of use between the two stages of construction, but no cost estimates of this work are included. At some future date, however, the pavement can be relevelled by first mud-jacking or replacing certain areas, followed by a levelling up course of asphaltic concrete. It is estimated that an average thickness of 3 inches of asphaltic concrete will be required for the levelling course.

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Method No. 3 - Stage Construction by First Placing A Flexible Base With A Light Wearing Surface, Followed by the Construction of a Concrete Pavement at Some Future Date.- This method of construction has the disadvantage of taking somewhat longer to construct than Method No. 2, but has the advantage of producing a more satisfactory pavement in the final stage. During the use of the flexible base pavement (1st stage), consolidation will take place in the humus and pockets of poor subgrade material in the fill will be detected and removed at very little cost. A light asphalt wearing surface, or dust palliative is to be placed on runways and taxiways (but not on the shoulders) during the first stage. During the interval of use between the first and second stages, any major settlements that occur in localized areas can be economically repaired by blading off the dust palliative, repairing the source of trouble, relevelling with shell, and applying a layer of asphalt and cover material. Prior to the placing of the final pavement in the second stage, the entire runway and taxiway areas can be relevelled at very little expense. Although it is presently planned that concrete pavement will be placed in the final stage, the decision as to the time and method of construction for the second stage can be deferred until after a period of observation of the behavior of the flexible pavement placed

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in the first stage. For the shell placed immediately, a California Bearing Ratio of 13 was used for the subgrade. Following the period of use during the 1st stage, it is believed that the shell which will be in place under the runways, plus the drainage and consolidation of the subgrade, will materially increase the K value to be used in designing a concrete pavement in the second stage. At this time a K value of 200 is assumed in the designs inclosed herein, but it is strongly recommended that before the pavement is placed in the second stage, sufficient tests be run to accurately determine the design to be used for this construction.

General - for All Methods.- In all designs of concrete pavement used herein, a design flexural strength of 700 lbs. per sq. in. at 28 days was used with a factor of safety of 1.75. This resulted in a design working stress of 400 lbs. per sq. in. Consideration was given to the use of a concrete slab, reinforced top and bottom, but it was decided that a minimum amount of steel would be more satisfactory. It is believed that a slab heavily reinforced with steel top and bottom will use an unnecessarily large amount of critical materials and will also settle under any settlement of the subgrade but will be extremely difficult to mud-jack back into place. Accordingly, the concrete pavement to be placed on the existing fill by

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either method of construction was designed as a non-reinforced slab (see Appendix D). Enough steel, however, is provided to satisfactorily pull the slab across the subgrade during changes in temperature, and to hold the slab together with the settlement of the subgrade under the pavement. It is believed that the amount of steel used will tend to provide a fairly smooth riding surface despite unequal settlement, and will allow the pavement to be mud-jacked at some future date so as to restore it to a smooth riding surface.

In the construction of flexible base described herein, it is planned to use clam shell from Lake Borgne mixed with sand in the proportion of 3 parts shell to one part sand. The addition of sand will produce a higher stability, less subsequent degradation of the shell than the use of shell alone, and will prevent the subgrade from being forced up into the shell under future movement and settlement. The 4 inches of shell to be placed under the concrete in Methods 1 and 2 will not have sand dddddd, inasmuch as it is felt that sufficient sand will be incorporated with this small amount of shell during the process of construction.

ESTIMATE OF COST AND CONSTRUCTION TIME. -

The following estimates do not include any cost of maintenance during the interval of use between the first and second stages of construction in Methods 2 and 3.

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Method No. 1 - Excavate & Refill
CBR = 13 Y = 20

Item	Unit	Cost	7000' Runways 74,000 Quantity	7000' Runways 74,000 Cost	7000' Runways 120,000 Quantity	7000' Runways 120,000 Cost	Runways Within Present Site 74,000 Quantity	Runways Within Present Site 74,000 Cost	Runways Within Present Site 120,000 Quantity	Runways Within Present Site 120,000 Cost
1. Land Acquisition	Acre	$ 40.	450	18,000	450	18,000	-		-	
2. Dredging-Excavation Stripping & Loss	Cu.Yd.	0.20	20,500,000	4,100,000	20,500,000	4,100,000	12,000,000	2,400,000	12,000,000	2,400,000
3. Fill Consolidation	Lump			400,000		400,000		400,000		400,000
4. Earthwork	Cu.Yd.	0.50	700,000	350,000	700,000	350,000	500,000	250,000	500,000	250,000
5. Shell Sub-Base (4" Thick)	Sq.Yd.	0.40	362,500	145,000	362,500	145,000	315,850	126,340	315,850	126,340
6. Concrete Pavement										
Runways & Taxiway 7"	Sq.Yd.	2.70	362,500	978,750			315,850	852,795		
Runways & Taxiway 9"	Sq.Yd.	3.30			362,500	1,196,250			315,850	1,042,305
7. Reinforcing Steel	Lb.	0.08	1,225,250	98,020	1,529,750	122,380	1,067,573	85,406	1,332,887	106,631
8. Shell Shoulders										
Runways 12"	Sq.Yd.	1.56	342,500	534,300			295,850	461,526		
Taxiways 13"	Sq.Yd.	1.69	5,000	8,450			5,000	8,450		
Runways 14"	Sq.Yd.	1.82			342,500	623,350			295,850	538,447
Taxiways 15"	Sq.Yd.	1.95			5,000	9,750			5,000	9,750
9. Drainage	Lump			500,000		500,000		400,000		400,000
10. Removal of Obstacles	Lump			25,000		25,000		25,000		25,000
11. Dust Palliative on Shoulders	Sq.Yd.	0.15	347,500	52,125	347,500	52,125	300,850	45,128	300,850	45,128
Sub-Total				7,209,045		7,141,855		5,564,853		5,303,601
Engineering & Contingencies 20%				1,441,809		1,428,371		1,112,970		1,060,720
TOTAL				8,651,574		8,570,226		6,677,823		6,364,321
Estimated Construction Period				30 Months		30 Months		24 Months		24 Months

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Method No. 1 - Excavate & Fill
CBR = 13 K = 20

Item	Unit	Cost	7000' Runways: 74,000 Quantity	7000' Runways: 74,000 Cost	7000' Runways: 120,000 Quantity	7000' Runways: 120,000 Cost	Runways Within Present Site: 74,000 Quantity	Runways Within Present Site: 74,000 Cost	Runways Within Present Site: 120,000 Quantity	Runways Within Present Site: 120,000 Cost
Acquisition	Acre	$ 40.	450	18,000	450	18,000	-		-	
ing-Excavation pping & Loss	Cu. Yd.	0.20	20,500,000	4,100,000	20,500,000	4,100,000	12,000,000	2,400,000	12,000,000	2,400,000
Consolidation	Lump			400,000		400,000		400,000		400,000
work	Cu. Yd.	0.50	700,000	350,000	700,000	350,000	500,000	250,000	500,000	250,000
Sub-Base Thick)	Sq. Yd.	0.40	362,500	145,000	362,500	145,000	315,850	126,340	315,850	126,340
rete Pavement										
ys & Taxiway 7"	Sq. Yd.	2.70	362,500	978,750			315,850	852,795		
ys & Taxiway 9"	Sq. Yd.	3.30			362,500	1,196,250			315,850	1,042,305
forcing Steel	Lb.	0.08	1,225,250	98,020	1,529,750	122,380	1,067,573	85,406	1,332,887	106,631
Shoulders										
ys 12"	Sq. Yd.	1.56	342,500	534,300			295,850	461,526		
ays 13"	Sq. Yd.	1.69	5,000	8,450			5,000	8,450		
ays 14"	Sq. Yd.	1.82			342,500	623,350			295,850	538,447
ays 15"	Sq. Yd.	1.95			5,000	9,750			5,000	9,750
nage	Lump			500,000		500,000		400,000		400,000
val of Obstacles	Lump			25,000		25,000		25,000		25,000
Palliative houlders	Sq. Yd.	0.15	347,500	52,125	347,500	52,125	300,850	45,128	300,850	45,128
Sub-Total				7,209,745		7,441,855		5,054,645		5,343,601
Engineering & Contingencies 20%				1,441,949		1,488,371		1,010,929		1,068,720
TOTAL				8,651,694		8,930,226		6,065,574		6,412,321
Estimated Construction Period				30 Months		30 Months		24 Months		24 Months

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STAGE CONSTRUCTION METHOD NO. 2

CONCRETE PAVEMENT IMMEDIATELY - REINFORCE LATER WITH ASPHALTIC CONCRETE

CBR = 13 K = 100

ITEM	UNIT	COST	7,000-Ft. RUNWAYS				RUNWAYS WITHIN PRESENT SITE			
			QUANTITY	COST	QUANTITY	COST	QUANTITY	COST	QUANTITY	COST
			74,000 gross load		140,000 gross load		74,000 gross load		120,000 gross load	
FIRST STAGE										
1. Land Acquisition	Acre	$ 40	450	18,000	450	18,000				
2. Dredging (Excavation, Stripping & Loss)	Cu.Yd.	0.20	14,000,000	2,800,000	14,000,000	2,800,000	5,000,000	1,000,000	5,000,000	1,000,000
3. Earthwork	Cu.Yd.	0.50	500,000	250,000	500,000	250,000	400,000	200,000	400,000	200,000
4. Select Material	Cu.Yd.	1.00	300,000	300,000	300,000	300,000	250,000	250,000	250,000	250,000
5. Shell Sub-Base 4" Thick	Sq.Yd.	0.40	362,500	145,000	362,500	145,000	315,850	126,340	315,850	126,340
6. Concrete Pavement:										
Runway & Taxiway 8"	Sq.Yd.	3.00	362,500	1,087,500			315,850	947,550		
Runway & Taxiway 10"					362,500	1,305,000			315,850	1,137,060
7. Reinforcing Steel	Lb.	0.08	1,363,000	109,040	1,750,878	140,070	1,197,596	95,808	1,525,555	122,044
8. Shell Shoulders										
Runways 12"	Sq.Yd.	1.56	342,500	534,300			295,850	461,526		
Taxiways 12"	Sq.Yd.	1.69	5,000	8,450			5,000	8,450		
Runways 14"	Sq.Yd.	1.82			342,500	623,350			295,850	538,447
Taxiways 15"	Sq.Yd.	1.95			5,000	9,750			5,000	9,750
9. Drainage	Lump			500,000		500,000		400,000		400,000
10. Remove Obstacles	Lump			25,000		25,000		25,000		25,000
TOTAL:				5,777,290		6,116,170		3,513,874		3,808,641
Engineering & Contingencies, 20 percent				1,155,458		1,223,234		702,775		761,728
SUBTOTAL, First Stage:				6,932,748		7,339,404		4,216,649		4,570, 369
SECOND STAGE										
1. Asphaltic Concrete 3"	Sq.Yd.	1.35	362,500	489,375	362,500	489,375	315,850	426,398	315,850	426,398
2. Rebuilding Shoulders	Sq.Yd.	0.10	121,000	12,100	121,000	12,100	105,000	10,500	105,000	10,500
3. Dust Palliation Shoulders	Sq.Yd.	0.15	347,500	52,125	347,500	52,125	300,850	45,128	300,850	45,128
TOTAL:				553,600		553,600		482,026		482,026
Engineering & Contingencies, 20 percent				110,720		110,720		96,405		96,405
SUBTOTAL, Second Stage:				664,320		664,320		578,431		578,431
TOTAL, FIRST AND SECOND STAGES:				7,597,068		8,003,724		4,795,080		5,148,800
Estimated Construction Period, First Stage:				Sixteen Months		Sixteen Months		Eight Months		Eight Months
Interval Between 1st & 2nd Stages				Indeterminate		Indeterminate		Indeterminate		Indeterminate
Estimated Construction Period, Second Stage:				Five Months		Five Months		Four Months		Four Months

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STAGE CONSTRUCTION METHOD NO. 2

CONCRETE PAVEMENT IMMEDIATELY - REINFORCED LATER WITH ASPHALTIC CONCRETE

CBR = 13 K = 100

			7,000-Ft. RUNWAYS				RUNWAYS WITHIN PRESENT SITE			
	UNIT	COST	QUANTITY 74,000 gross load	COST	QUANTITY 120,000 gross load	COST	QUANTITY 74,000 gross load	COST	QUANTITY 120,000 gross load	COST
GE										
isition	Acre	$ 40	450	18,000	450	18,000				
(Excavation, & Loss)	Cu.Yd.	0.20	14,000,000	2,800,000	14,000,000	2,800,000	5,000,000	1,000,000	5,000,000	1,000,000
	Cu.Yd.	0.50	500,000	250,000	500,000	250,000	400,000	200,000	400,000	200,000
terial	Cu.Yd.	1.00	300,000	300,000	300,000	300,000	250,000	250,000	250,000	250,000
-Base 4" Thick	Sq.Yd.	0.40	362,500	145,000	362,500	145,000	315,850	126,340	315,850	126,340
Pavement:										
Taxiway 8"	Sq.Yd.	3.00	362,500	1,087,500			315,850	947,550		
Taxiway 10"					362,500	1,305,000			315,850	1,137,060
ng Steel	Lb.	0.08	1,363,000	109,040	1,750,875	140,070	1,137,596	95,008	1,525,555	122,044
ulders										
2"	Sq.Yd.	1.56	342,500	534,300			295,850	461,526		
3"	Sq.Yd.	1.69	5,000	8,450			5,000	8,450		
4"	Sq.Yd.	1.82			342,500	623,350			295,850	538,447
5"	Sq.Yd.	1.95			5,000	9,750			5,000	9,750
	Lump			500,000		500,000		400,000		400,000
				25,000		25,000		25,000		25,000
ctacles	Lump							3,513,874		3,808,641
TOTAL:				5,777,290		6,116,170		706,775		761,728
Engineering & Contingencies, 20 percent				1,155,458		1,223,234				
SUBTOTAL, First Stage:				6,932,748		7,339,404		4,216,649		4,570, 369
AE										
Concrete 3"	Sq.Yd.	1.35	362,500	489,375	362,500	489,375	315,850	426,398	315,850	426,398
g Shoulders	Sq.Yd.	0.10	121,000	12,100	121,000	12,100	105,000	10,500	105,000	10,500
n Shoulders	Sq.Yd.	0.15	347,500	52,125	347,500	52,125	300,850	45,128	300,850	45,128
TOTAL:				553,600		553,600		482,026		482,026
Engineering & Contingencies, 20 percent				110,720		110,720		96,405		96,405
SUBTOTAL, Second Stage:				664,320		664,320		578,431		578,431
L, FIRST AND SECOND STAGES:				7,597,068		8,003,724		4,795,080		5,148,800
Construction Period, First Stage:			Sixteen Months		Sixteen Months		Eight Months		Eight Months	
Between 1st & 2nd Stages			Indeterminate		Indeterminate		Indeterminate		Indeterminate	
Construction Period, Second Stage:			Five Months		Five Months		Four Months		Four Months	

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Method No. 3 Stage Construction - Flexible Pavement Immediately, Concrete Surface Later

CBR = 13 K = 200

Item	Unit	Cost	7,000' Runways 74,000 Quantity	7,000' Runways 74,000 Cost	7,000' Runways 120,000 Quantity	7,000' Runways 120,000 Cost	Runways Within Present Site 74,000 Quantity	Runways Within Present Site 74,000 Cost	Runways Within Present Site 120,000 Quantity	Runways Within Present Site 120,000 Cost
1st Stage										
1. Land Acquisition	Acre	$ 40.00	450	18,000	450	18,000				
2. Dredging (Excavation Stripping & Loss)	Cu.Yd.	0.20	14,000,000	2,800,000	14,000,000	2,800,000	5,000,000	1,000,000	5,000,000	1,000,000
3. Earthwork	Cu.Yd.	0.50	500,000	250,000	500,000	250,000	400,000	200,000	400,000	200,000
4. Select Material	Cu.Yd.	1.00	300,000	300,000	300,000	300,000	250,000	250,000	250,000	250,000
5. Shell Base										
150' Runways 15"	Sq.Yd.	1.95	342,500	667,875			295,850	576,907		
100' Taxiways 17"	" "	2.21	20,000	44,200			20,000	44,200		
150' Runways 18"	" "	2.34			342,500	801,450			295,850	692,289
100' Taxiways 21"	" "	2.73			20,000	54,600			20,000	54,600
6. Shell Shoulders										
150' Runways 12"	Sq.Yd.	1.56	342,500	534,300			295,850	461,526		
100' Taxiways 13"	" "	1.69	5,000	8,450			5,000	8,450		
150' Runways 14"	" "	1.82			342,500	623,350			295,850	538,447
100' Taxiways 15"	" "	1.95			5,000	9,750			5,000	9,750
7. Dust Palliative	Sq. Yd.	0.15	362,500	54,375	362,500	54,375	315,850	47,378	315,850	47,378
8. Drainage	Lump			500,000		500,000		400,000		400,000
9. Remove Obstacles	Lump			25,000		25,000		25,000		25,000
TOTAL				5,202,200		5,434,525		3,013,461		3,217,464
ENGINEERING & CONTINGENCIES, 20%				1,040,440		1,087,305		602,692		643,493
SUB-TOTAL - 1st STAGE				6,242,640		6,521,830		3,616,153		3,860,957
2nd Stage										
1. Concrete Pavement										
Runways & Taxiways 9"	Sq.Yd.	2.70	362,500	978,750			315,850	852,795		
Runways & Taxiways 9"	Sq.Yd.	3.30			362,500	1,196,250			315,850	1,042,305
2. Reinforcing Steel	Lb.	0.08	1,225,250	98,020	1,529,750	122,380	1,067,573	85,406	1,332,887	106,631
3. Rebuild Shoulders	Sq.Yd.	0.10	347,500	34,750	347,500	34,750	300,850	30,085	300,850	30,085
4. Dust Palliative on Soldrs	Sq.Yd.	0.15	347,500	52,125	347,500	52,125	300,850	45,128	300,850	45,128
TOTAL				1,163,645		1,405,505		1,013,414		1,224,149
ENGINEERING & CONTINGENCIES, 20%				232,729		281,101		202,683		244,830
TOTAL				1,396,374		1,686,606		1,216,097		1,468,979
TOTAL - 1st & 2nd Stages				7,639,014		8,210,436		4,832,250		5,329,936
Estimated Construction Period - 1st Stage			18 Months		20 Months		10 Months		12 Months	
Interval Between 1st & 2nd Stage			Indeterminate		Indeterminate		Indeterminate		Indeterminate	
Estimated Construction Period - 2nd Stage			[illegible]		[illegible]		5 Months		5 Months	

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Method No. 3 Stage Construction - Flexible Pavement Immediately, Concrete Surface Later

CBR = 13 K = 200

Item	Unit	Cost	7,000' Runways 74,000 Quantity	7,000' Runways 74,000 Cost	7,000' Runways 120,000 Quantity	7,000' Runways 120,000 Cost	Runways Within Present Site 74,000 Quantity	Runways Within Present Site 74,000 Cost	Runways Within Present Site 120,000 Quantity	Runways Within Present Site 120,000 Cost
ge										
Acquisition	Acre	$ 40.00	450	18,000	450	18,000				
ging (Excavation										
ipping & Loss)	Cu.Yd.	0.20	14,000,000	2,800,000	14,000,000	2,800,000	5,000,000	1,000,000	5,000,000	1,000,000
hwork	Cu.Yd.	0.50	500,000	250,000	500,000	250,000	400,000	200,000	400,000	200,000
ct Material	Cu.Yd.	1.00	300,000	300,000	300,000	300,000	250,000	250,000	250,000	250,000
l Base										
" Runways 15"	Sq.Yd.	1.95	342,500	667,875			295,850	576,907		
" Taxiways 17"	" "	2.21	20,000	44,200			20,000	44,200		
" Runways 18"	" "	2.34			342,500	801,450			295,850	692,289
" Taxiways 21"	" "	2.73			20,000	54,600			20,000	54,600
l Shoulders										
" Runways 12"	Sq.Yd.	1.56	342,500	534,300			295,850	461,526		
" Taxiways 13"	" "	1.69	5,000	8,450			5,000	8,450		
" Runways 14"	" "	1.82			342,500	623,350			295,850	538,447
" Taxiways 15"	" "	1.95			5,000	9,750			5,000	9,750
Palliative	Sq. Yd.	0.15	362,500	54,375	362,500	54,375	315,850	47,378	315,850	47,378
nage	Lump			500,000		500,000		400,000		400,000
ve Obstacles	Lump			25,000		25,000		25,000		25,000
TAL				5,202,200		5,436,525		3,013,461		3,217,464
GINEERING & CONTINGENCIES, 20%				1,040,440		1,087,305		602,692		643,493
B-TOTAL - 1st STAGE				6,242,640		6,523,830		3,616,153		3,860,957
ge										
rete Pavement										
ways & Taxiways 7"	Sq.Yd.	2.70	362,500	978,750			315,850	852,795		
ways & Taxiways 9"	Sq.Yd.	3.30			362,500	1,196,250			315,850	1,042,305
forcing Steel	Lb.	0.08	1,225,250	98,020	1,529,750	122,380	1,067,573	85,406	1,332,887	106,631
ild Shoulders	Sq.Yd.	0.10	347,500	34,750	347,500	34,750	300,850	30,085	300,850	30,085
Palliative on Shoulders	Sq.Yd.	0.15	347,500	52,125	347,500	52,125	300,850	45,128	300,850	45,128
TAL				1,163,645		1,405,505		1,013,414		1,224,149
GINEERING & CONTINGENCIES, 20%				232,729		281,101		202,683		244,830
B-TOTAL - 2nd STAGE				1,396,374		1,686,606		1,216,097		1,468,979
L - 1st & 2nd Stage				7,639,014		8,210,436		4,832,250		5,329,936
ed Construction Period - 1st Stage			18 Months		20 Months		10 Months		12 Months	
l Between 1st & 2nd Stage			Indeterminate		Indeterminate		Indeterminate		Indeterminate	
ed Construction Period - 2nd Stage			6 Months						5 Months	

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CONCLUSIONS.-

(a) The most satisfactory method of constructing runways with the minimum future movement and differential settlmtn is by excavating the existing fill and humus under all runway and taxiway locations to a depth of 20 feet and replacing this material with dredged sand fill, as outlined under Method 1.

(b) This method is not favorably considered because of its excessive cost and construction time.

(c) For any construction that is contemplated outside of the present limits of the site, as would be necessary in constructing three 7,000-ft. runways, the method outlined under (a) above should be used for all construction in the new areas.

(d) A usable pavement can be constructed on the existing fill provided that careful and thorough methods are used to satisfactorily drain, remove the clay pockets from, and consolidate the existing fill.

(e) Even though the precautions outlined in (d) above are used, the weight of the present fill and the additional pavement and loads that are placed upon it will cause consolidation in the underlying materials. Due to the fact that a majority of this settlement will take place in the layer of peat and humus, which varies from 2 to 12 feet in thickness, a future differential settlement may be expected in the various areas of the field.

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(f) For the reasons outlined in (e) above, it is believed that any pavement now placed upon the existing fill should be considered the first stage of a two stage construction program and it should be fully realized that repairs or new construction, at a future date, will constitute the second stage of construction.

(g) Shell shoulders should be provided for any method of construction because of the heavy loads contemplated.

(h) Method No. 2 - stage construction with the concrete runways and taxiways placed immediately, will have the advantage of a shorter construction time for the first stage, but will have the disadvantage of requiring considerable maintenance and producing a final pavement inferior in quality to Method No. 3.

(i) Method No. 3 - placing a flexible base on runways and taxiways during the initial construction, will take slightly longer to construct than the first stage of Method No. 2, but will have the advantage of allowing the unstable areas to be located and removed and will allow the flexible base pavement to be observed during the consolidation period of use under Stage No. 1. This observation period will permit more satisfactory determinations at a future date as to the time of placing and type of pavement to be used in constructing stage No. 2. It is believed that the final pavement under Method No. 3 will be more satisfactory than that obtained under Method

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No. 2 due to the additional consolidation in the top layer that will be produced under a flexible base in use and to the removal of unstable areas of the subgrade that were overlooked in the initial construction.

(j) An asphaltic dust palliative should be placed immediately upon runways and taxiways constructed of flexible base under Method No. 2, but the placing of this dust palliative on the shoulders under Methods Nos. 2 and 3 should be deferred until the final stage of construction.

(k) Inasmuch as the laboratory consolidation test data listed in Appendix C indicates the possibility of a final differential settlement of as much as 1 ft. between the various areas of the site, it is believed that the initial grades should be set in such a manner as to provide for a portion of this expected differential settlement. The basis for this design should be the fact that the expected future consolidation is the function of the depth of humus and soft clay in any given area.

RECOMMENDATIONS.-

(a) It is recommended that a pavement be constructed immediately on the existing fill at the site, provided careful control and attention are given to draining, eliminating unstable areas, and thoroughly compacting the existing fill under the pavement and shoulder areas.

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(b) Inasmuch as a future differential settlement may be expected on any pavement placed on the existing fill, it is recommended that stage construction methods be used with full recognition of the fact that additional construction will have to be undertaken following a period of use and accompanying settlement.

(c) In the event primary importance is to be given to providing runways and taxiways suitable for intensive use at the earliest practicable date, it is recommended that Method No. 2 as outlined above be used with concrete runways and taxiways and shell shoulders provided (immediately followed at a future date by mud-jacking,) repairs as necessary, and the application of an asphaltic concrete re-surfacing course.

(d) In the event primary importance is to be given to the construction of a usable pavement at a reasonably early date followed by the final construction of a pavement that will require the least amount of future maintenance and repairs, it is recommended that Method No. 3 be used, which method consists of the initial construction of shell runways and taxiways with an asphaltic dust palliative and shell shoulders, followed at a future date by the repair of unsatisfactory areas and the construction of a concrete or other pavement if such construction is deemed advisable at that time.

(e) In the event the length of runways shown on Exhibit 4 (one 7,000-ft., one 6,000-ft., and one 5,200-ft.) will satisfactorily serve the needs of the using agency, it is recommended

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that this layout be constructed, inasmuch as it will result in a considerable saving in construction time and costs and eliminate the necessity for relocating a portion of the Intracoastal Canal.

W. G. Saville
Colonel, Corps of Engineers
District Engineer

U. S. Engineer Office, Galveston, Texas
May 31, 1943

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EXHIBIT 1

GENERAL LOCALITY MAP

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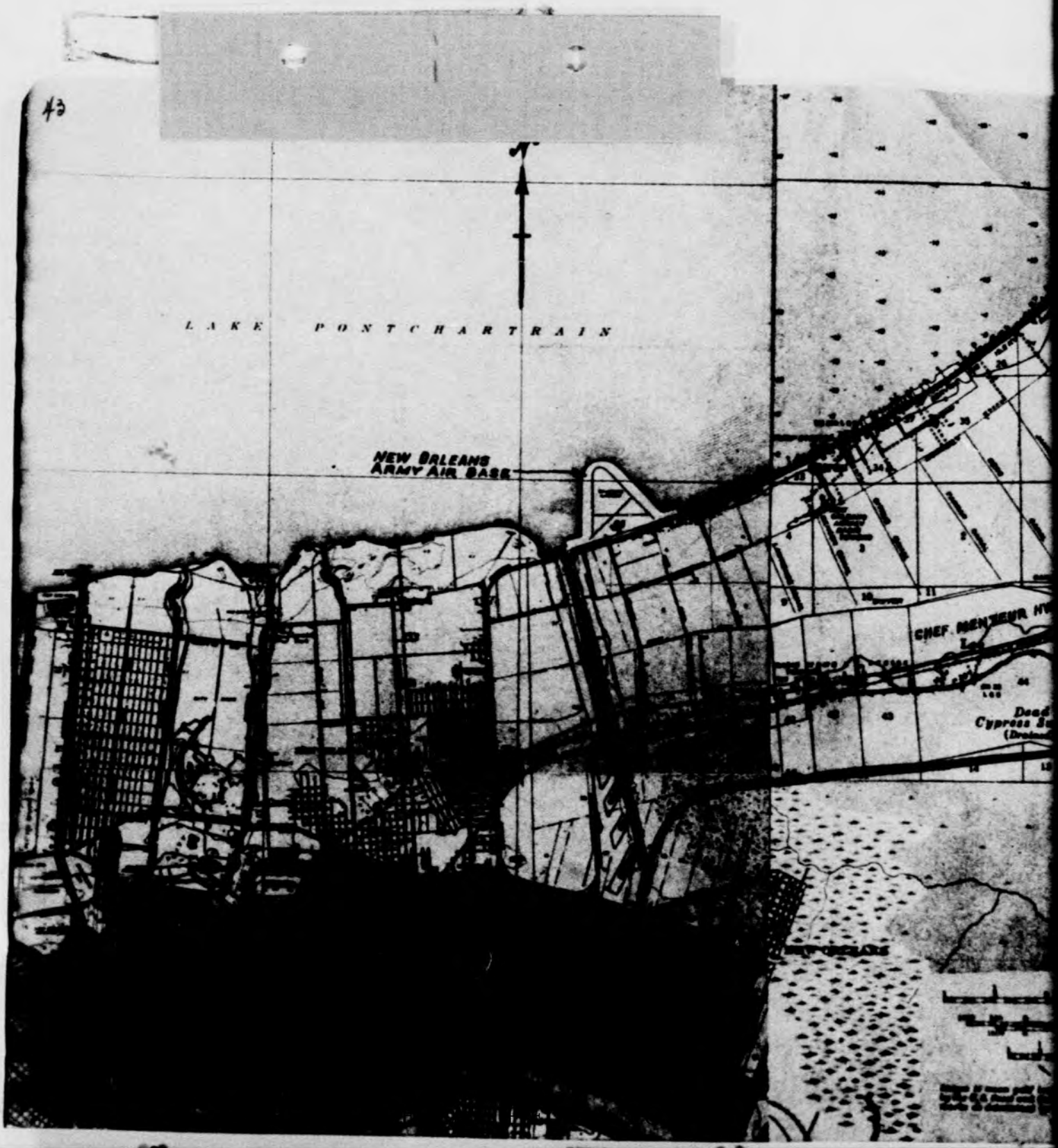

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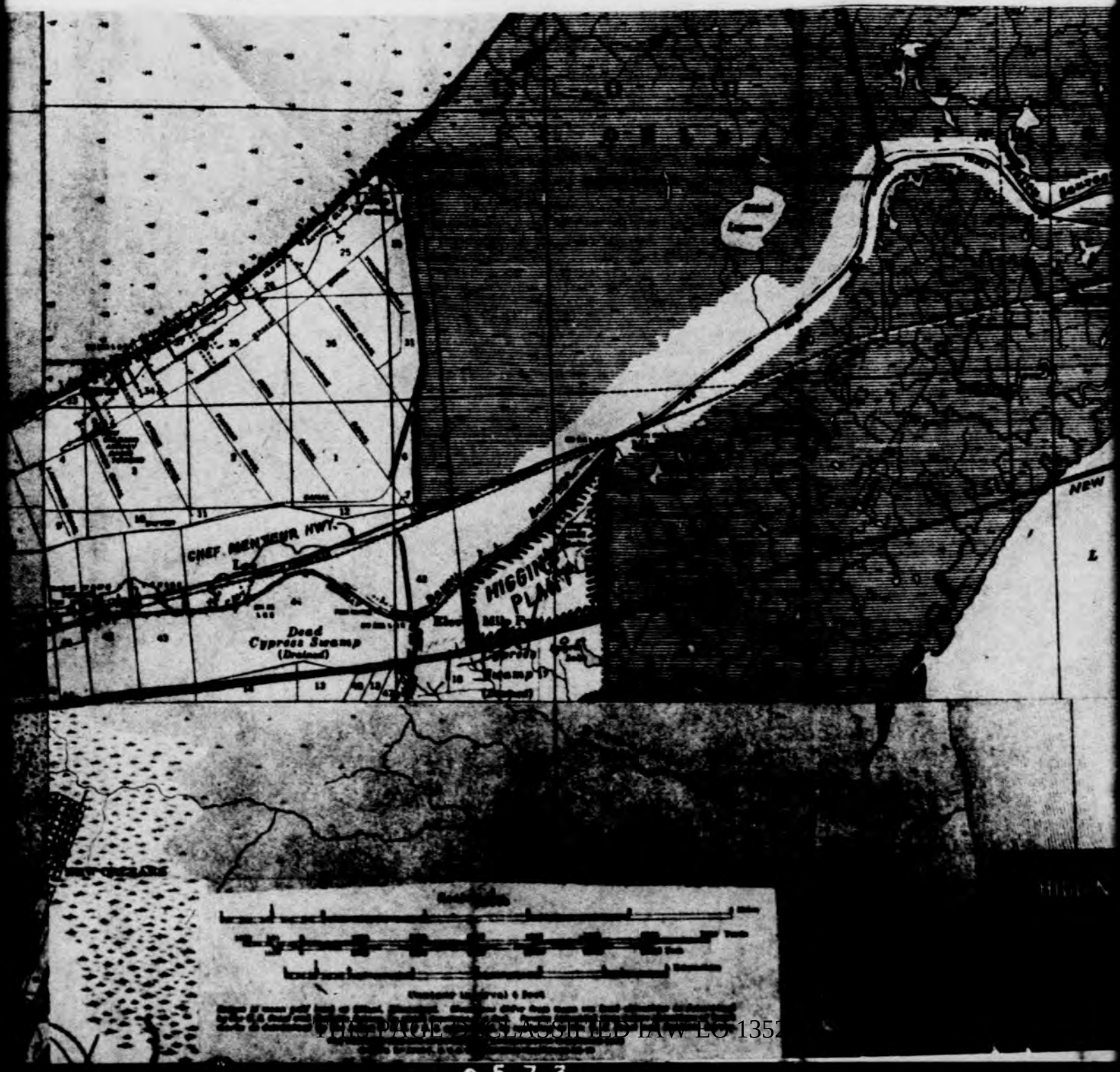

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EXHIBIT 2

AERIAL PHOTOGRAPH

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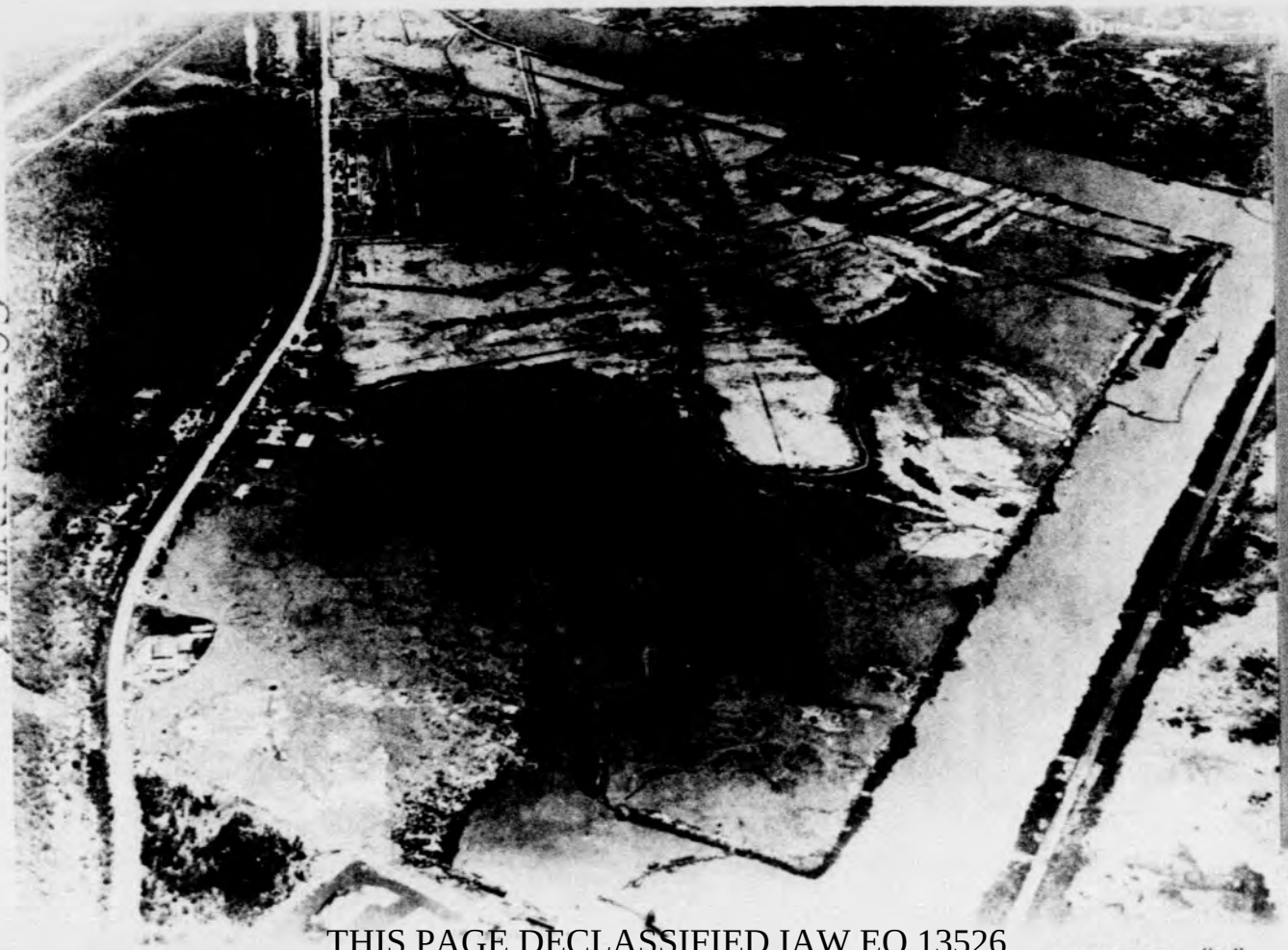

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EXHIBIT "2"

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EXHIBIT 3

LAYOUT OF 7000' RUNWAYS

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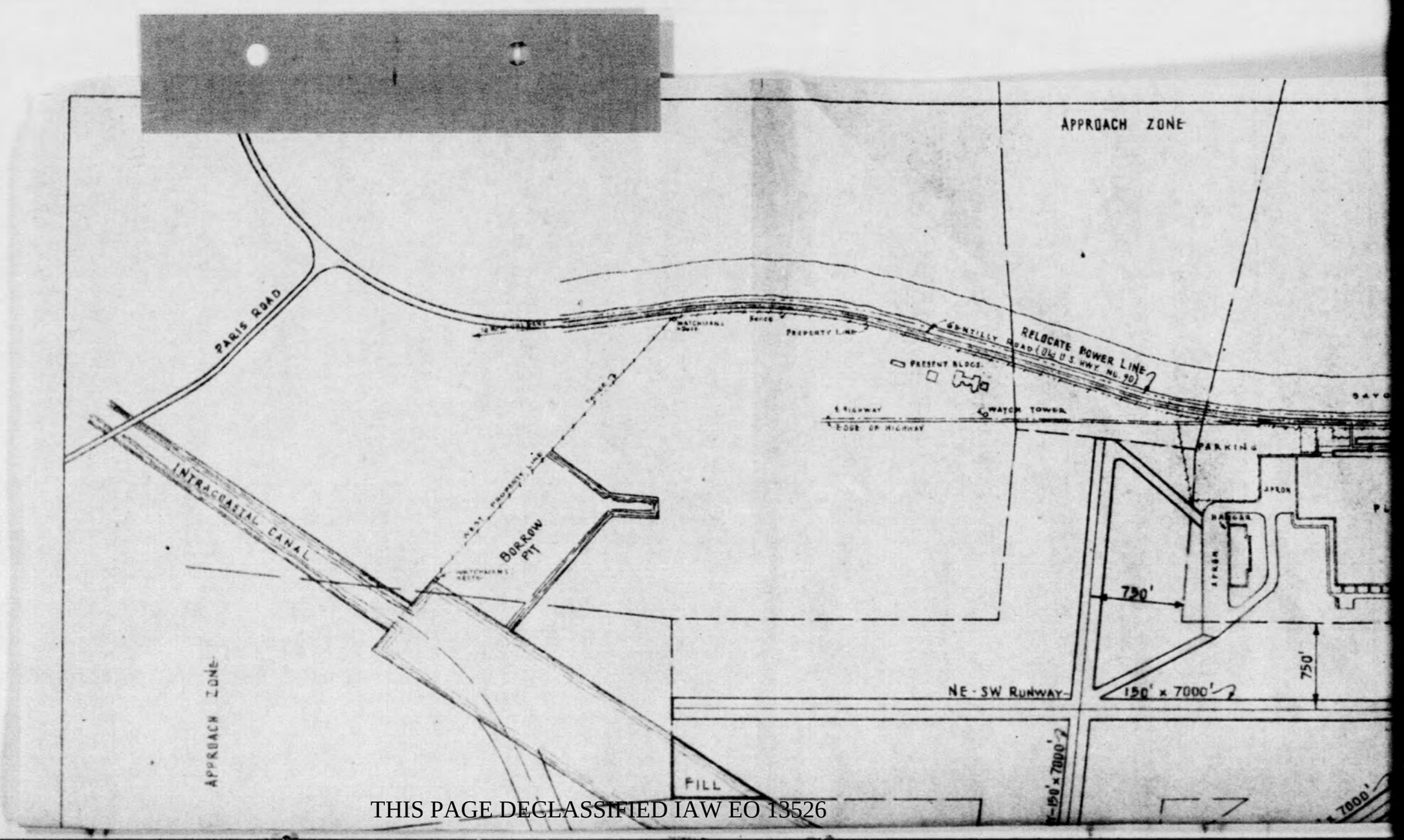

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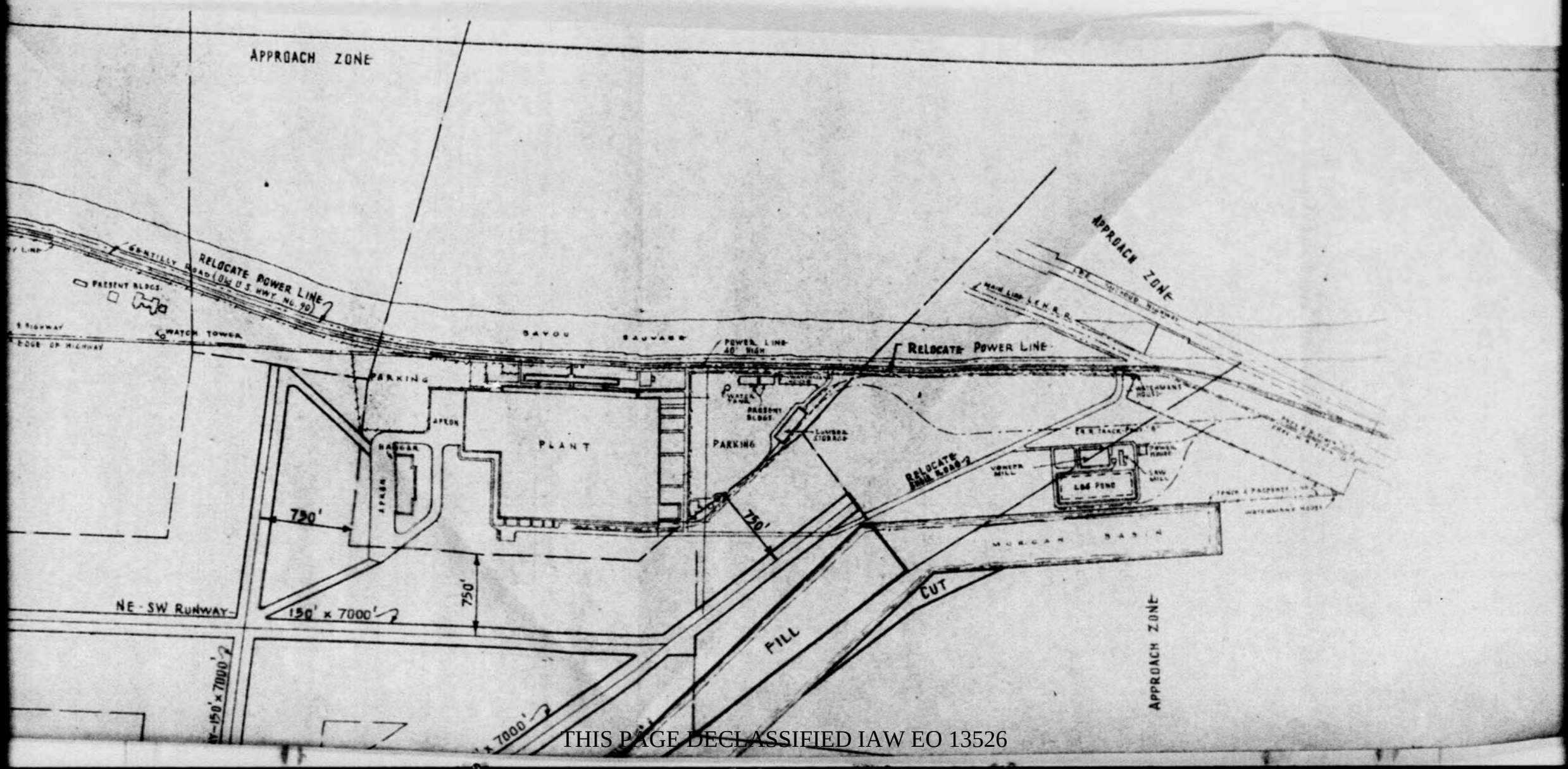

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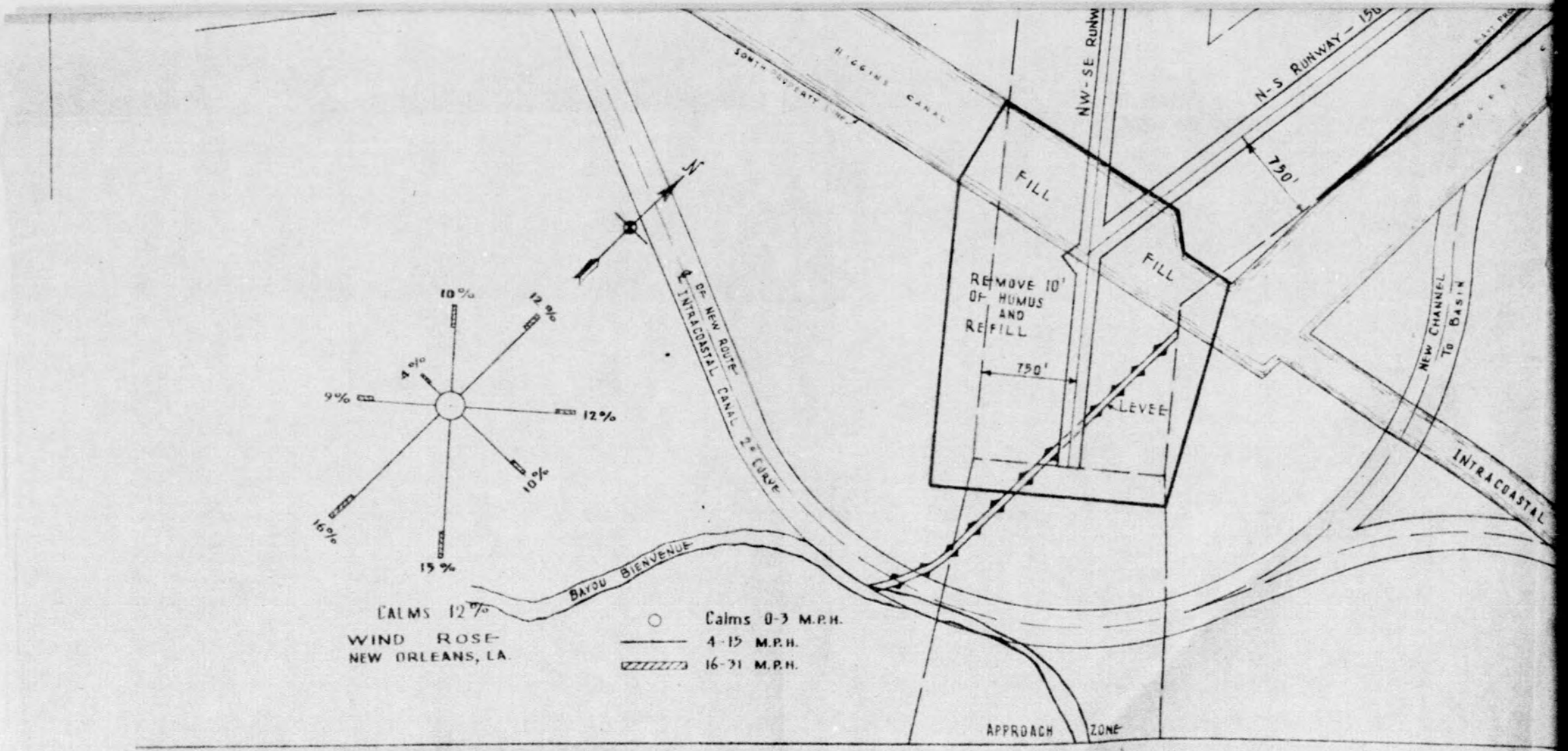

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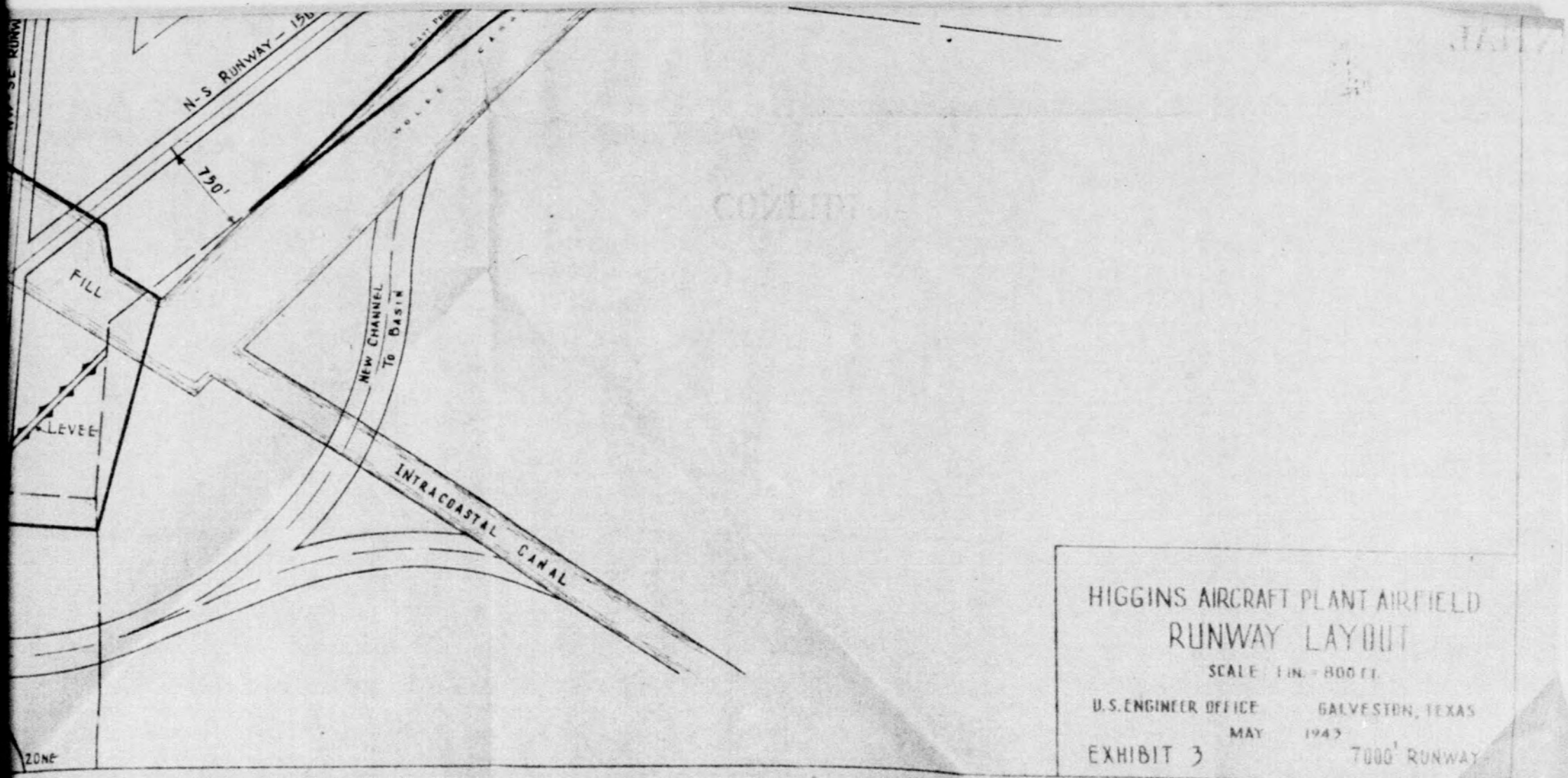

HIGGINS AIRCRAFT PLANT AIRFIELD
RUNWAY LAYOUT
SCALE 1 IN. = 800 FT.
U.S. ENGINEER OFFICE GALVESTON, TEXAS
MAY 1943
EXHIBIT 3 7000' RUNWAY

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EXHIBIT 4

LAYOUT OF RUNWAYS WITHIN PRESENT SITE

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EXHIBIT 4

LAYOUT OF RUNWAYS WITHIN PRESENT SITE

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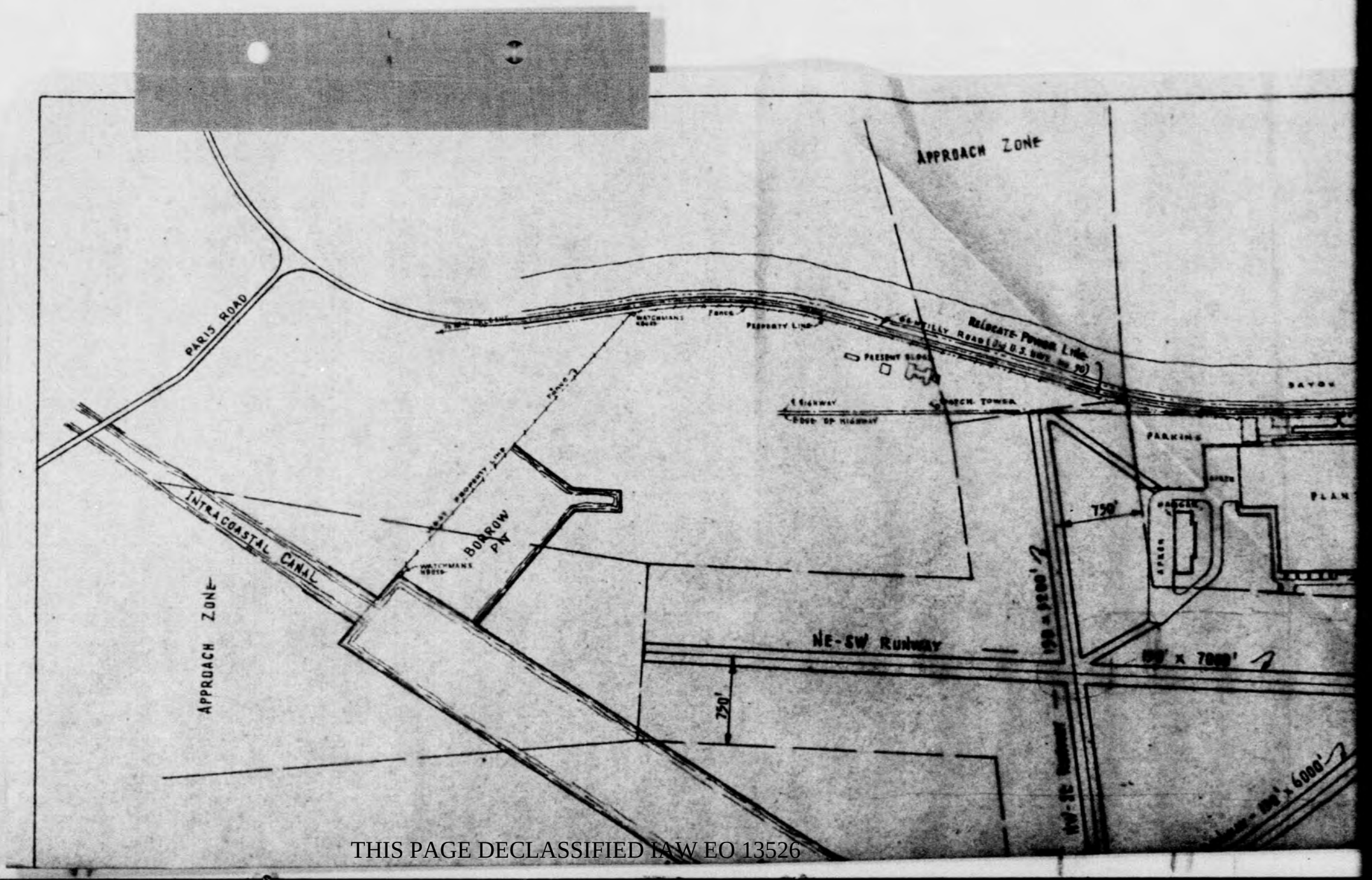

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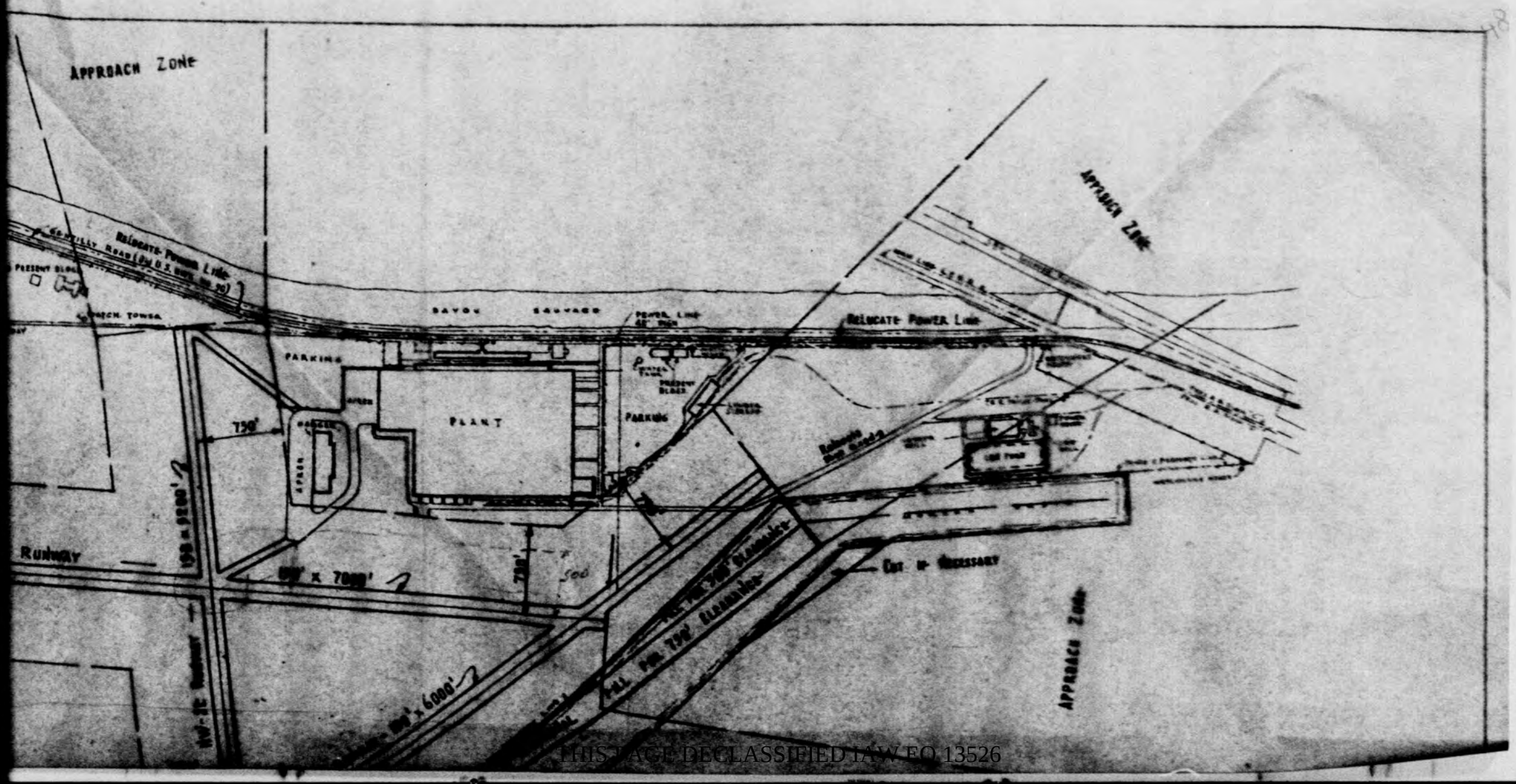

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PARIS ROAD

INTRACOASTAL CANAL

APPROACH ZONE

BORROW PIT

PRESENT PROPERTY LINE

WATCHMAN'S HOUSE

FENCE

PROPERTY LINE

GENTILLY ROAD (Alt U.S. HWY. No 90)

RELOCATE POWER LINE

PRESENT BLDG.

4 LANE HIGHWAY

CONCH. TOWER

EDGE OF HIGHWAY

BAYOU

PARKING

PLANT

750'

198' x 9200'

NE-SW RUNWAY

198' x 7000'

750'

HW-SE RUNWAY

NS RUNWAY - 198' x 6000'

750'

MLT

BIENVENUE WHARF

EMBANKMENT LINE

APPROACH ZONE

APPROACH ZONE

BAYOU BIENVENUE

18%

12%

4%

9%

12%

10%

16%

15%

CALMS 12%

WIND ROSE
NEW ORLEANS, LA.

○ Calms 0-3 M.P.H.
4-15 M.P.H.
16-31 M.P.H.

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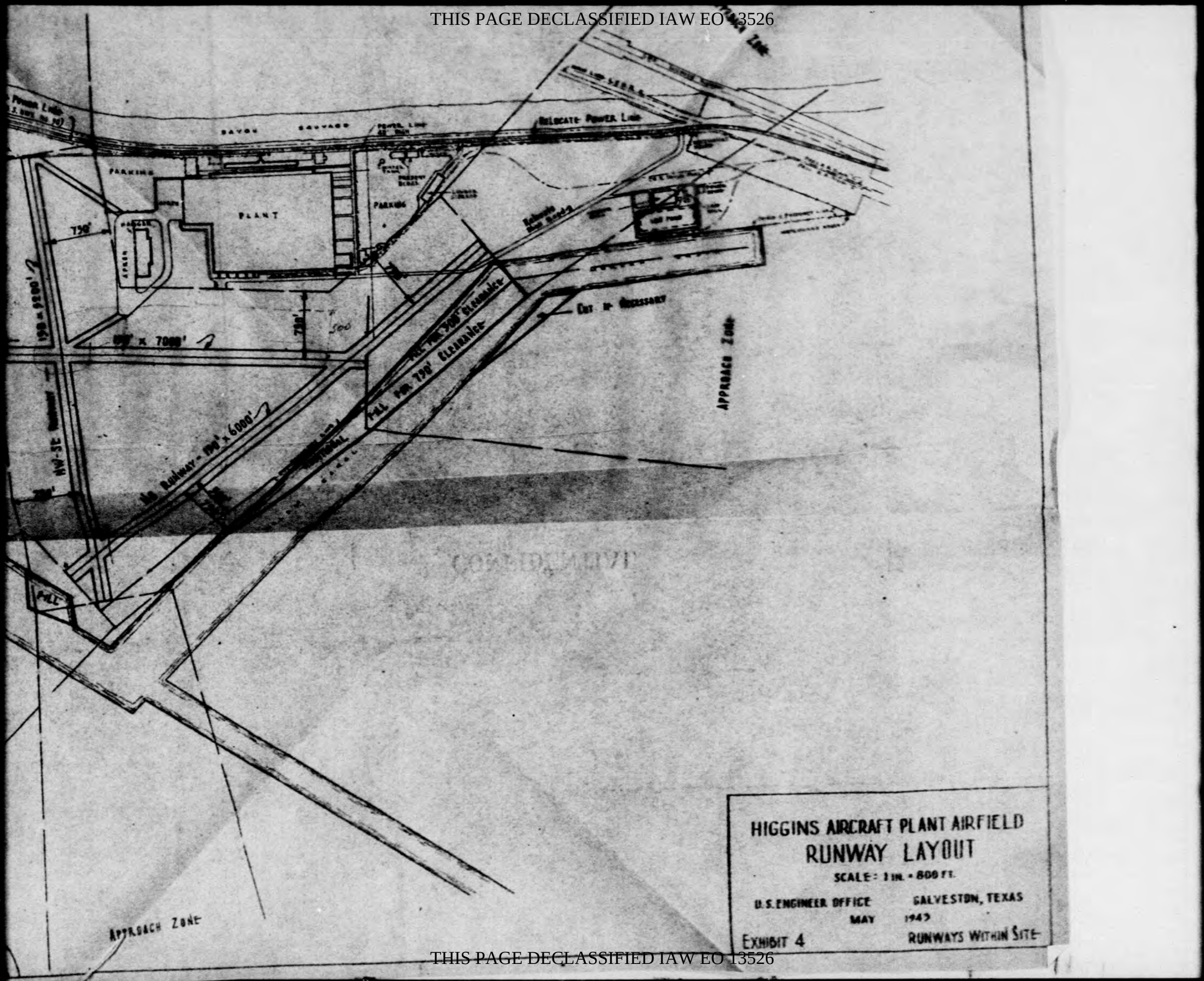

HIGGINS AIRCRAFT PLANT AIRFIELD
RUNWAY LAYOUT
SCALE: 1 IN. = 800 FT.
U.S. ENGINEER OFFICE GALVESTON, TEXAS
MAY 1943
EXHIBIT 4 RUNWAYS WITHIN SITE

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EXHIBIT 5

LAYOUT OF SOIL BORINGS & TEST SLABS

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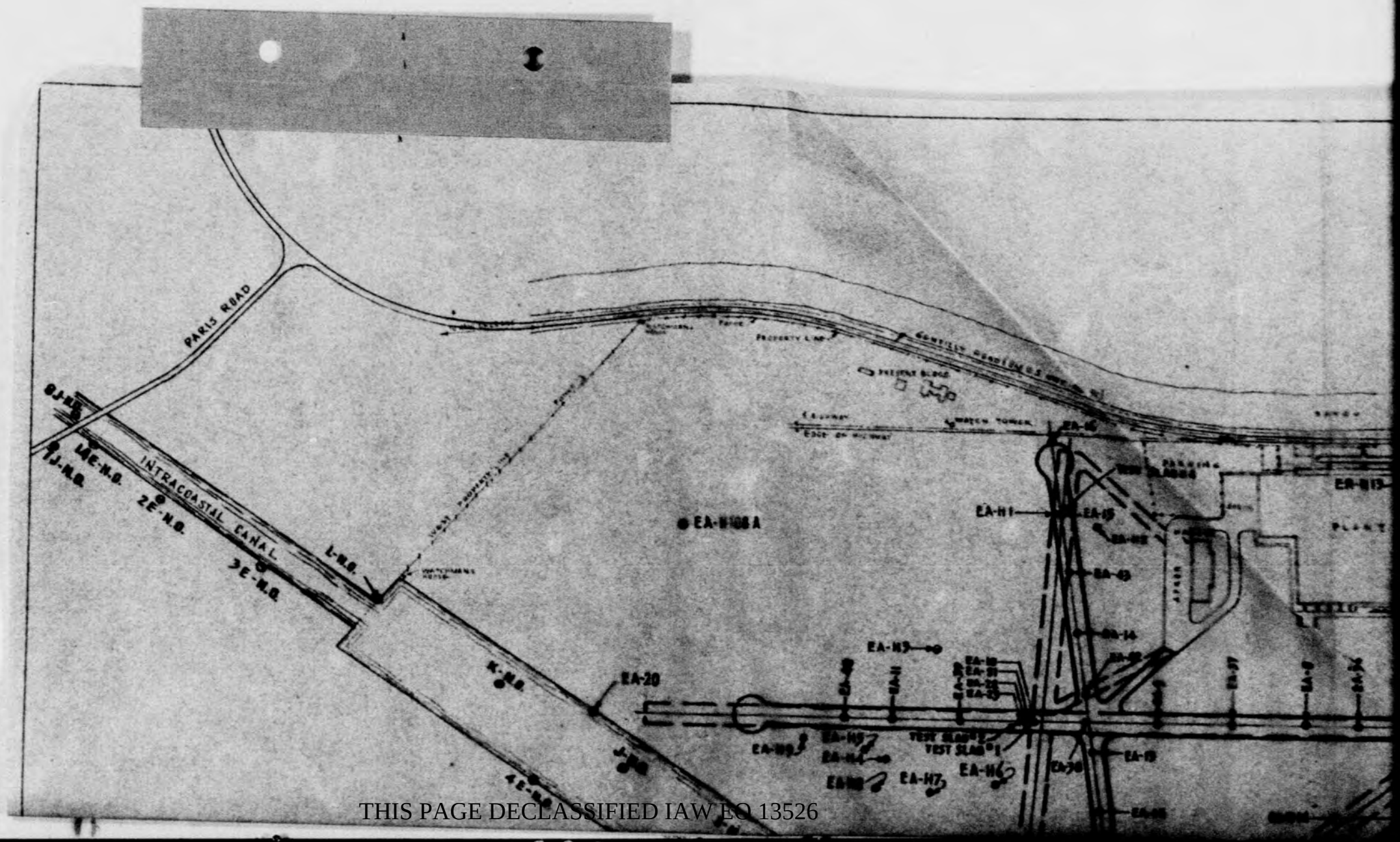

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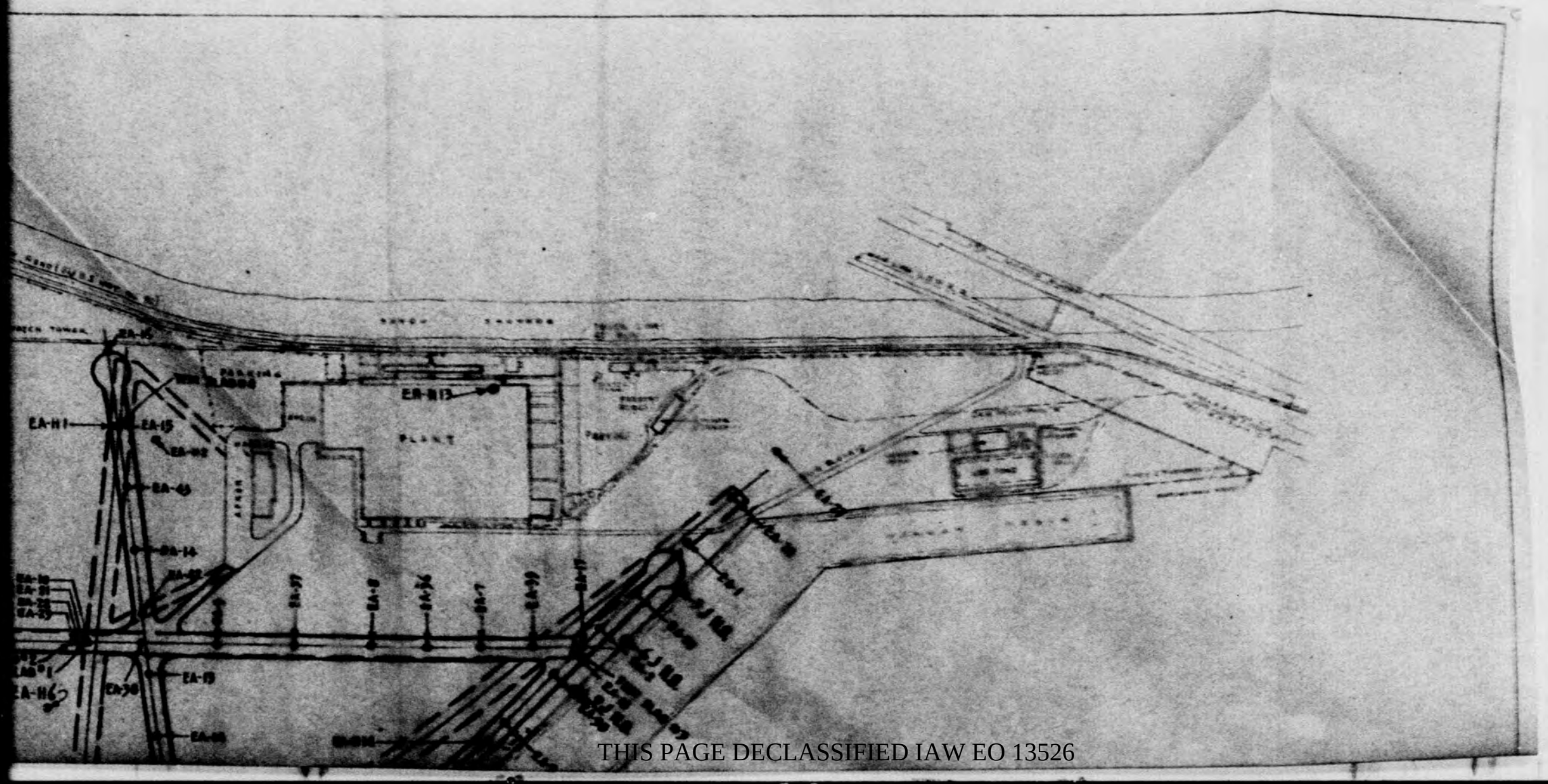

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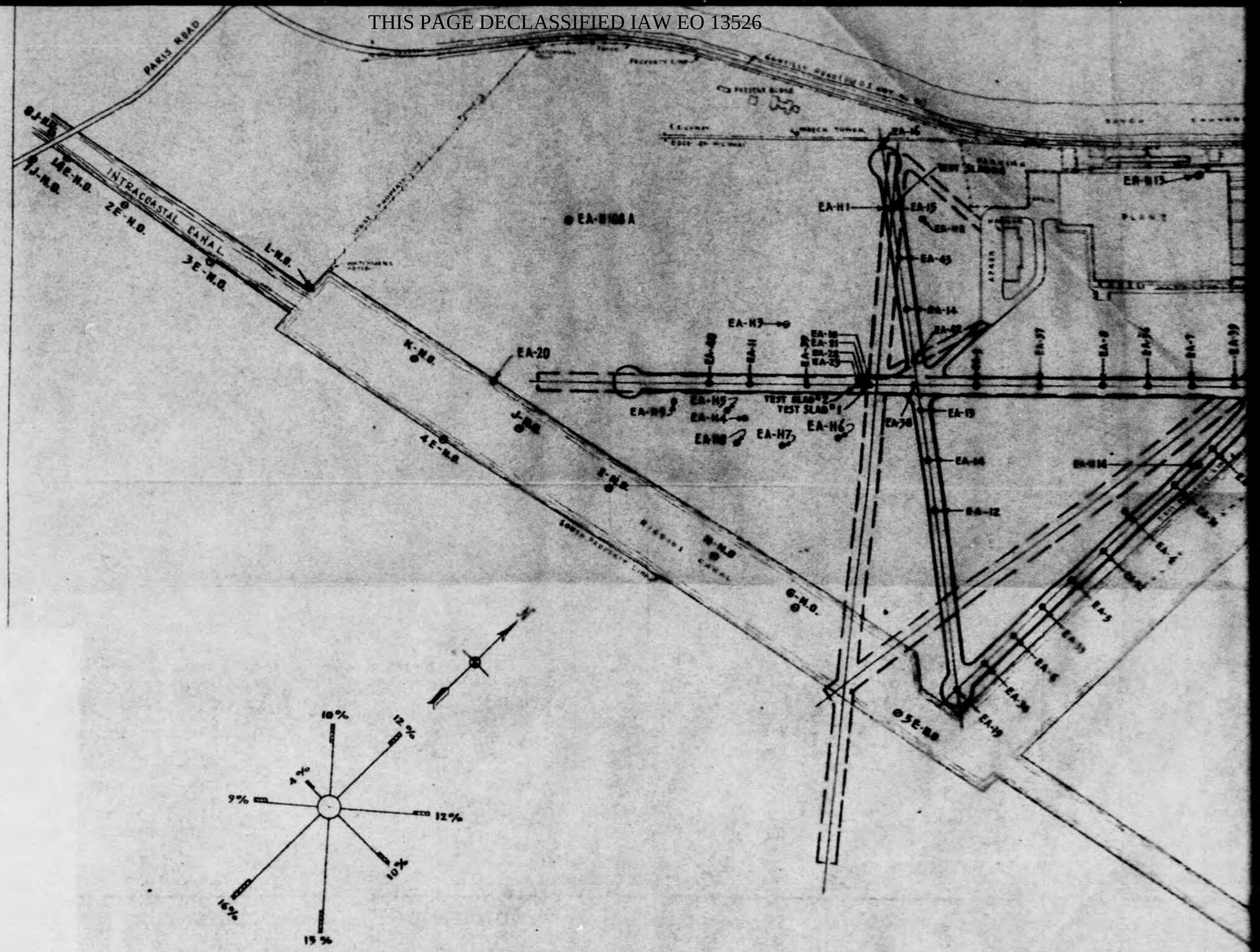

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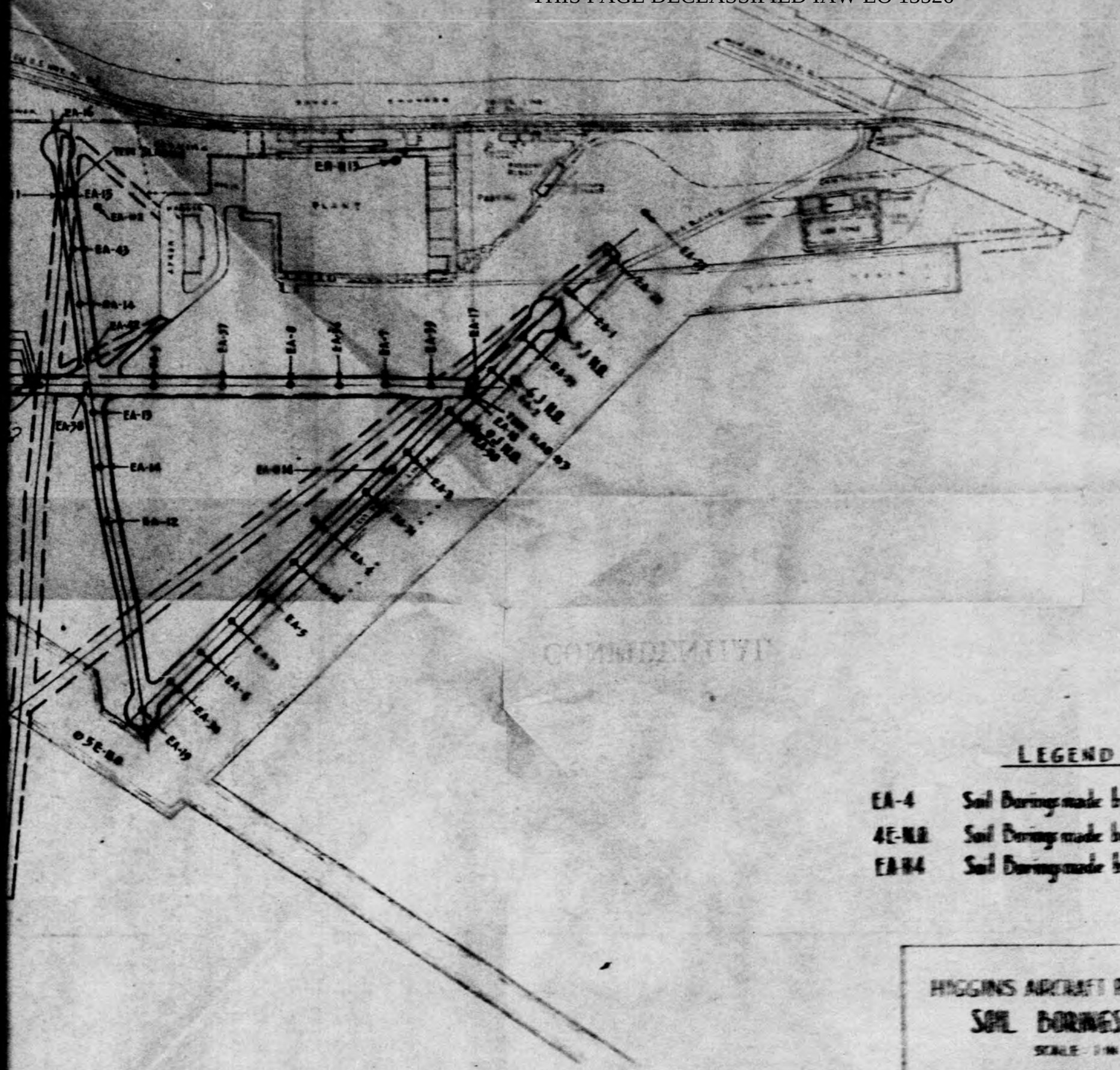

LEGEND

EA-4 Soil Borings made by Galveston District.
4E-NO Soil Borings made by New Orleans District.
EA-84 Soil Borings made by Higgins.

HIGGINS AIRCRAFT PLANT AIRFIELD
SOIL BORINGS LAYOUT
SCALE: 1 IN. = 400 FT.
U.S. ENGINEER OFFICE GALVESTON, TEXAS
MAY 1943
EXHIBIT 5

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EXHIBIT 6A

LOGS OF SOILS BORINGS
MADE
BY GALVESTON DISTRICT

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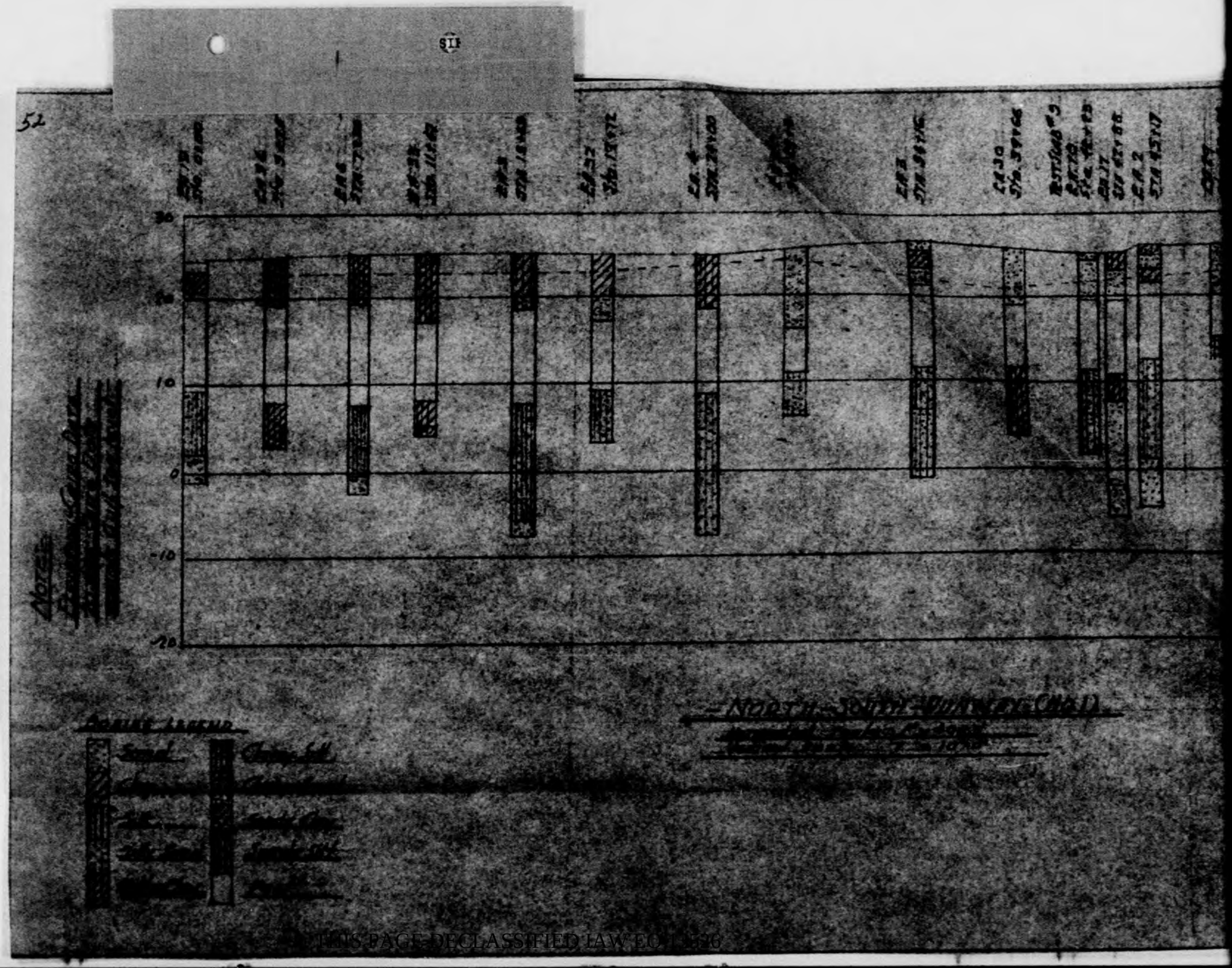

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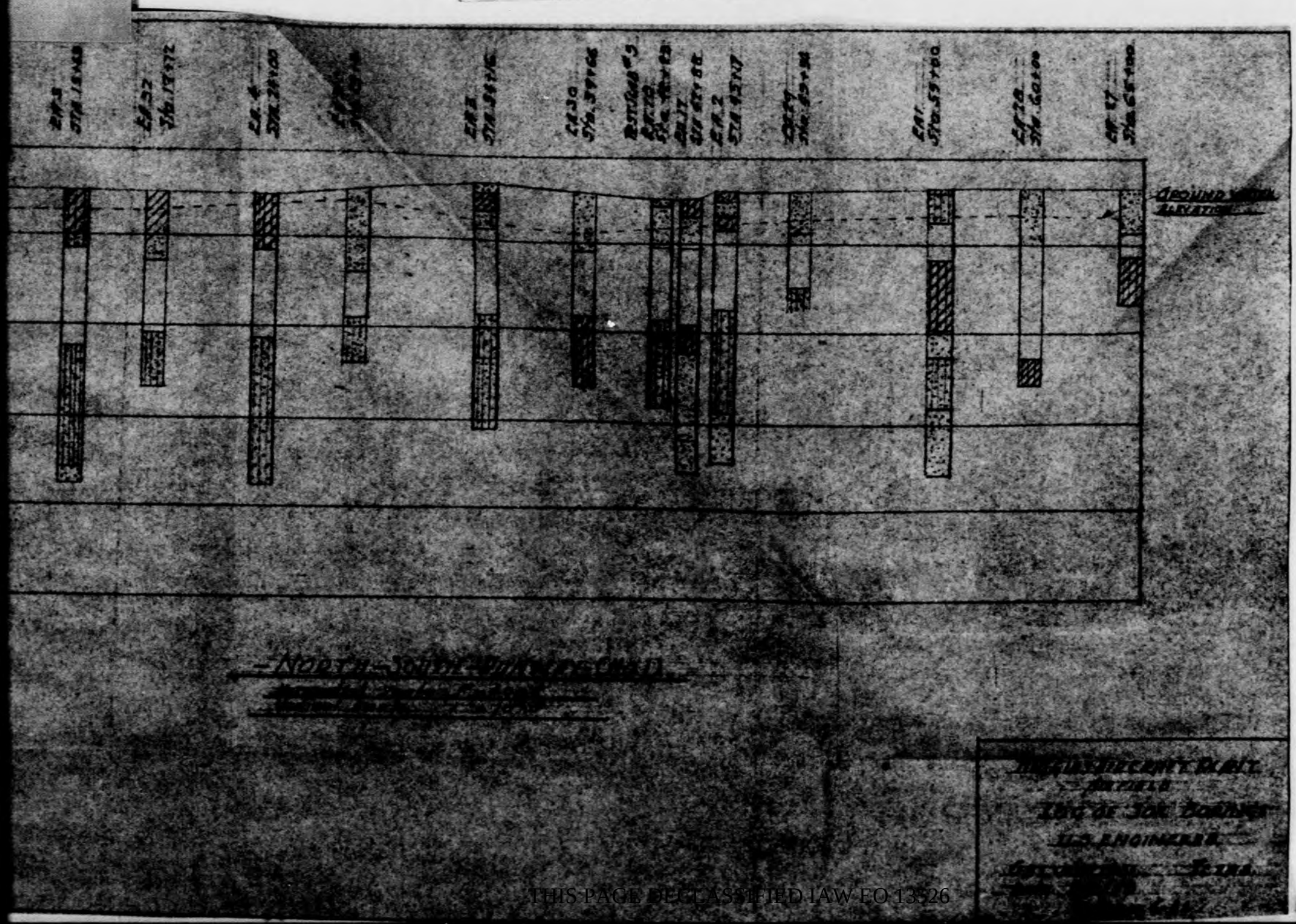

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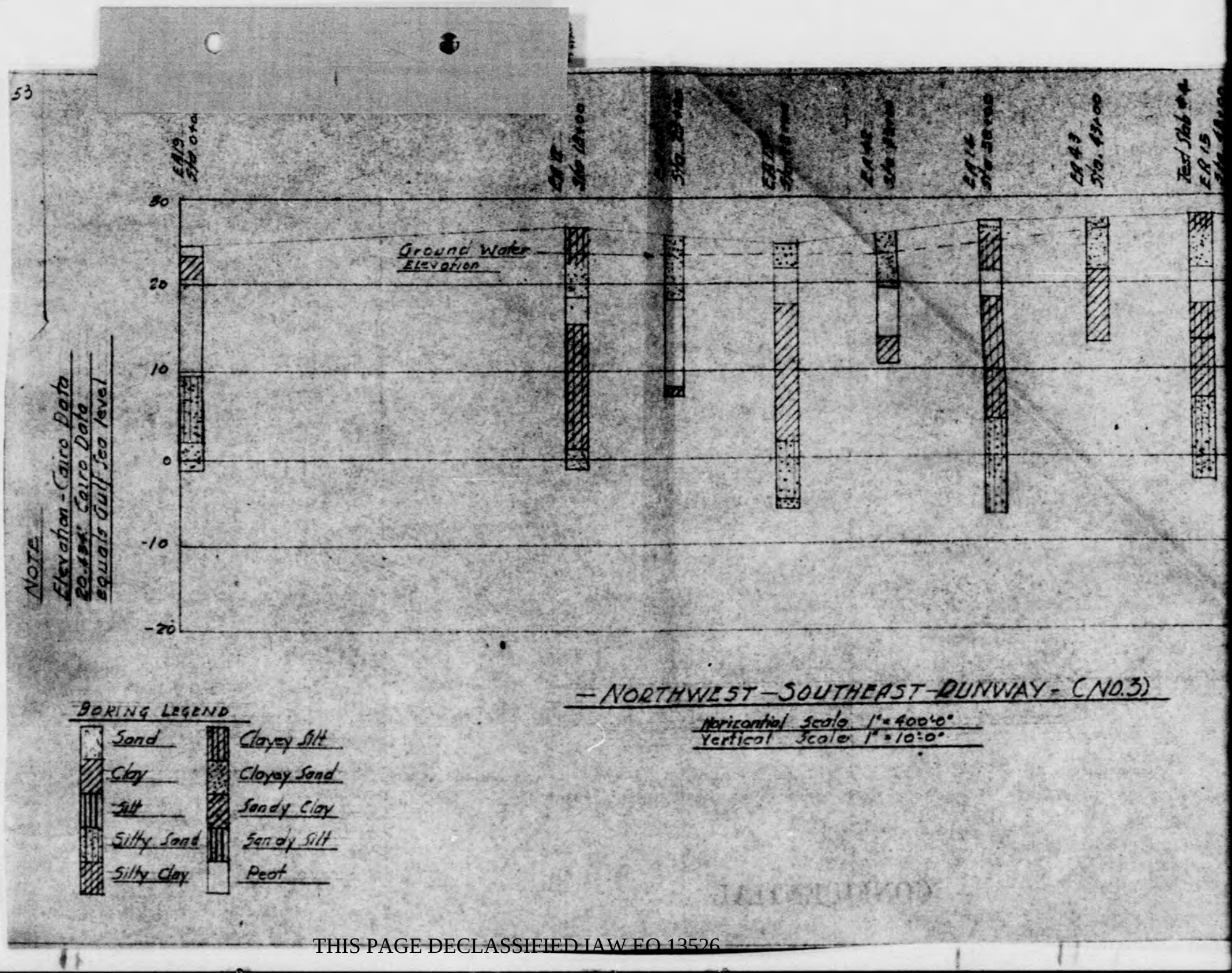

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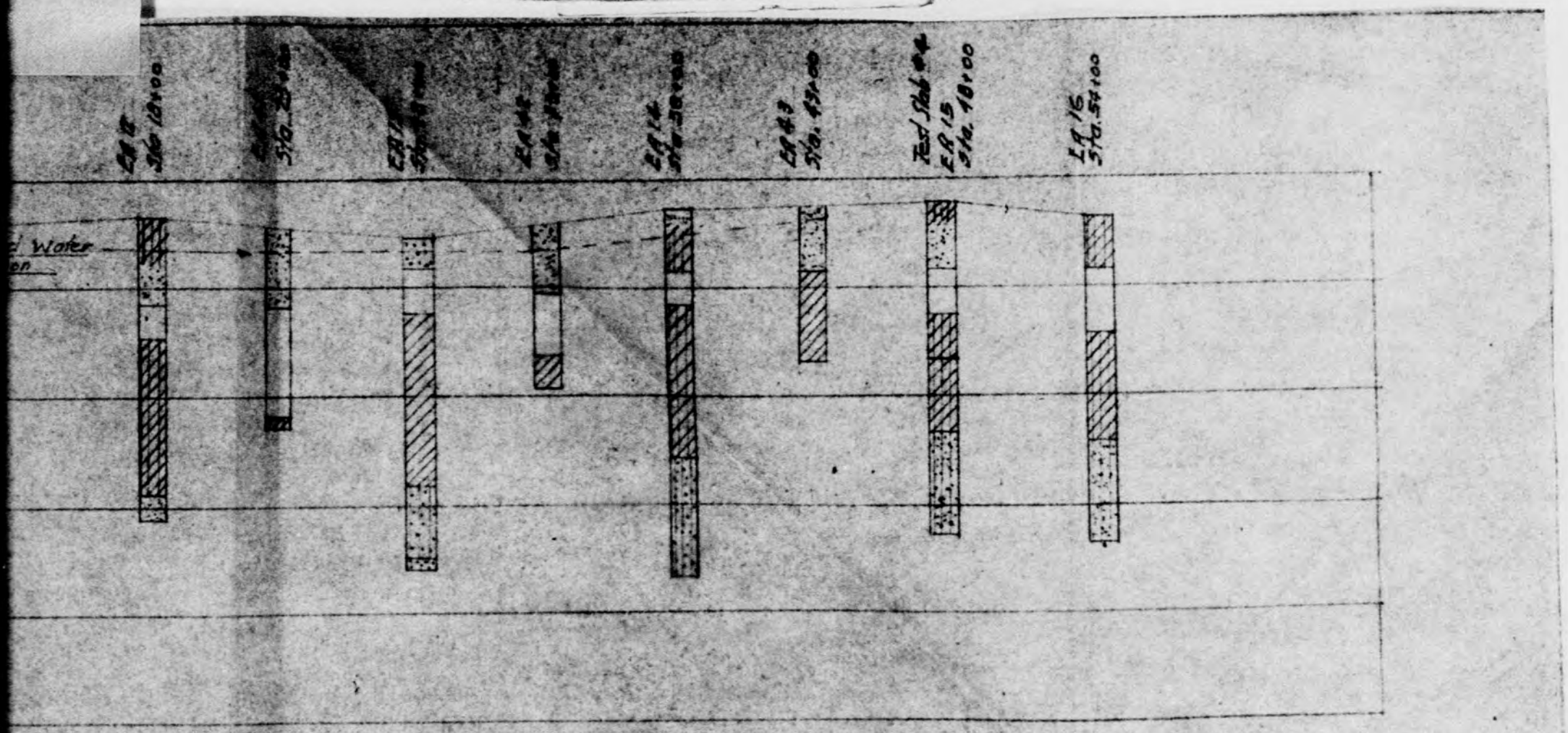

— NORTHWEST — SOUTHEAST RUNWAY - (NO. 3)

Horizontal Scale 1" = 400'-0"
Vertical Scale 1" = 10'-0"

HIGGINS AIRCRAFT PLANT
AIRFIELD
LOG OF SOIL BORINGS
U.S. ENGINEERS
GALVESTON, TEXAS.
Date 5/20/43
EXHIBIT 6-A2

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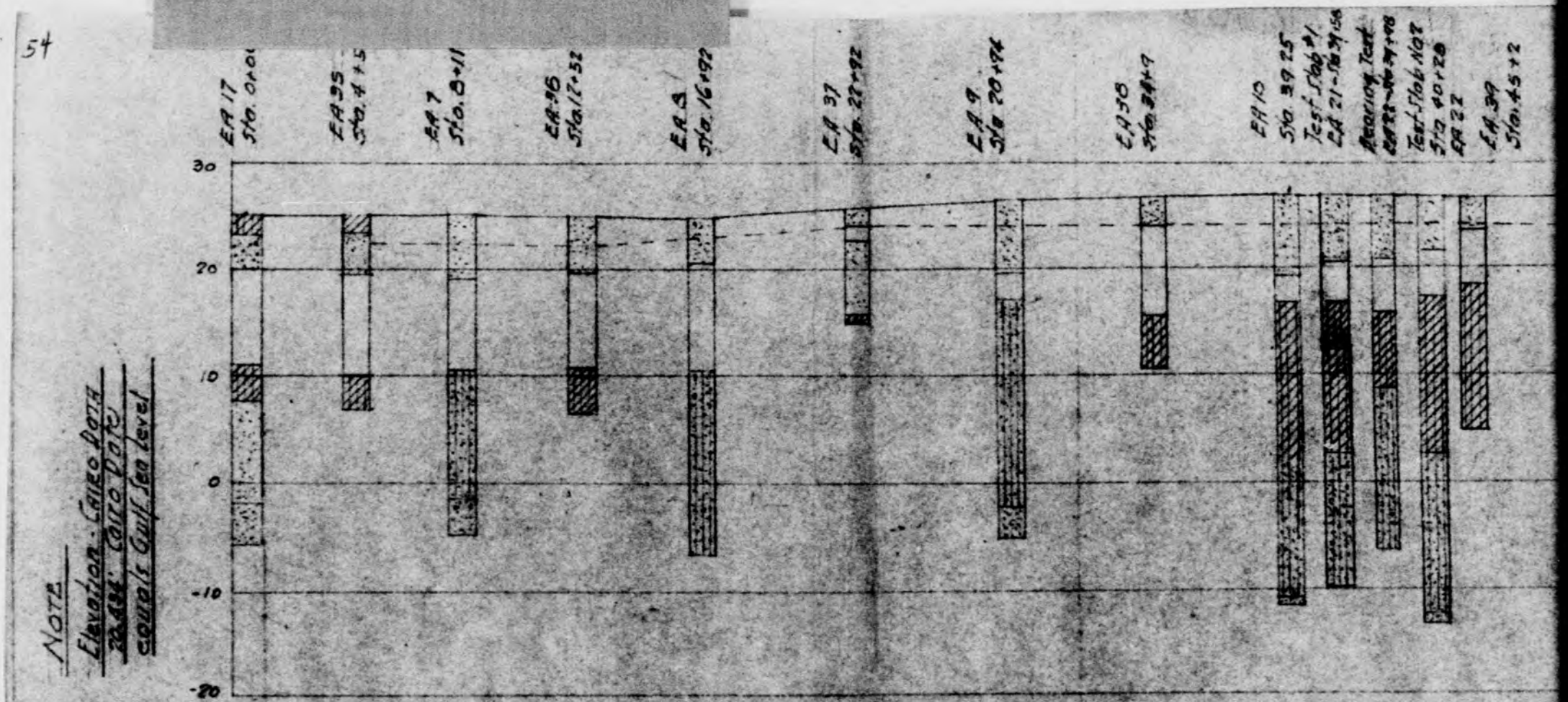

NOTE
Elevation - Called Data
20.48' Cairo Datum
equals Gulf Sea Level

Boring legend

Sand	Clayey Silt
Clay	Clayey Sand
Silt	Sandy Clay
Silty Sand	Sandy Silt
Silty Clay	Peat

NORTH EAST SOUTHWEST RUNWAY (NO. 2)
Horizontal Scale 1"=100'-0"
Vertical Scale 1"=10'-0"

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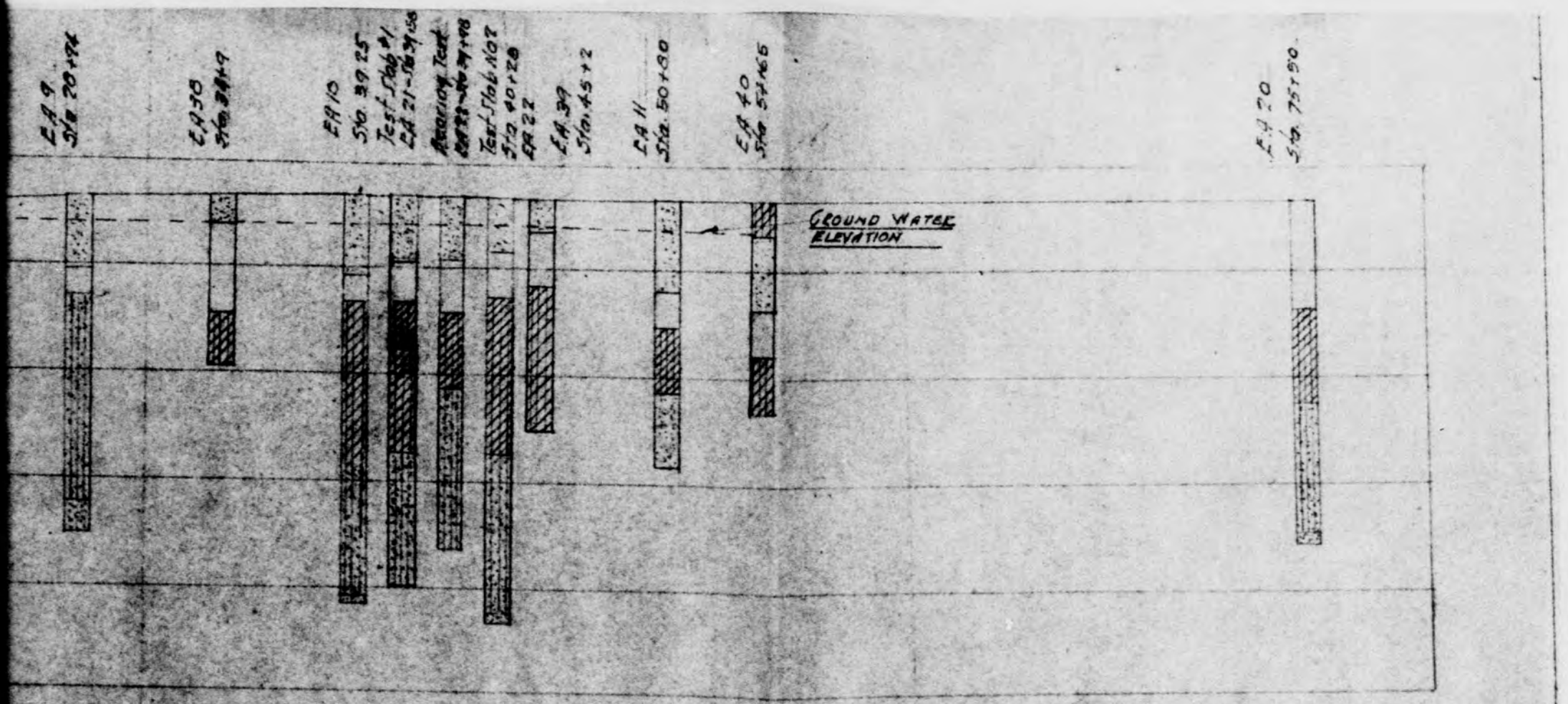

H EAST SOUTHWEST RUNWAY (NO-2)
Horizontal Scale 1"=100'-0"
Vertical Scale 1"=10'-0"

HIGGINS AIRCRAFT PLANT
AIRFIELD
LOG OF SOIL BORINGS
U.S. ENGINEERS
GALVESTON. TEXAS
Date 5/20/43
EXHIBIT 6-13

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EXHIBIT 6B

LOGS OF SOIL BORINGS MADE BY NEW ORLEANS DISTRICT

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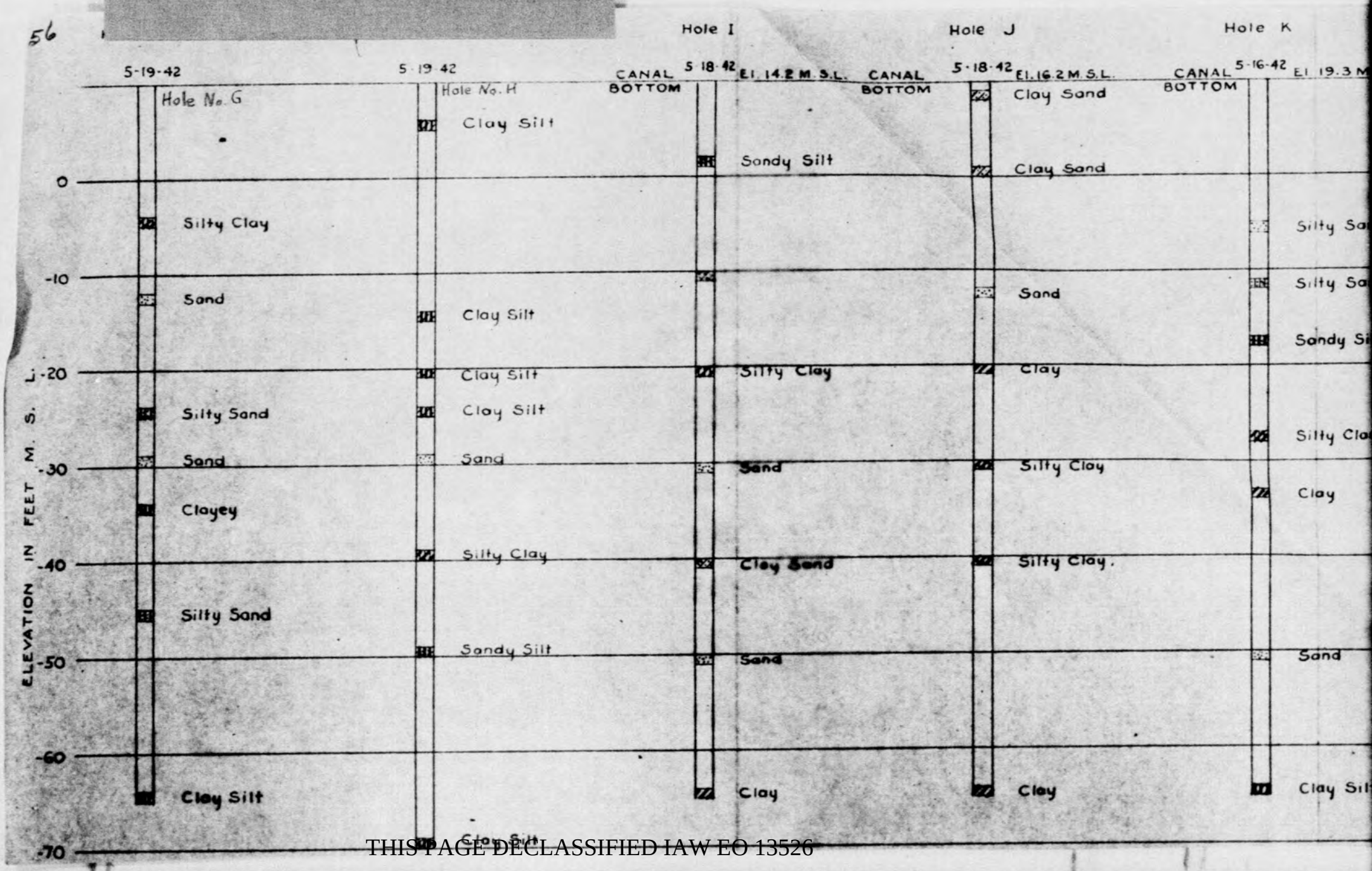

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Hole J	Hole K	Hole L	Hole No. 5 J	Hole No. 6 J	Hole No. 7J
5-18-42 El. 16.2 M.S.L.	CANAL BOTTOM 5-16-42 El. 19.3 M.S.L.	5-15 42	4-27-42 El. 4.47	4-30-42 TOP OF GROUND	5-2-42
Clay Sand					Silty Clay
					Humus
Clay Sand					Clay
		Clay Silt			Silty Clay
		Clay			Clay 40% Humus
	Silty Sand				Silty Clay
		Sand			Sand
Sand	Silty Sand				Sand
			Silty Sand	Sand	Sand
	Sandy Silt	Sandy Silt			Silty Sand
Clay			Sand	Sand	Clay
			Sand	Sand	Silty Clay
	Silty Clay				
Silty Clay		Sand	Sand	Sand	Silty Clay
	Clay	Silty Clay			Clay
			Sand	Silty Sand	Clay Silt
Silty Clay.			Clay Sand	Clay	
			Sand	Clay Sand	Clay Silt
		Silty Sand			
			Silty Clay	Clay	Clay
	Sand				
			Clay		Clay
					Silty Clay
			Silty Sand		
Clay	Clay Silt	Clay Silt			Silty Sand
					Silty Sand

By Survey Section

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6 J	Hole No. 7J	Hole No. 8 J	Hole No 9 J	14 E 3+00 3-26-42	2E 10+00 3-17-42	3E 20+00 3-17-42
TOP OF GROUND	5-2-42	5-1&2-42	9-1-42	TOP OF GROUND	500 Humus	545 Humus	600 Humus
	Silty Clay	Sandy Silt			54 Clay	67 Clay	150 C 20%
	Humus	Clay 40% Humus					
	Clay	Clay Silt			52 Clay	75 Clay	54 Clay
		Sandy Silt					
	Silty Clay						
	Clay 40% Humus	Clay 60% Humus			59 Clay	59 Clay	46 Clay
	Silty Clay	Clay 30% Humus					
	Sand	Sand			Sand	50 St. C.	42 C. Sd.
	Sand	Sand					
Sand	Sand	Sand	Sand		- Sand 57 St. C.		
	Silty Sand						
Sand	Clay	Clay Silt	Sand		58 St. C.		
Sand	Silty Clay	Silty Clay	Sand		72 St. C.		
Sand	Silty Clay	Silty Clay	Silty Sand				
Silty Sand	Clay	Silty Clay	Silty Clay				
Clay	Clay Silt	Silty Clay	Clay Sand				
Clay Sand	Clay Silt	Silty Clay	Clay Sand				
Clay	Clay	Clay (Blue)	Silty Clay (Blue)				
	Clay	Clay (Blue)	Silty Clay (Blue)				
	Silty Clay	Clay (Blue)	Sand				
	Silty Sand	Silty Sand	Silty Sand				
	Silty Sand	Sand					

By Survey Section

HIGGIN

U.S. ENGINEER OFFI

NOTES

All Borings were made with a 1¾ i.d. improved "Cup" Type Sampler except Borings "B" and "D" which were made by the Wash Method.

For Locations see Dwg. H-16-14350/1.

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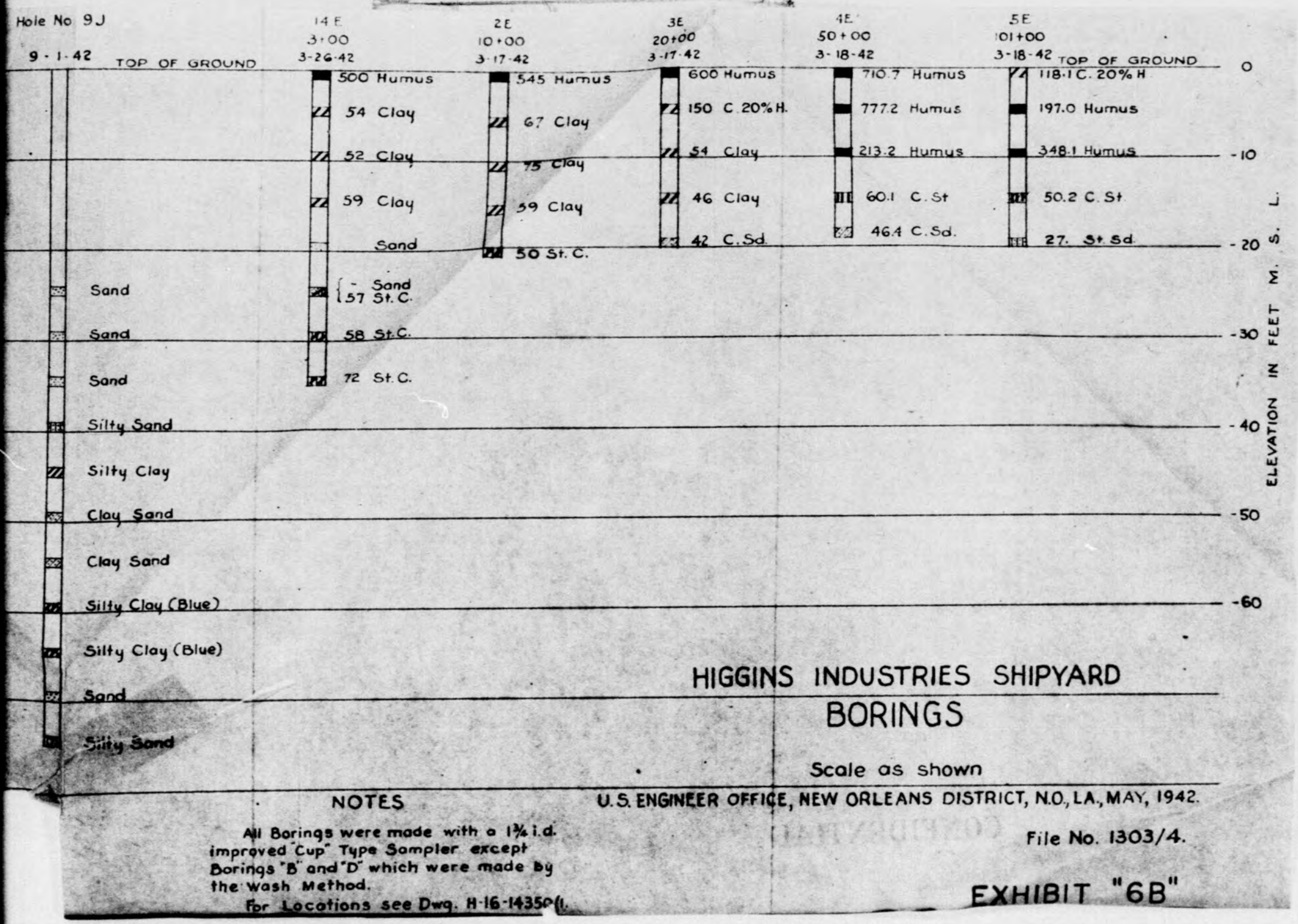

HIGGINS INDUSTRIES SHIPYARD
BORINGS

Scale as shown

U.S. ENGINEER OFFICE, NEW ORLEANS DISTRICT, N.O., LA., MAY, 1942.

File No. 1303/4.

EXHIBIT "6B"

NOTES

All Borings were made with a 1¾ i.d. improved "Cup" Type Sampler except Borings "B" and "D" which were made by the Wash Method.

For Locations see Dwg. H-16-14350(1.

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EXHIBIT 6C 1-14

LOGS OF SOIL BORINGS MADE BY HIGGINS CORP.

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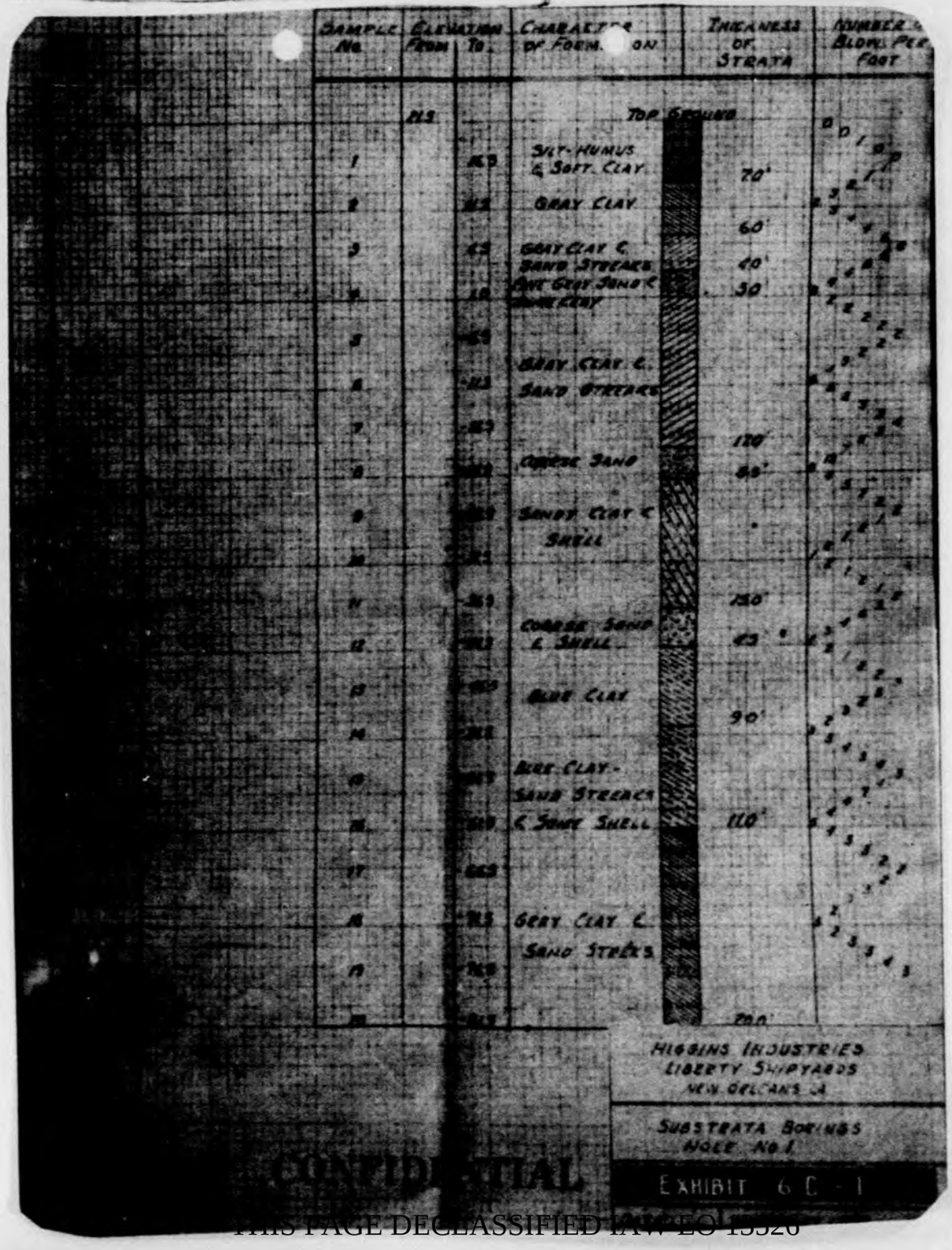

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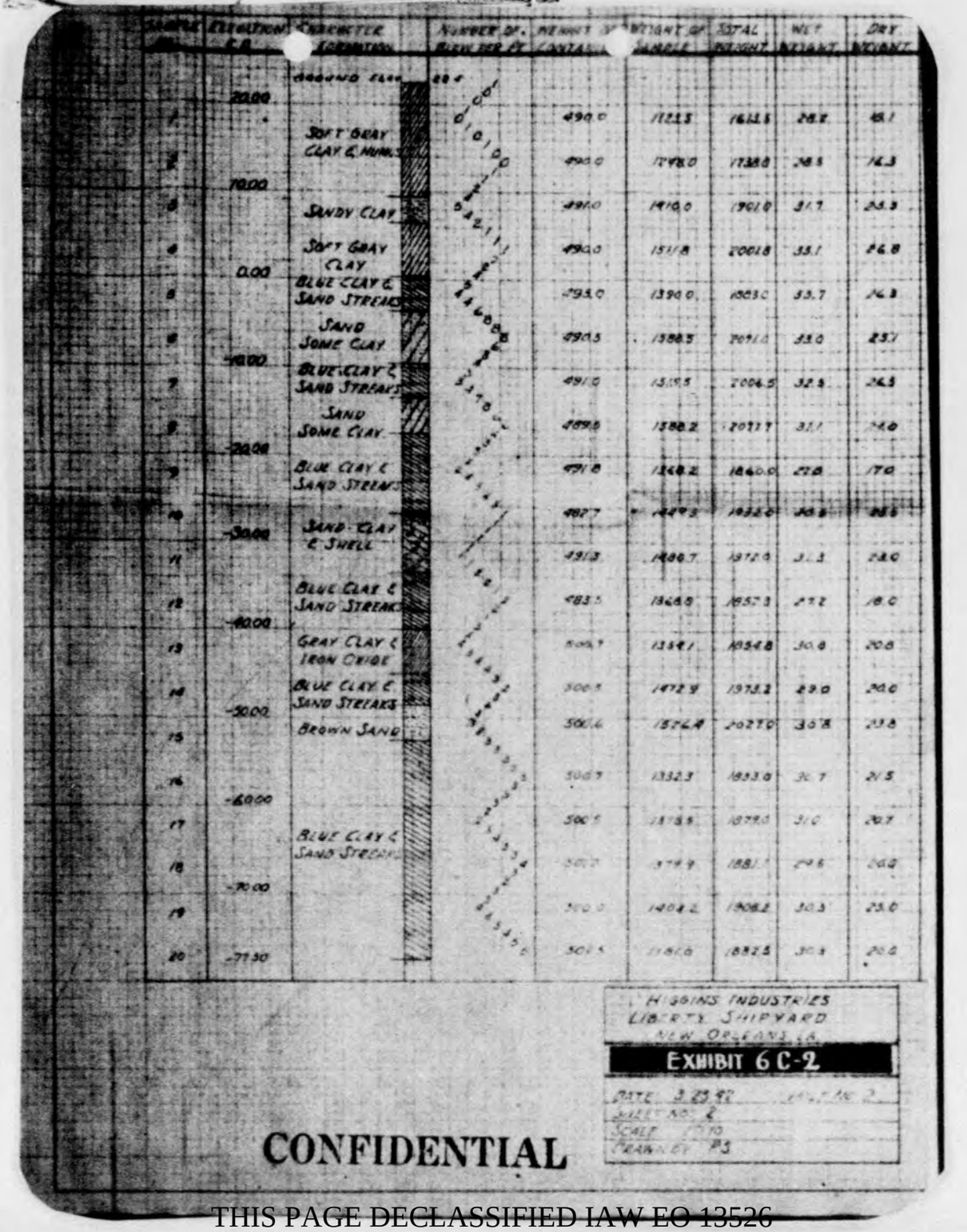

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HOLE No 7

SAMPLE NO.	ELEVATION C.D.	CHARACTER OF FORMATION	NUMBER OF BLOWS PER FOOT	WEIGHT OF CONTAINER	WEIGHT OF SAMPLE	TOTAL WEIGHT	WE. WEI
				All Weights in Grams			
	+16.	GROUND EL	1				
1			1,1,2	484.7	1033.8	1543.5	27
2	10.0	HUMUS & SOFT GRAY CLAY	0,1,0,1,0	483.5	1235.4	1718.9	23
3				382.4	1069.4	1502.0	32
4	0.0		1,0,1,0	504.8	1231.2	1733.0	28
5				495.0	1278.5	1773.5	26
6	-10.0		0,1,1,1,2	358.0	1400.0	1885.0	34
7		FLAKED SAND	3,3,3,3,3	500.1	1712.6	2212.7	32
8	-20.0		3,3,3,3,3	483.0	1240.5	1723.5	28
9		GRAY CLAY & SAND STREAKS	1,0,1,1,1	483.4	1334.3	1817.7	27
10	-30.0		2,3,3,3,3	500.7	1084.3	1585.0	19
11		SAND CLAY & SHELL	3,3,3,3,3	500.4	1373.7	1874.3	34
12	-40.0		3,3,3,3,3	484.3	1377.5	1858.0	38
13			1,2,2,2,2	482.0	1377.0	1859.0	30.
14	-50.0	BLUE CLAY & SAND STREAKS	2,2,3,3,3	483.1	1347.9	1831.0	22.
15			3,3,3,4,4	483.0	1487.0	1970.0	30.
16	-60.0	BROWN SAND	4,4,4,4,4	484.3	1353.7	1838.0	38.
17			3,4,3,3,2	483.4	1381.4	1864.8	29.
18	-70	BLUE CLAY & SAND STREAKS	3,3,3,3,3	483.4	1379.6	1863.0	31.
19			3,3,3,2,2	483.3	1342.7	1826.0	29.
20	-80		3,3,3,3,3	483.	1380.9	1864.0	29.

HIGGINS INDUSTRIES INC
LIBERTY SHIPYARD

EXHIBIT 6C-3

SHEET No. 3 | DATE

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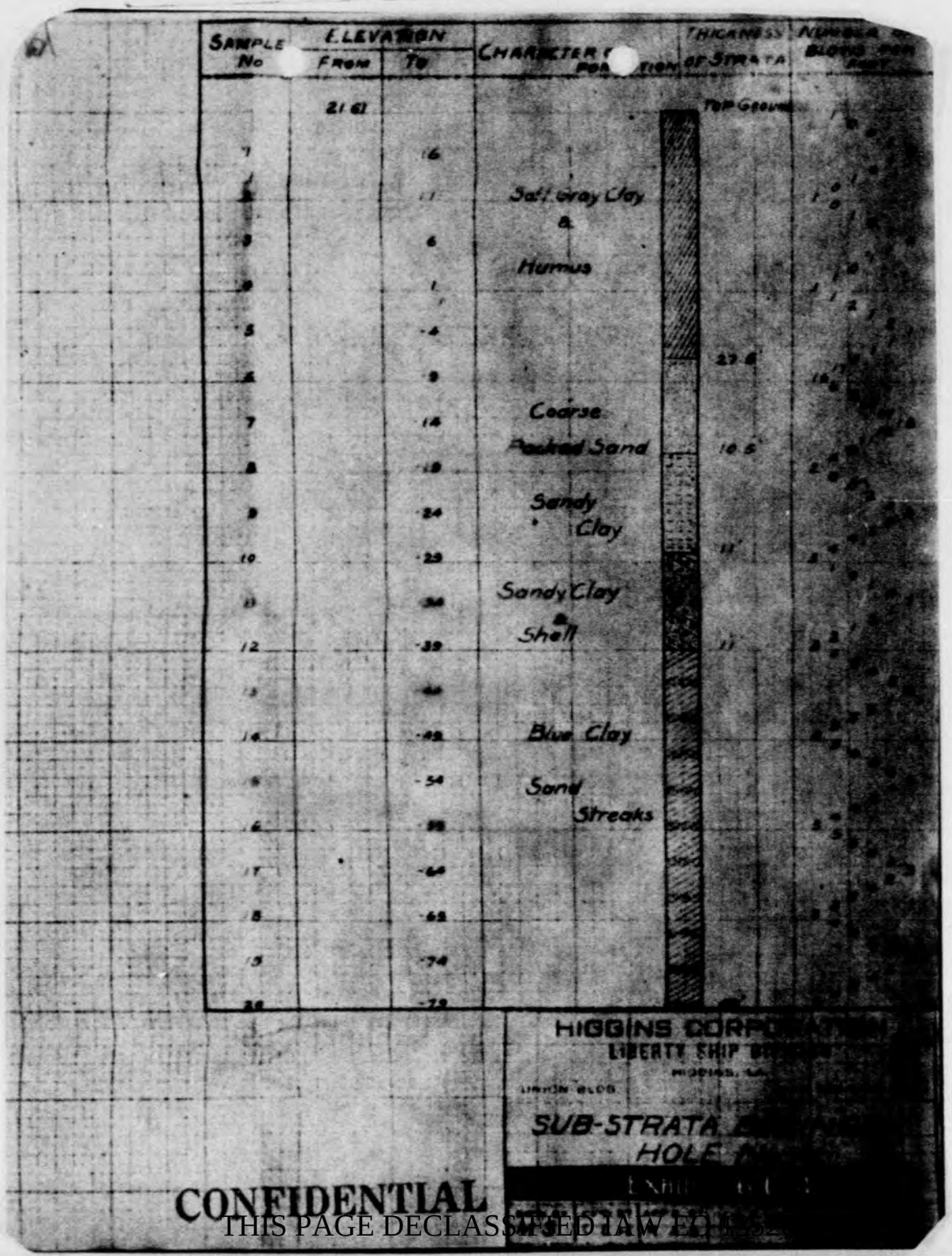

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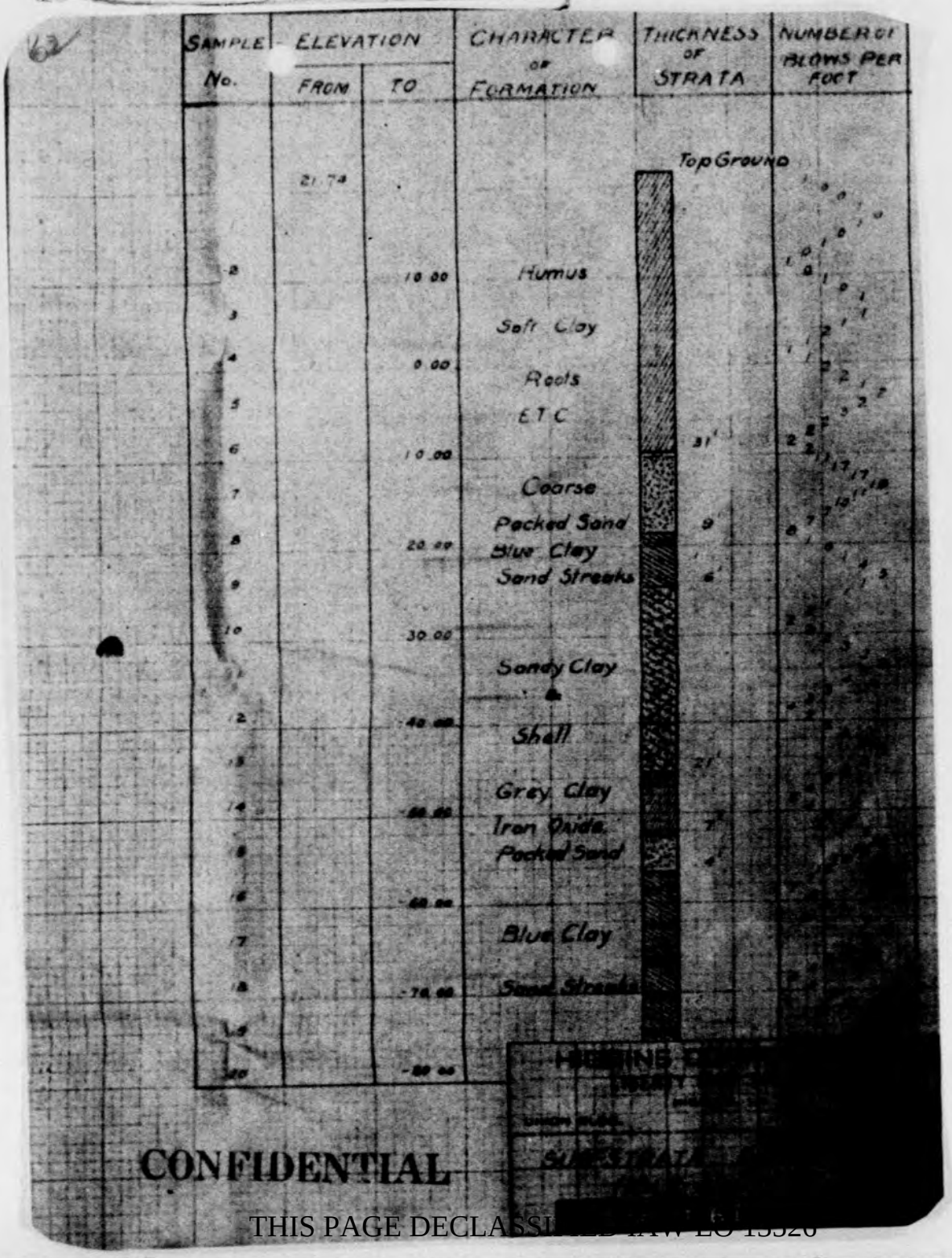

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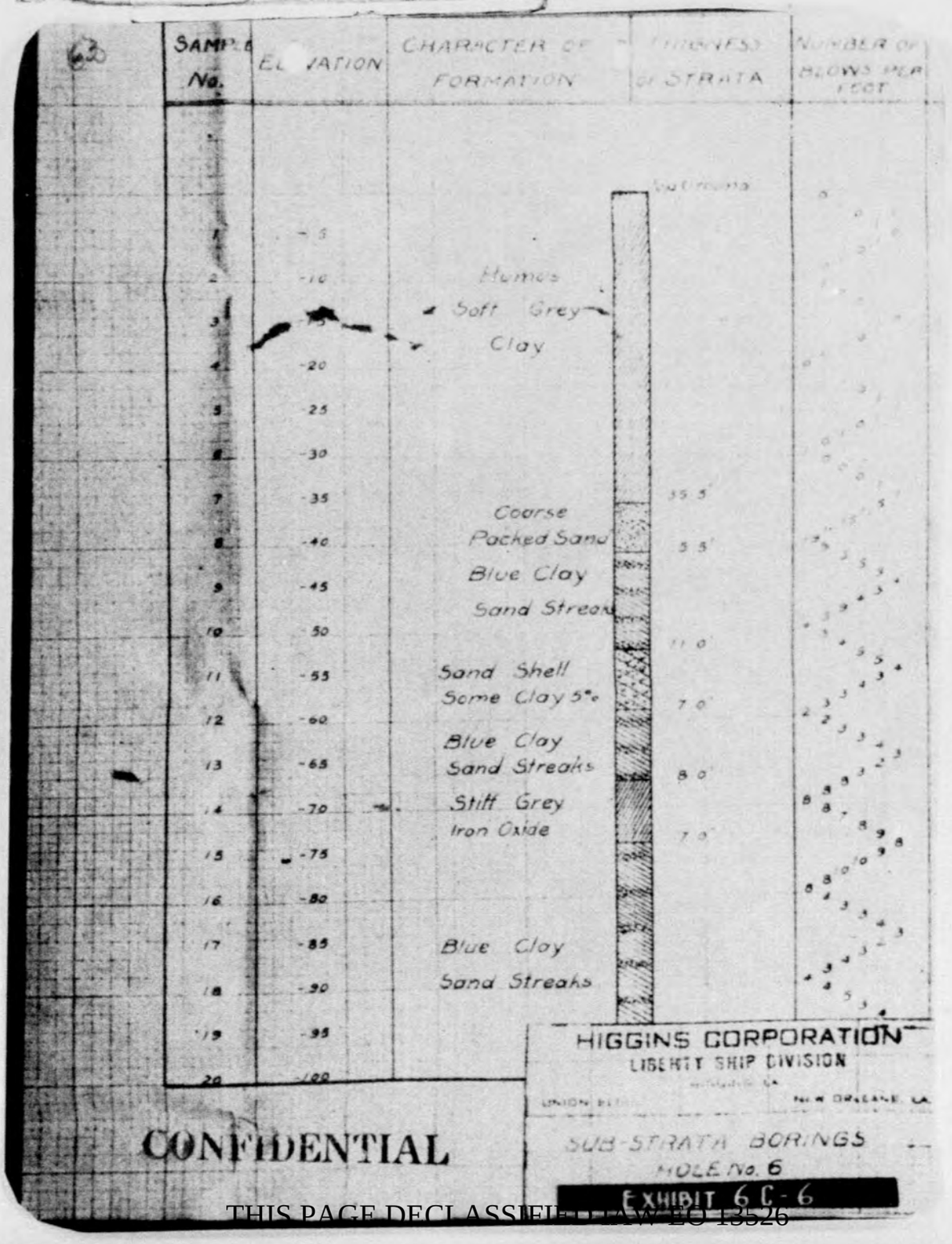

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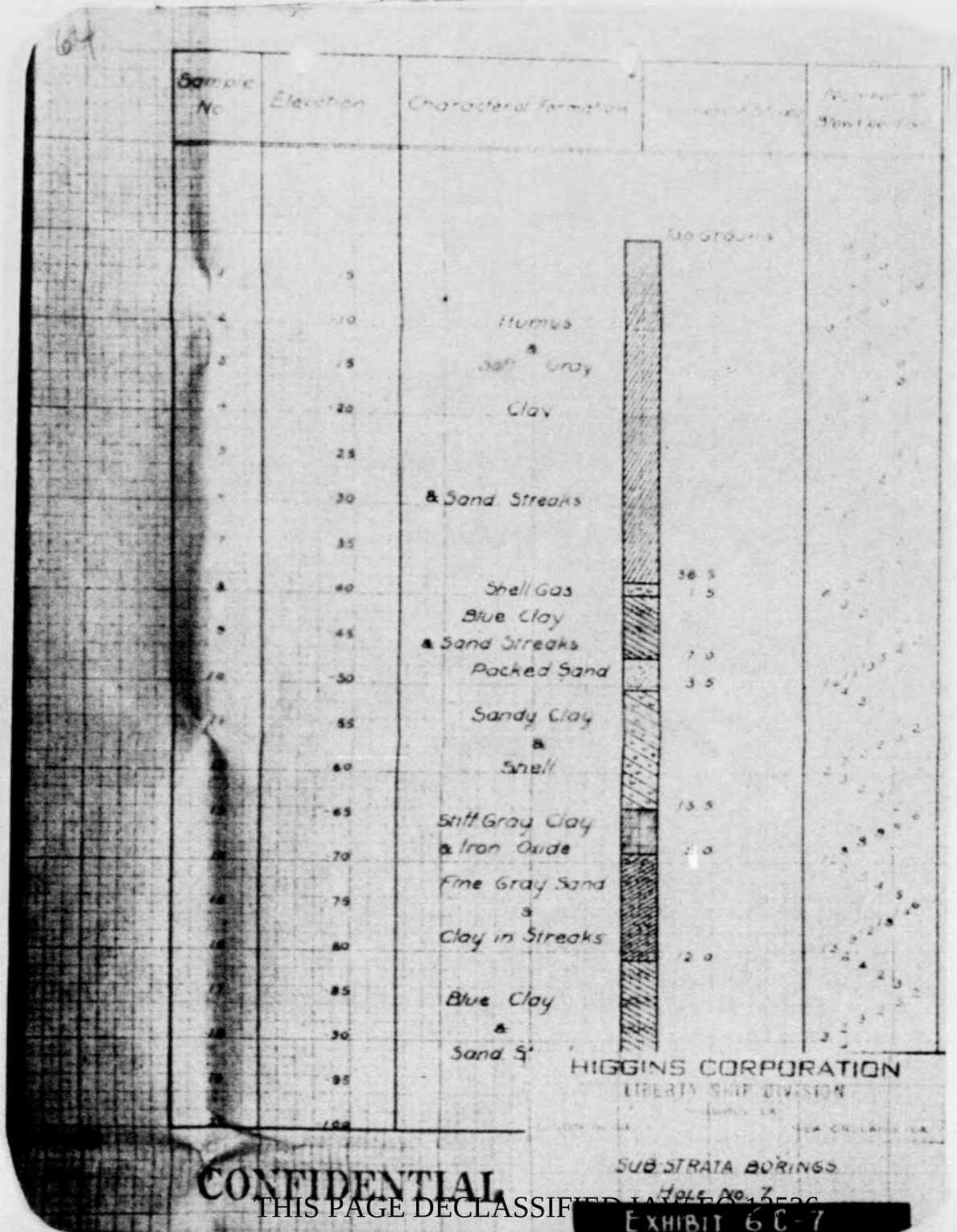

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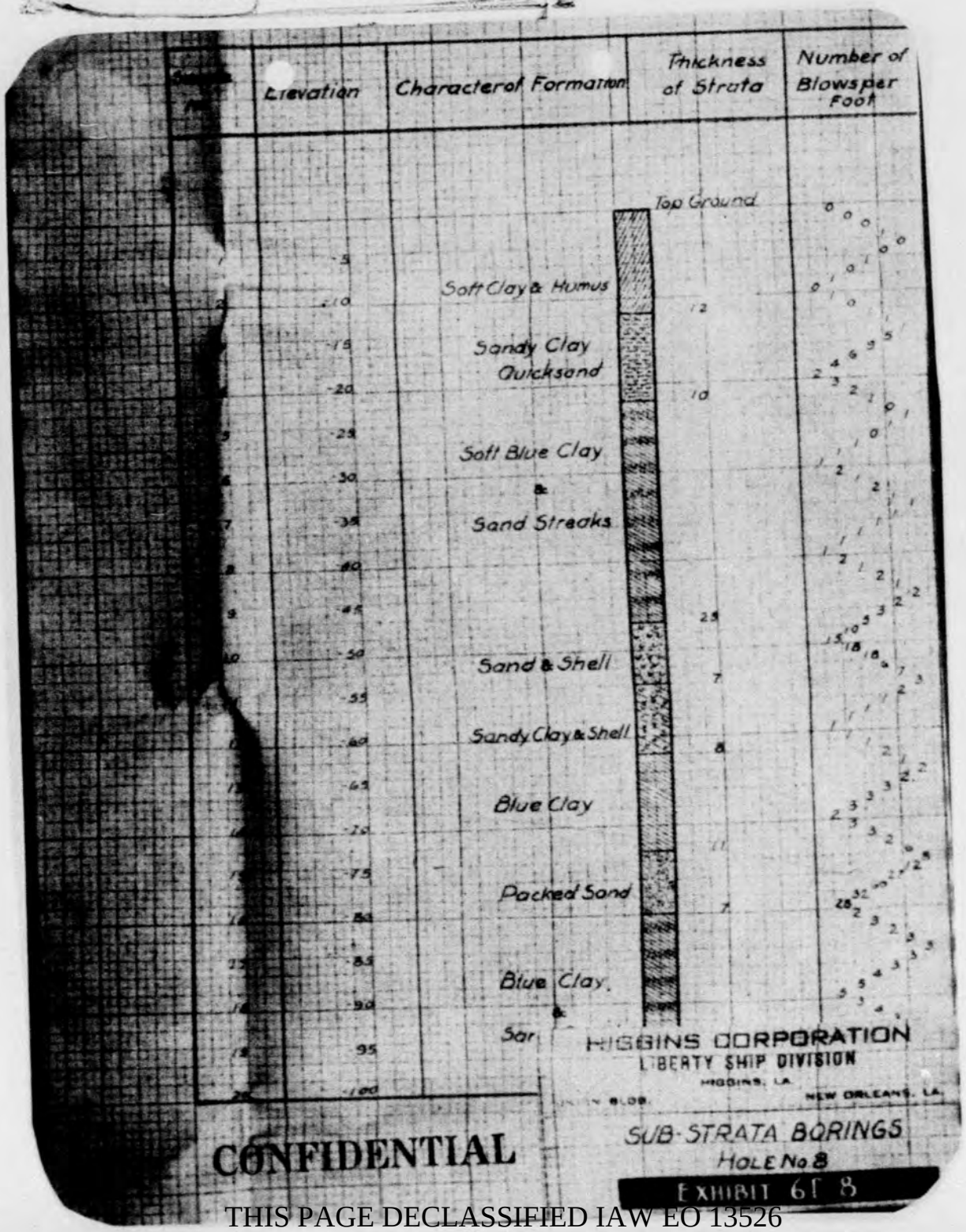

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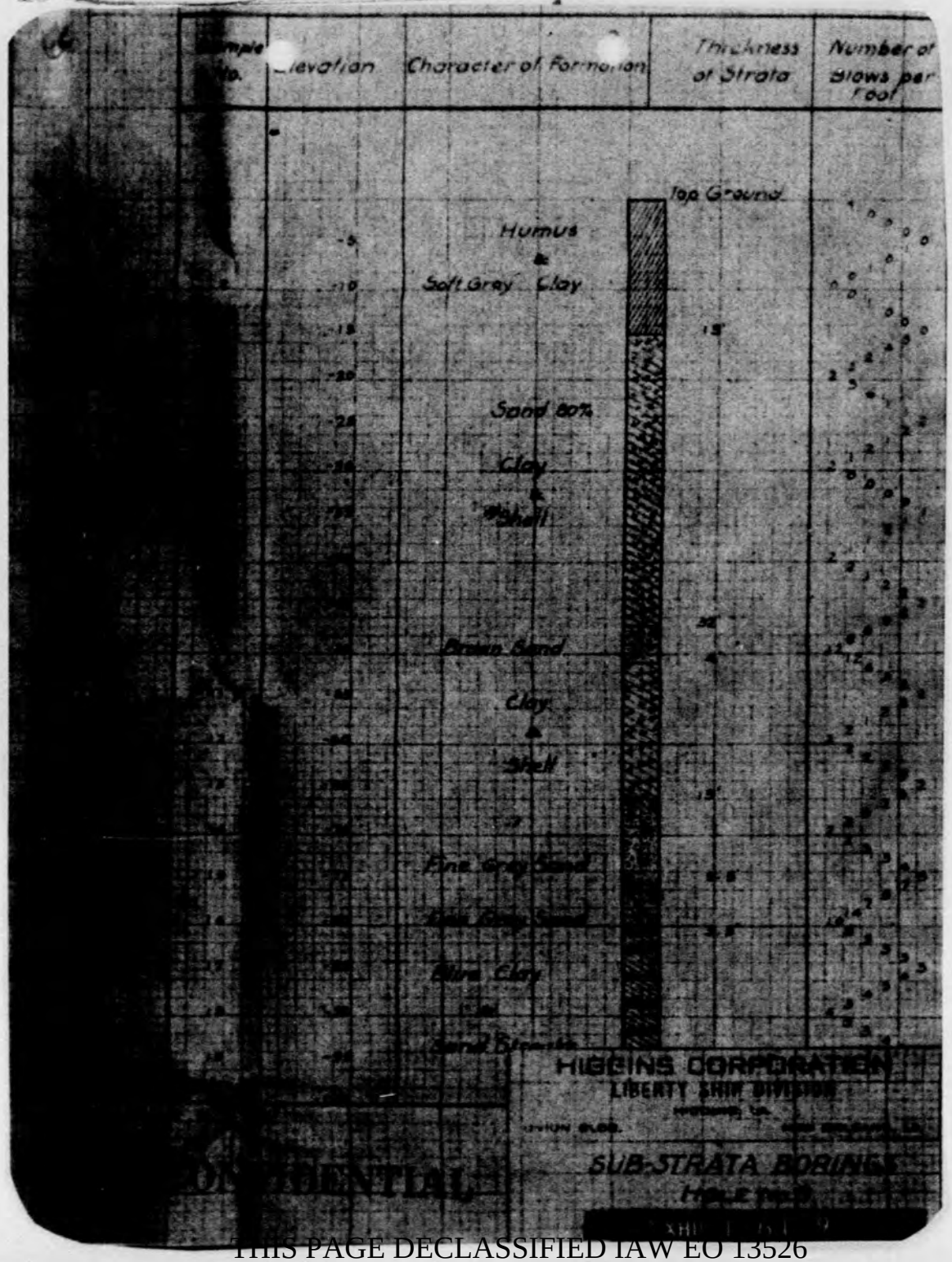

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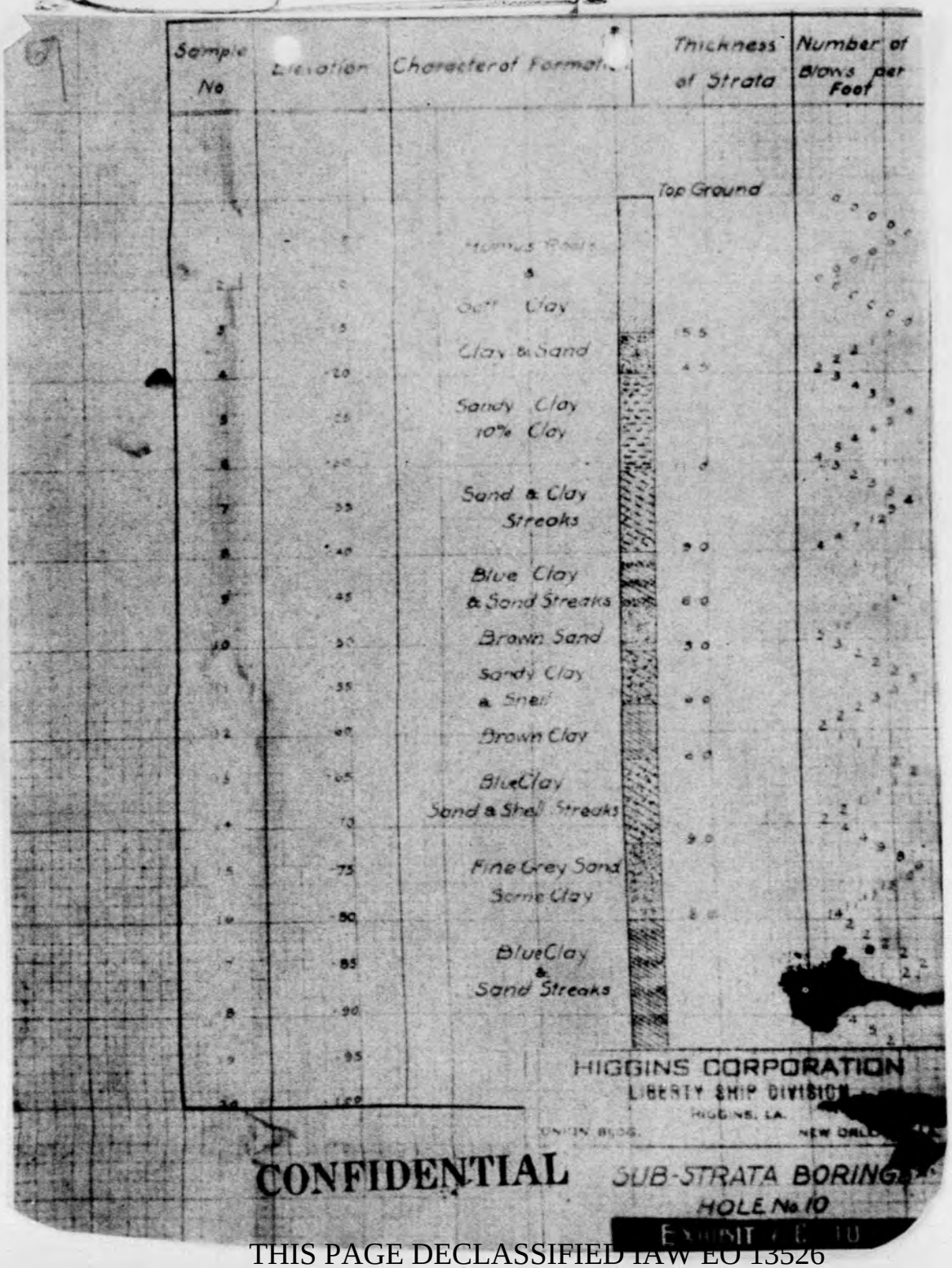

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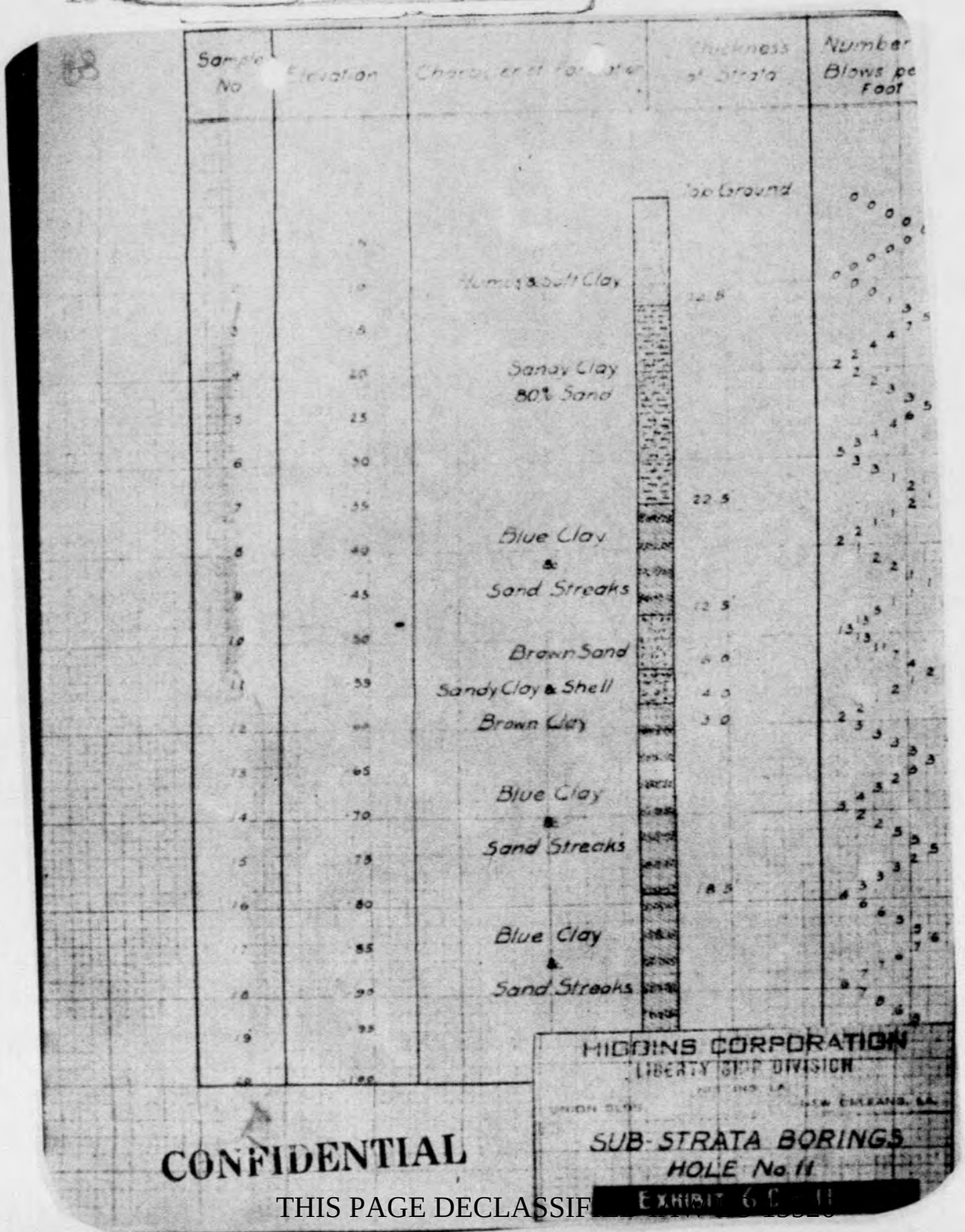

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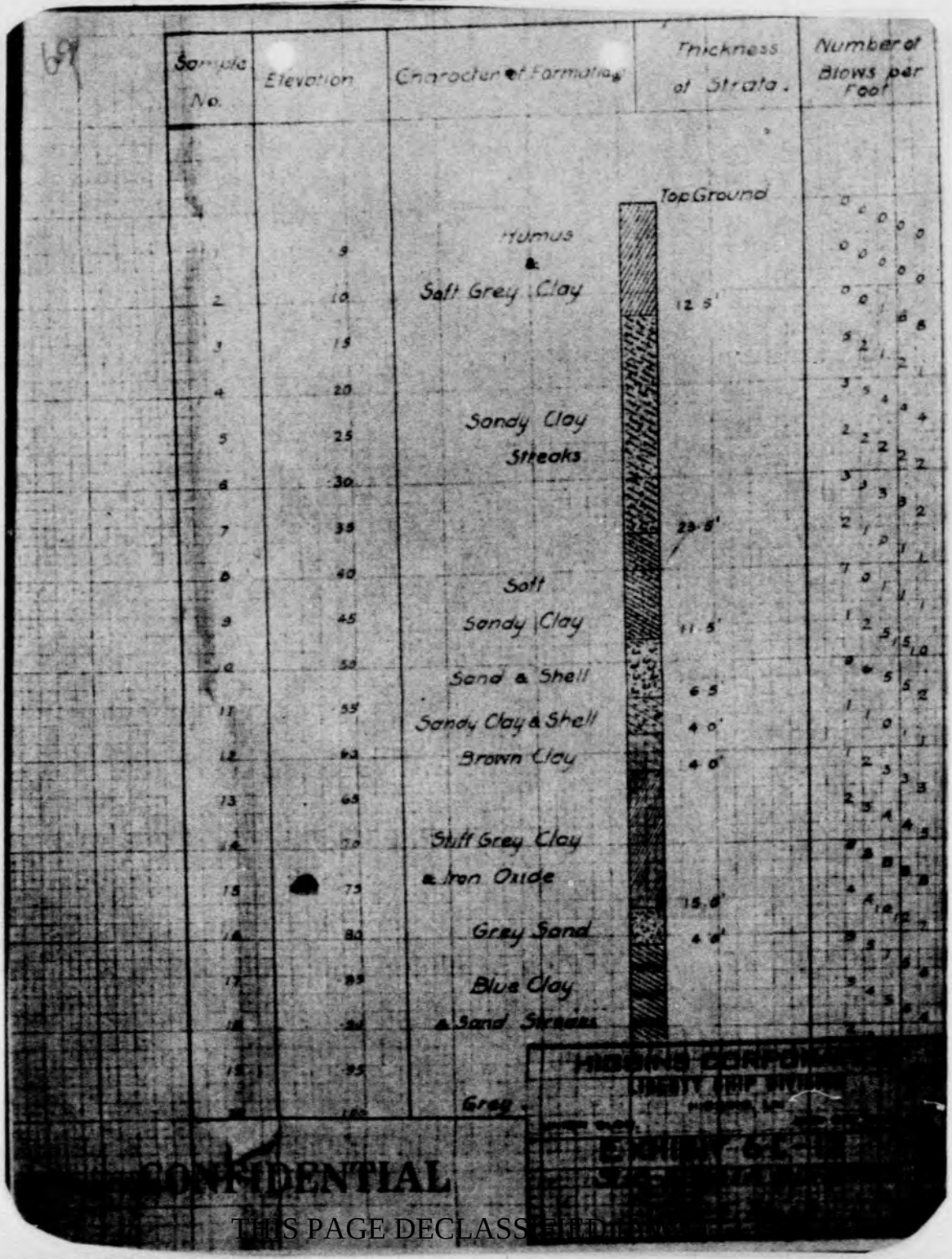

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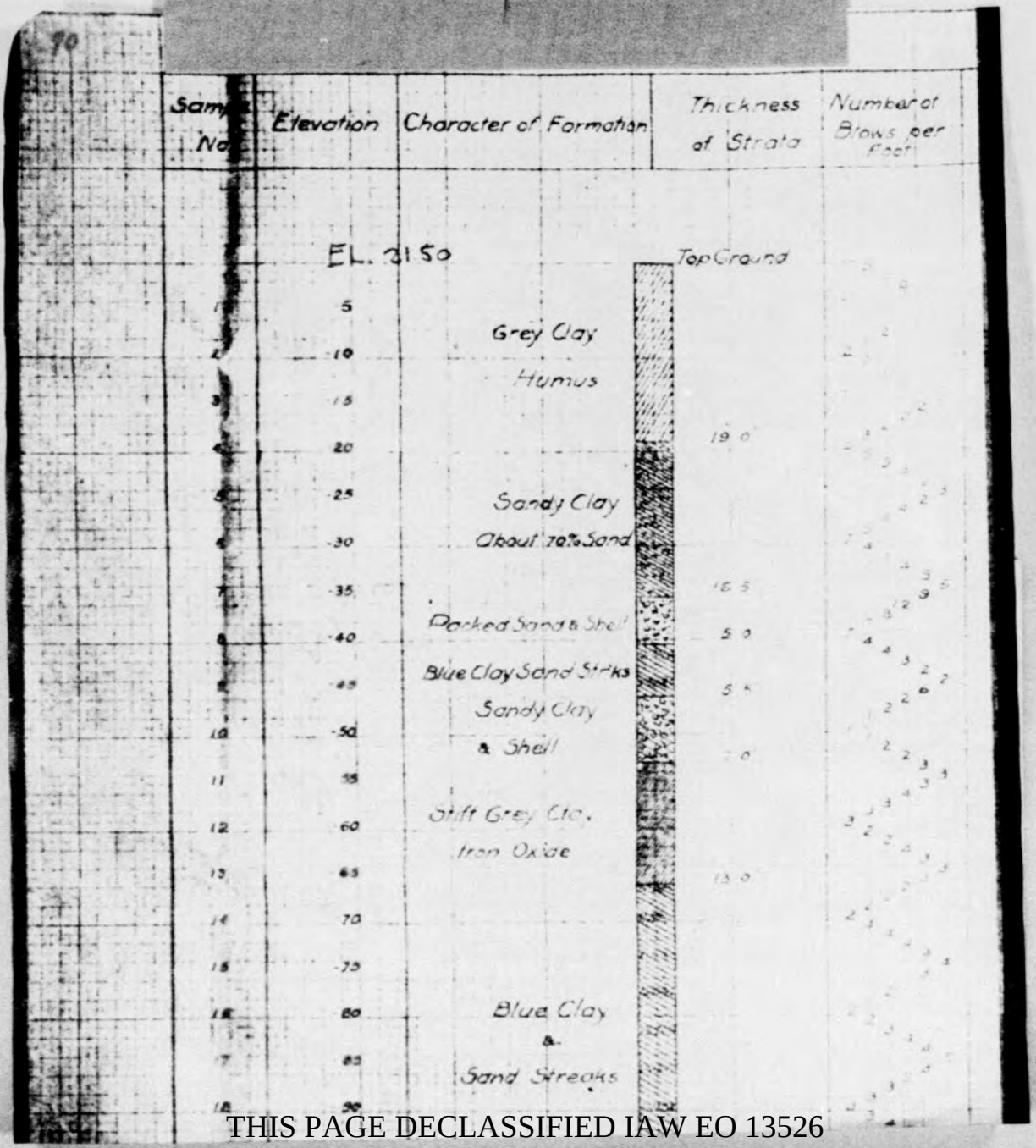

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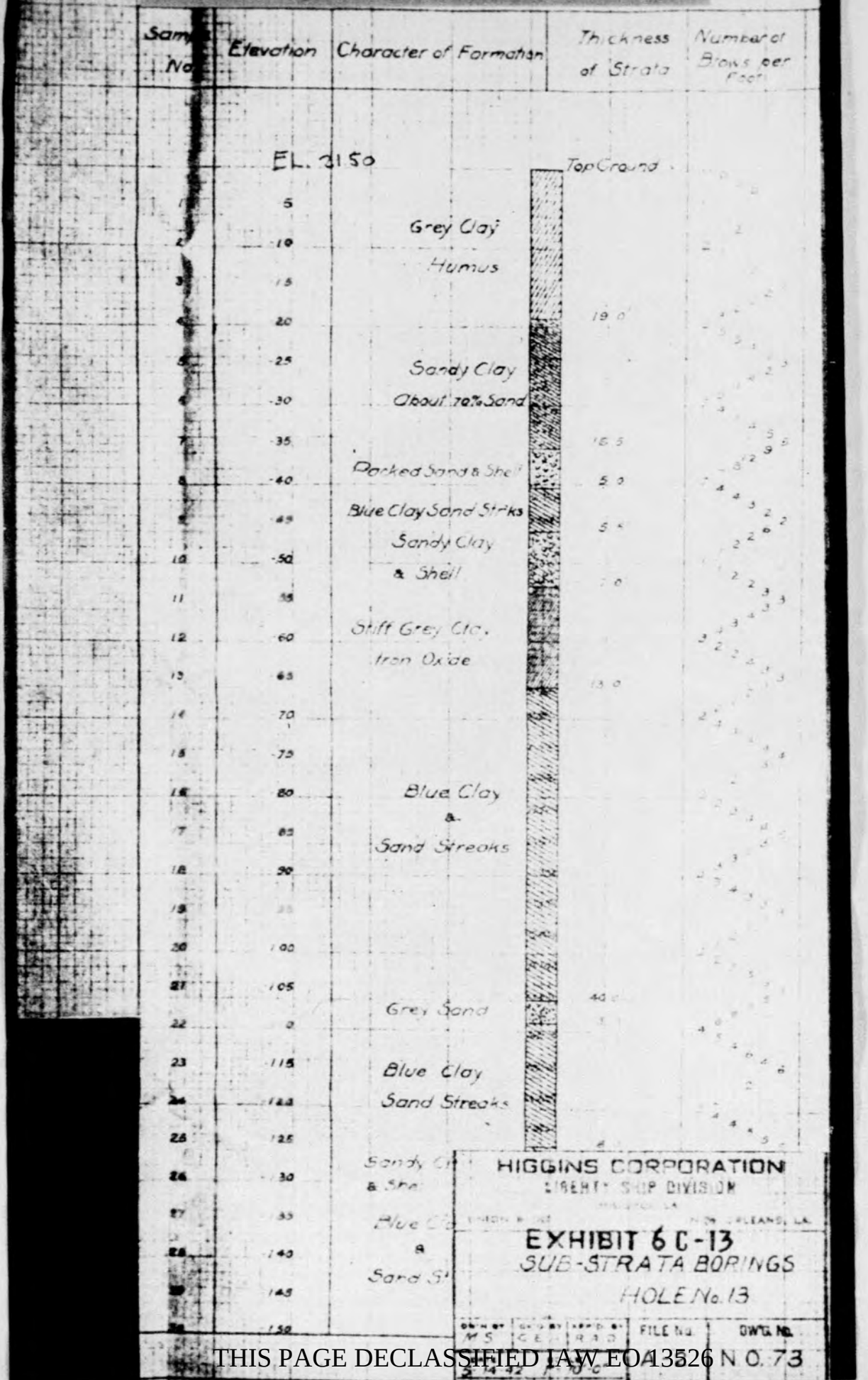

HIGGINS CORPORATION
LIBERTY SHIP DIVISION
NEW ORLEANS, LA.

EXHIBIT 6 C-13
SUB-STRATA BORINGS
HOLE No. 13

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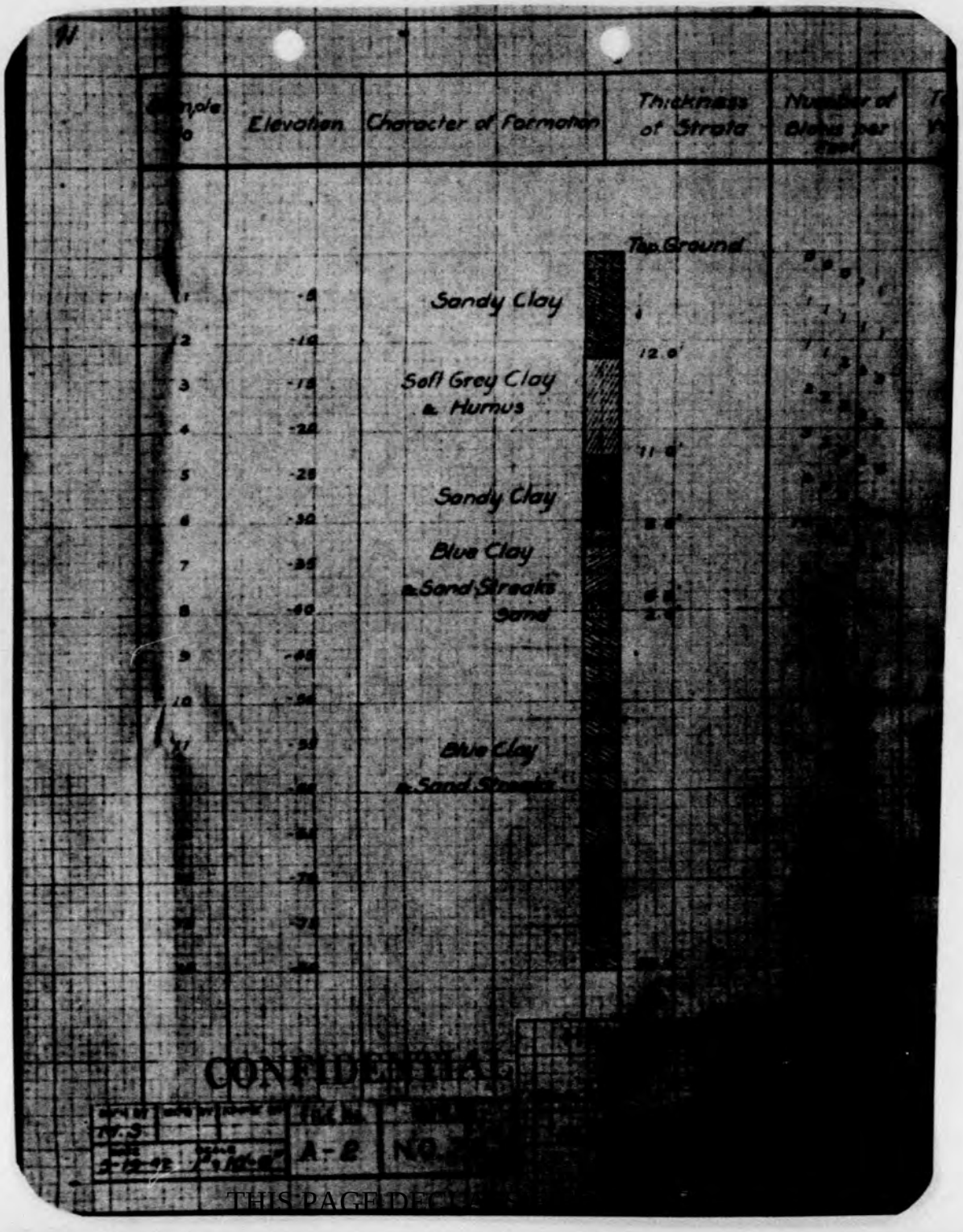

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APPENDIX A

30" PLATE BEARING TEST

ENGINEERING REPORT
HIGGINS AIRCRAFT PLANT

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APPENDIX "A"

FIELD REPORT
SURFACE LOAD BEARING TESTS
HIGGINS AIRPORT
NEW ORLEANS, LA.

May 26, 1943

1. Location of Tests: Two locations were chosen for bearing tests with the 30" plate; the first at Sta. 39 + 54 on the NE-SW runway (as tentatively laid out at this date); and the second at Sta. 42 + 23 on the N-S runway. The first is also the location of Loading Test Slab No. 1, the second, that of Loading Test Slab No. 3.

2. Description of Subgrade Conditions:

A. Location of Tests No. 1, 2, 3, and 4: This location was on a part of the hydraulic fill which was completed in 1942. The fill, of clean sharp fine to medium sand, is about 6 feet deep here, and may be considered representative of the sandy part of the fill in this portion of the site.

The log of an "undisturbed" core hole put down at this location is as follows:

Log of Hole 60-1
Sta. 39+70 on NE-SW Runway (Location of Bearing Tests 3 & 4)

Stratum Depth (ft.)	Description
0.0-6.1	Fill of clean sharp fine to medium sand
6.1-9.7	Brown spongy peat, containing some undecayed roots, stumps, logs, etc.
9.7-22.0	Gray, soft to plastic silty clay
22.0-22.3	Gray, packed silty sand
22.3-25.0	Gray, soft to plastic silty clay
25.0-27.8	Gray, soft to plastic sandy silt.
27.8-28.5	Gray, packed silty sand
28.5-30.0	Gray, soft to plastic sandy clay
	Bottom of hole at 30.0 ft. depth Water table at 1.7 ft. depth

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b. Location of Tests No. 5 and 6: This location, at the site of Test Slab No. 3, is on hydraulic fill which was completed this year, and which had probably not quite come to equilibrium at the time of the test. The fill, of nearly clean sharp fine to medium sand, is about 5 feet in depth here, and may be considered representative of the sandy fill in this portion of the site. The log of an "undisturbed" core hole put down in this location is as follows:

Log of Hole SC-2
Sta. 42/23 on N-S Runway (Location of Bearing Tests No. 5 and 6)

Stratum Depth (ft.)	Description
0.0-5.3	Fine sharp sand fill, slightly silty
5.3-13.7	Soft, spongy brown peat, containing many logs and pieces of undecayed wood
13.7-18.0	Gray soft sandy clay
18.0-23.0	Gray silty sand
23.0-25.0	Gray, stiff sandy silt
25.0-28.5	Gray, packed fine to medium sand, slightly silty
	Bottom of hole at 28.5 ft. depth Water table at 2.0 ft. depth

Complete laboratory test results on samples from these two holes are presented in Appendix "C".

3. Preparation of Test Panels: For Bearing Tests Nos. 1 and 2, a concrete slab was poured, 50' x 20' in area and 8 inches in thickness. Round holes 32-inches in diameter were cast for the bearing tests, and 14-inch square holes were left for the earth anchors used to hold the bearing test rig down. The bearing tests were run on the subgrade surface exposed by the round holes, with no preparation other than addition of about 1/4 inch of dry sand to provide a good seat for the 30-inch bearing plate.

Bearing tests 3, 4, 5, and 6 were run on the surface of the sand fill, with no preparation other than light hand tamping to compact the loose "fluffy top layer, and the addition of 1/4 inch of dry sand to provide a good seat for the bearing plate.

4. Arrangement of the Testing Rig: The testing rig used was that shown on page ___ of this report. The 30-inch diameter bearing plate was used. The rig was held down during the test by four 10-inch screw anchors, buried to a depth of 4 feet. Spacing of the anchors was: longitudinal, 20 ft.; lateral, 9 to 10 ft.

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5. Summary of Test Results: The values of k_u obtained in these tests are tabulated as follows:

Test No.	k_u lb./in.^{3}	Test Conditions
1	176	Tests were run through holes in 8-inch concrete slab, 30' x 30' on 7 ft. thickness of one year old fill of sand over 3.5' of humus or peat.
2	162	
3	148	Tests were run on surface of fill, adjacent to location of Tests 1&2.
4	148	
5	42	Tests were run on surface of 5.3 ft. of sand fill, placed in 1942 over 8 ft. of humus or peat.
6	42	

Refer to Figure 1 for loading and deflection curves for Tests 1, 2, 3, and 4 and Figure 2 for Tests 5 and 6.

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FOUNDATIONS AND PAVING
UNITED STAT S ENGINEER OFFICE
GALVESTON, TEXAS

FIELD BEARING TEST

Project: Higgins Airport Bearing Test No. 1

Location: Test Slab No. 1 Size of Bearing Plate: 30"

Station: 39/54 on NE-SW Runway Date of Test: 5-11-43

Offset:

Press Gage Lb/in^2	Load on 30" Plate Lb/in^2	Left Dial	Left Defl., inches	Right Dial	Right Defl., inches	Ave. Defl., Inches	Time	Interval, Minutes
							P.M.	
0	0	.855	0	.942	0	0	3:30	-
3500	5	.925	.030	.918	.024	-	3:33	3
0	0	.832	0	.926	0	0	3:36	3
3500	5	.818	.014	.917	.009	.012	3:39	3
7000	10	.762	.070	.865	.061	.066	3:42	3
10,600	15	.612	.220	.731	.195	.208	3:52	10
14,100	20	.397	.435	.525	.401	.418	4:08	16 *
17,700	25	0	.832	.153	.773	.803	4:30	22 **
0	0	.344	.498	.178	.748	.624	4:41	11
0	0	.388	.454	.467	.459	.456	8:10A.M.	Over-night

Remarks:* Dials still moving at about 0.003" per minute. **0.007" per minute. Test was run on surface of subgrade, through 32" hole in 8" thick concrete test slab, 50' x 30' in area.

Tested by: D.M.G. Computed by: D.M.G.

Date: 5-11-43

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FOUNDATIONS AND PAVING
UNITED STATES ENGINEER OFFICE
GALVESTON, TEXAS

FIELD BEARING TEST

Project: Higgins Airport Bearing Test No. 2

Location: Test Slab, 50' x 20' Size of Bearing Plate: 30" diam.

Station: 39/54 on NE-SW Runway Date of Test: 5-12-43

Offset:

Press Gage Lb/in^2	Load on 30" Plate Lb/in^2	Left Dial	Left Defl., inches	Right Dial	Right Defl., inches	Ave. Defl., inches	Time	Interval, minutes
							A.M.	
0	0	.978	-	.974	-	-	10:11	-
3500	5	.953	-	.956	-	-	14	3
0	0	.957	0	.962	0	0	16	2
3500	5	.949	.008	.946	.016	.012	19	3
5,000	7.1	.927	.030	.925	.037	.033	23	4
7,000	10	.877	.080	.880	.082	.081	29	6
10,600	15	.732	.225	.755	.207	.216	38	9
14,100	20	.496	.461	.542	.420	.440	54	16
17,700	25	.116	.841	.199	.763	.802	11:26	32 *
0	0	.267	.690	.375	.587	.638	37	11

Remarks: * Dials still moving at 0.002" per minute. Test was run on surface of subgrade; through 32" diam. hole in 8" thick concrete test slab, 50' x 20' in area.

Tested by: D. M. Greer Computed by: D.M.G.

Date: 5-12-43

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FOUNDATIONS AND PAVING
UNITED STATES ENGINEER OFFICE
GALVESTON, TEXAS

FIELD BEARING TEST

Project: Higgins Airport Bearing Test No. 3

Location: 30" W. of Test Slab #1 Size of Bearing Plate: 30"

Station: 39/84 on NE-SW Runway Date of Test: 5-13-43

Offset:

Press Gage Lb/in^2	Load on 30" Plate Lb/in^2	Left Dial	Left Defl., inches	Right Dial	Right Defl., inches	Ave. Defl., inches	Time	Interval, minutes
0	0	.949	0	.993	0	0	9:28	-
3500	5	.926	-	.969	-	-	9:30	2
0	0	.947	0	.998	0	0	9:32	2
3500	5	.921	.026	.967	.025	.025	9:34	2
5,000	7.1	.902	.045	.950	.042	.044	9:38	4
7,000	10	.860	.087	.909	.083	.085	9:47	9
10,600	15	.757	.190	.810	.182	.186	10:00	13
14,100	20	.610	.337	.668	.324	.330	10:15	15
17,700	25	.425	.522	.488	.504	.513	10:35	20
21,200	30	.188	.759	.113	.879	.819	11:05	30
0	0	.333	.614	.428	.564	.589	11:55	50

Remarks: Test is on surface of fill.

Tested by: D. M. Greer Computed by: D.M.G.

Date: 5-13-43

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FOUNDATIONS AND PAVING
UNITED STATES ENGINEER OFFICE
GALVESTON, TEXAS

FIELD BEARING TEST

Project: Higgins Airport Bearing Test No. 1

Location: 30' W. of Test Slab #1 Size of Bearing Plate: 30" Diam.

Station: 39+34 on NE-SW Runway Date of Test: 5-13-43

Offset:

Press Gage Lb/in^2	Load on 30" Plate Lb/in^2	Left Dial	Left Defl., inches	Right Dial	Right Defl., inches	Ave. Defl., inches	Time	Interval, Minutes
0	0	.965	0	.981	0	0	1:34	-
3500	5	.925	-	.945	-	-	1:40	6
0	0	.946	0	.965	0	0	1:54-2:17	14
3500	5	.920	.025	.945	.020	.023	2:19	2
5,000	7.1	.895	.051	.924	.041	.046	2:25	6
7,000	10	.855	.091	.889	.076	.082	2:34	9
10,600	15	.755	.191	.802	.163	.178	2:46	12
14,100	20	.620	.326	.680	.285	.306	3:06	19
17,700	25	.453	.493	.530	.435	.464	3:28	23
21,200	30	.276	.670	.367	.598	.634	3:43	15
0	0	.477	.469	.546	.419	.444	4:10	42

Remarks: Test is on surface of fill.

Tested by: D. M. Greer Computed by: D.M.G.

Date: 5-13-43

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FOUNDATIONS AND PAVING
UNITED STATES ENGINEER OFFICE
GALVESTON, TEXAS

FIELD BEARING TEST

Project: Higgins Airport — Bearing Test No. 5

Location: Test Slab No. 3 — Size of Bearing Plate: 30"

Station: 4/23 N-S Runway — Date of Test: 5-18-43

Press Gage Lb/in^2	Load on 30" Plate Lb/in^2	Left Dial	Left Defl., inches	Right Dial	Right Defl., inches	Ave. Defl., inches	Time	Interval, Minutes
0	0	.996	0	.999	0	0	8:28	-
1000	1.4	.960	.036	.963	.036	.036	8:37	9
0	0	.975	.021	.969	.030	.026	8:50	13
0	0	.975	0	.969	0	0	8:50	13
1000	1.4	.945	.030	.946	.023	.026	9:00	10
2000	2.9	.890	.085	.892	.077	.081	9:10	10
3000	4.3	.797	.178	.795	.174	.176	9:18	8
4000	5.7	.538	.437	.535	.434	.436	9:56	20
7000	10	.030	.945	.037	.932	.938	11:20	24
0		.200	.775	.294	.675	.725	11:55	35

Remarks: Test is run on surface of fills.

Tested by: Walker

Computed by: D. M. Greer

Date: 5-20-43

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FOUNDATIONS AND PAVING
UNITED STATES ENGINEER OFFICE
GALVESTON, TEXAS

FIELD BEARING TEST

Project: Higgins Airport Bearing Test No. 6

Location: Test Slab No. 3 Size of Bearing Plate: 30"

Station: 4+23 N-S Runway Date of Test: 5-18-43

Offset:

Press Gage Lb/in²	Load on 30" Plate Lb/in²	Left Dial	Left Defl., inches	Right Dial	Right Defl., inches	Ave. Defl., inches	Time	Interval, minutes
0	0	.980	0	.984	0	0	1:50	-
1000	1.4	.947	.033	.956	.028	.030	2:00	10
0	0	.962	.018	.967	.017	.018	2:08	8
0	0	.962	0	.967	0	0	2:08	8
1000	1.4	.940	.022	.948	.019	.020	2:14	6
2,000	2.9	.867	.095	.882	.085	.090	2:22	8
3,000	4.3	.758	.204	.780	.187	.195	2:31	9
4,000	5.7	.585	.377	.613	.354	.365	2:46	15
5,000	7.1	.385	.577	.412	.555	.566	3:07	21
6,500	9.3	0	.962	.039	.928	.945	3:18	11
6,500	9.3	.788	.962	.775	.928	.945	3:20	13
6,500	9.3	.700	1,050	.698	1,005	1,028	3:45	38
0	0	.915	.835	.890	.813	.824	4:20	35

Remarks: Test is run on surface of fill.

Tested by: Walker Computed by: D. M. Greer

Date: 5-20-43

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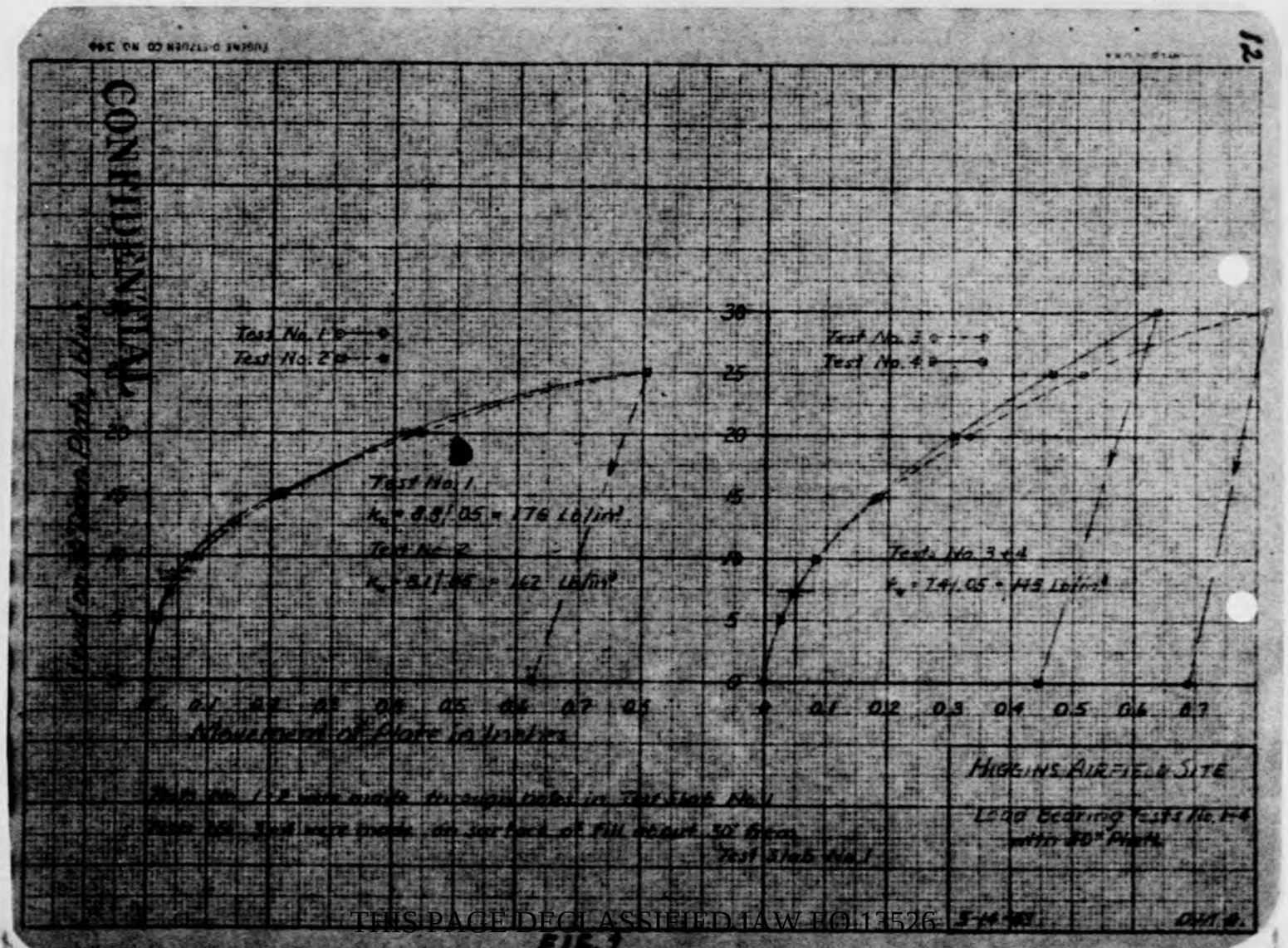

FIG. 1

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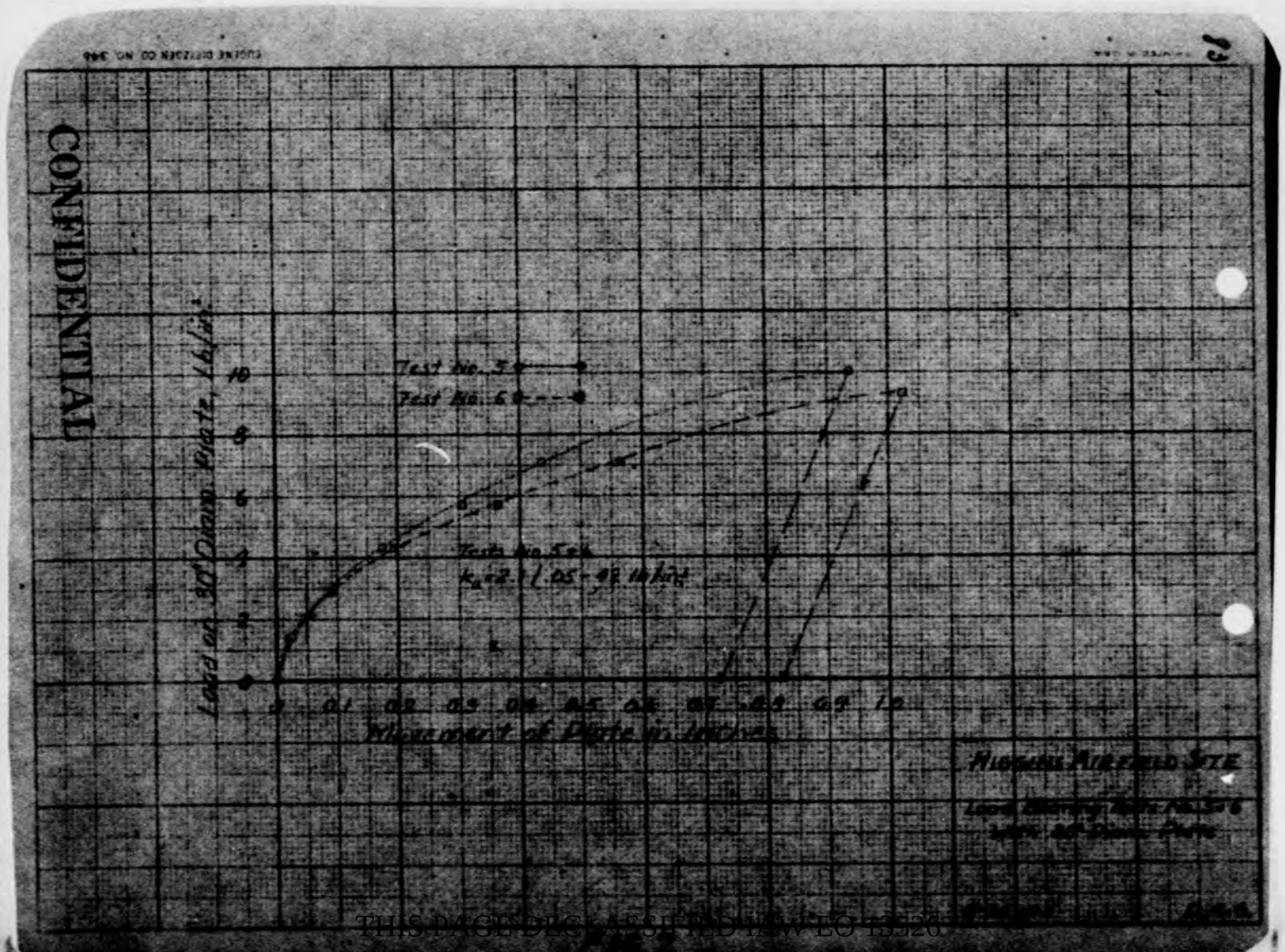

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APPENDIX B

TEST SLAB LOADING DATA

ENGINEERING REPORT
HIGGINS AIRCRAFT PLANT

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APPENDIX B

TEST SLAB LOADING DATA

ENGINEERING REPORT
HIGGINS AIRCRAFT PLANT

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APPENDIX "B"

FIELD REPORT
SLAB LOADING AND SETTLEMENT TESTS
HIGGINS AIRPORT
NEW ORLEANS, LA.

May. 1943

1. Purpose of Tests: The object of the slab-loading tests was to determine, by approximating the loading that might be produced by a heavy plane standing on a single slab of concrete runway, the magnitude and rapidity of settlements that might be expected of the runway pavement under service conditions.

2. Description of Test Slabs and Subgrade Conditions:

a. Test Slab No. 1-A (Sta. 39/58 on NE-SW Runway) Slab No. 1-A was formed by cutting 20 ft. off the end of the 20/50 ft. Slab No. 1, which was used in the load bearing tests with the 30-inch bearing plate. The resulting slab, No. 1-A, is 20 x 20 feet in plan, 8 inches thick except at 3 edges, where it is thickened to 10 inches. The slab was poured directly on the sand fill, after leveling and hand tamping to compact the loose top material. The log of an auger hole at this location (with additional information obtained from an undisturbed core boring), shows the subgrade at this point to be as follows:

Hole No. 21

Stratum (Depth in Feet)	Description
0.0-6.1	Fine to medium clean sand fill
6.1-9.7	Peat, soft, spongy
9.7-12.8	Soft gray silty clay
12.8-13.9	Silty sand
13.9-22.0	Soft gray silty clay
22.0-27.8	Soft to plastic silty clay to sandy silt
27.8-28.5	Silty sand
28.5-36.6	Soft to plastic silty clay stratified with silty sand

Water table at 1.7 ft. depth

b. Test Slab No. 2 (Sta. 40/28 on NE-SW Runway) Test Slab No. 2 is 20 x 20 foot in plan, 8 inches in thickness except at the edges, where it

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is thickened to 10 inches. A base was prepared by laying a bed of 12 inches of clam-shell, then rolling with a 4-ton flat-wheel roller to a thickness of 9 inches. The subgrade under this slab is very little different from that under No. 1-4. An auger boring at this point gives the following record:

Hole No. 23

Stratum (Depth in Feet)	Description
0.0-5.1	Fine to medium clean sand fill
5.1-9.4	Peat, soft, spongy
9.4-23.9	Soft gray silty clay, some sand
23.9-39.4	Silty sand, stratified with clay
39.4-44.4	Medium gray sand, packed

Water at 1.8 foot depth.

c. Test Slab No. 3 (Sta. 43/23 on N-S Runway) Test Slab No. 3 is 10 x 10 ft. in plan, 8 inches thick. This slab was poured on the sand fill after leveling and hand tamping to compact the "fluffy" surface crust. The subgrade under this slab is much poorer than that at slabs No. 1 and 2, since the fill is thinner, and the underlying peat layer is thicker. The log of an auger hole put down at this location, with additional information obtained from an undisturbed core boring, is as follows:

Hole No. 18

Sta. 42/23 on N-S Runway

Stratum (Depth in Feet)	Description
0.0-5.3	Fill of fine to medium sand, slightly silty
5.3-13.7	Peat, soft, spongy; with many roots and stumps
13.7-18.2	Soft gray silty clay.
18.2-23.7	Stiff gray silty sand
23.7-25.0	Stiff gray sandy silt
25.0-27.0	Plastic gray silty sand
27.0-31.0	Gray medium sand, packed

Water table at 2.0 ft. depth

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2. Test Slab No. 4 (Sta. 48/00 on NW-SE Runway) This slab, like No. 3, is 10 x 10 ft. in plan, and 8 inches thick. The slab was poured directly on the fill with no preparation other than leveling of the surface. The log of an auger hole at this location is as follows:

Hole No. 15

Station 48/00 on NW-SE Runway

Stratum (Depth in Feet)	Description
0.0-6.1	Plastic gray silty clay at surface, changing gradually to silty sand at bottom; sand predominates from 2-ft. depth down.
6.1-8.8	Peat, soft, spongy.
8.8-10.2	Plastic gray silty clay.
10.2-21.1	Firm brown silty clay.
21.1-30.5	Gray silty sand, firm, packed.

Water table at about 2 ft. depth.

3. Method of Loading: All test slabs were loaded with sandbags, which were adjusted to a weight of 100 lb. each, and were carefully placed so as to produce uniform load distribution. The 10 x 10 ft. slabs (No. 3 and 4) were equipped with 16 x 16 ft. platforms to facilitate placing the large number of sandbags required. The loads used were calculated to produce the same loading on the top of the peat bed in each case, on the assumption of a 60-degree "spread" of the load through the fill, and using depths of fill obtained from nearby auger borings. Subsequent auger borings at the test slabs indicated that the assumed depths of fill were not exactly right, and that therefore the computed loadings on top of the peat are not equal for all slabs. The actual loadings on the basis of a 60° spread are given below in Table I.

Table I

Test Slab No.	Depth of Peat (ft.)	Load on Slab (lb.)	Unit Load on Peat (lb/ft.²)
1-A	6.1	150,000	205
2	5.3	150,000	225
3	5.3	45,500	270
4	6.1	37,500	125

4. Method of Settlement Observations: Measurements of settlement of the slabs were made by taking level observations on nails set in the four corners of each slab, at intervals during loading and after the loading was complete.

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Those observations are to be continued until substantially complete settlement has been reached, except in the case of Slab No. 1-A which was unloaded after 120 hours to allow a vibration-settlement test (see paragraph 6 of this report.)

5. Presentation of Settlement Test Results: The time-settlement curves of all four test slabs, plotted against time on a logarithmic scale, are presented in the attached curve sheet. In addition, a summary of information from these tests is presented in Table II below.

Table II

Test Slab No.	Thickness of Fill (ft.)	Thickness of Peat (ft.)	Loading on Peat ($lb./ft.^2$)	Settlement in Feet 1 hr.	10 hr.	100 hr.	200 hr.	Remarks
1-A	6.1	3.6	205	.034	.066	.100	-	Sand fill(1942)
2	5.1	4.3	225	.025	.033	.098	.116	Shell base on sand fill
3	5.3	8.4	170	.083	.148	.385	.388	Sand fill(1942)
4	6.1	3.7	135	.052	.084	.156	.176	Clay and sand fill (1942)

6. Observations on Vibration Test on Slab No. 1-A: After about 120 hours of settlement under a static load of 150,000 lb., Slab 1-A was unloaded and a diesel-driven tractor weighing 21,700 lb. was driven onto the slab, and throttled down to produce as much vibration as possible. The vibration, transmitted to the slab, was not heavy, being barely perceptible to an observer standing on the edge of the slab. Settlement measurements on the slab during this test are presented in Table III below.

Table III

Time Hours	Condition	Total Settlement Feet
0	Rebound after removal of 150,000 lb. load	.005
0	Instant settlement under tractor	.0030
4	Motor running	.0038
16.5	Motor off since last reading	.0047
21.5	Motor running	.0050
40.5	Motor running	.0058
49	Motor running	.0058
118	Motor running	.0068

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Discussion of Test Results: At the time of this report, the settlement test results are not complete, and it is not possible to draw any accurate conclusions as to the final magnitudes. It is probable, however, that the ultimate settlements will bear about the same relation to each other as the 200-hour readings in Table IV. The times at which these slabs finally come to rest should be about the same as the times required for loaded runways, at the same locations, to complete their settlement. For comparison of laboratory consolidation tests on undisturbed samples with the slab loading tests see Appendix "C".

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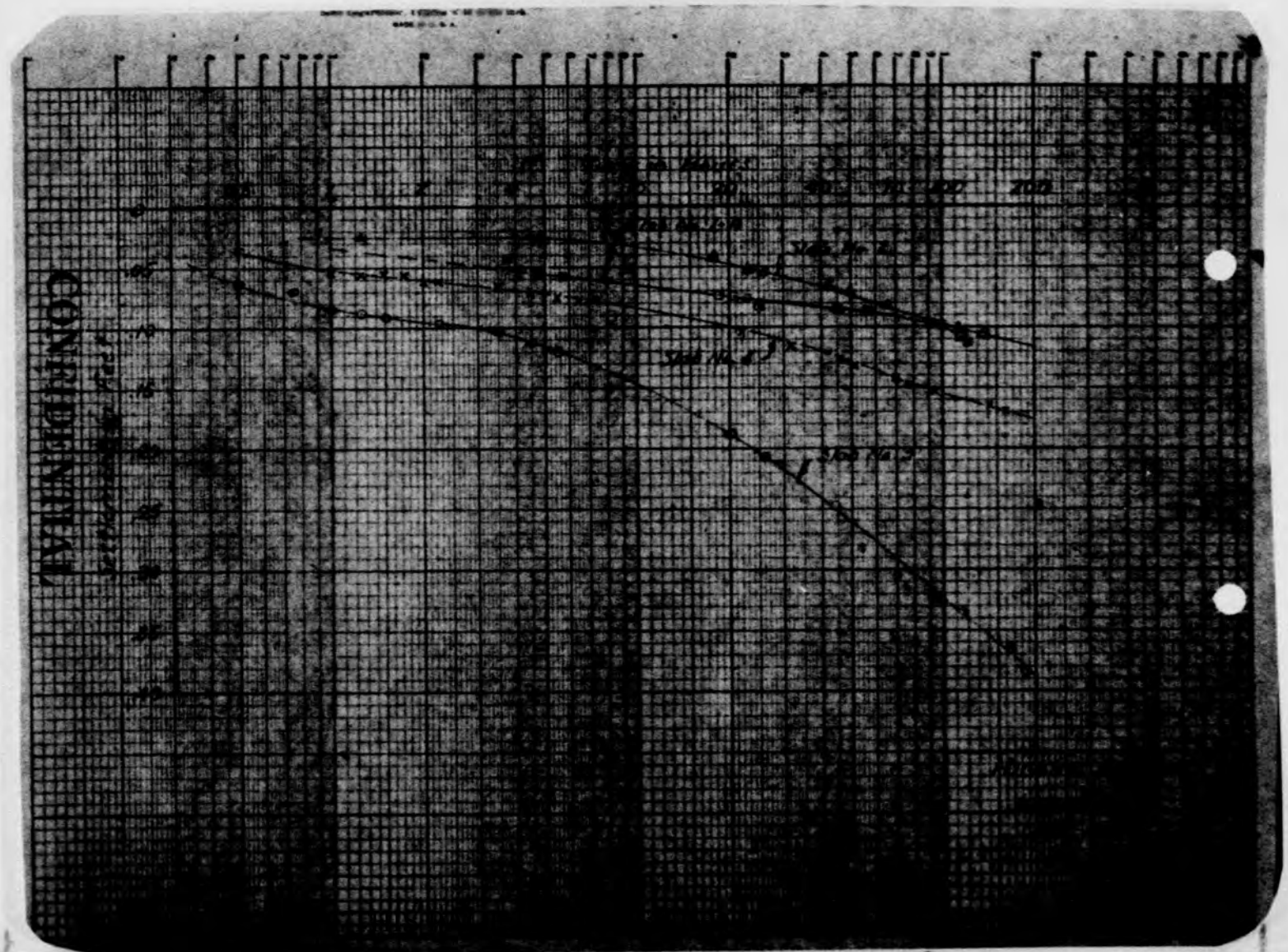

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APPENDIX C

LABORATORY TESTS

ENGINEERING REPORT
HIGGINS AIRCRAFT PLANT

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APPENDIX C

Report on Laboratory Tests on Soil Samples from Higgins Airport

1. Testing Program

Three groups of samples were received by the laboratory for the testing: (a) disturbed samples of typical material from auger holes (samples No. 43-1187 to 43-1201); (b) undisturbed samples from two core holes on the fill; and (c) bag samples of shell from a stockpile on the site, and of sand from the fill. The first group were tested for moisture content, mechanical analysis, and Atterberg limits; the second group were given the same tests, plus density measurements; and consolidation tests were made on two typical samples of peat and on a typical soft and a typical stiff clay. The third group were given compaction and bearing ratio tests in various mixtures of sand and shell.

2. Tabulation of Test Results

All test results on the typical auger samples (samples No. 43-1187 to 43-1201), and on the sand and shell and sand-shell mixture (samples 43-1216 and 43-1217) are summarized in Table I, Page 4. Bearing ratios of various sand-shell mixtures are plotted in the graph on page 5. Results of all tests on undisturbed samples except the consolidation tests are presented in the core-hole logs, pages 5 to 13.

3. Consolidation Tests

Consolidation tests were performed on a sample of stiff clay, and two samples of peat. Loads used were 2, 4, 6, and 8 pounds per square inch. These loads were computed to cover the range

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of press s produced by the fill and any ssible designs of pavement. The tests under these loads were completed for the clays; because of slower consolidation of the peat samples, consolidation at the higher loads is not complete at the time of this report, and computations are being based on extrapolation of the results so far obtained. These tests will be carried to completion.

Time - consolidation curves for the two clay samples are presented on pages 14 and 15, and for the two peat samples on pages 15 and 17. The pressure vs. void-ratio curves for the two clay samples are presented on page 18. Height of sample is plotted against consolidation load for the peat samples, on page 19.

4. Computations of Amounts of Settlement.

Table II, page 20, gives estimated settlements within the peat and the clay layers for three typical subgrades, correspondingly roughly to the subgrade conditions at Test Slabs No. 3, 2 and 4 respectively. The settlements within the underlying clay are tabulated for two conditions, corresponding to the "stiff" and the "soft" samples tested. The maximum indicated differential settlement for each loading condition is given on the bottom line of the table.

5. Computation of Time of Settlement

The average value of time for 90% consolidation under the 4.6 and 8 lb. per sq. in. load, on both clay samples, is 485 minutes. Thickness of sample was 3.0 cm. Assuming a 20-ft. thickness of clay layer, drained top and bottom, the time for 90% consolidation = 9.5 years. Actually, intermediate drainage layers of sand within the clay bed may materially reduce this time. Examination of the time-consolidation curves for the peat samples indicates that the time for

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90% consolidation is about 1000 minutes. On this basis, the time for 90% consolidation of the peat layer, drained top only, would be about as follows: 2 ft. layer, 1.1 year; 1.1 year; 4 ft. layer 4.4 years; 7 ft. layer, 14 years.

6. Conclusions

a. From the foregoing settlement computations, the following conclusions are justified.

(1) Differential settlement due to the weight of fill and pavement may be expected to be of the order of 1 ft. between different areas on the site.

(2) Presence of soft clay underlying the runway areas may produce as much or more settlement as occurs within the peat layer.

(3) Completion of settlement in both peat and clay layers may take as long as ten years.

b. The graph on page 5 indicates that sand and shell mixed in a dry weight ratio of 1:3 for sand:shell (or 30% sand dry weight) will produce a maximum bearing ratio of nearly 100, and should result in a satisfactory flexible base material.

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Soils Laboratory

Soils Memorandum No. 65

Higgins Airport, New Orleans, La.

Table I

Summary of Results

Location	Station	Offset	Numbers Lab.	Numbers Serial	Hole	Spl	Depth in Feet	Stratum Depth	Stratum Elevation	Optimum Moisture Data	Bearing Ratio Data	Atterberg Limits	Passing #40 Sieve	% Retained on
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

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Soils Memorandum No. 85

Higgins Airport, New Orleans, La.

Table I

Summary of Results

Station	Depth	Natural Moisture Data		Marine Soils Data								Atterberg Limits		Particle Size Distribution					
		Air Dry	Oven Dry	Salt from Top and Bottom		Salt from Bottom Only		Leached						% Retained on		Percentages			
				Salinity	% Sat.	Salinity	% Sat.	Salinity	% Sat.	Salinity	% Sat.	Liquid Limit	Plastic Index			Gravel	Sand	Silt	Clay
1	2	3	2	3	2	3	2	3	2	3	2								
Shell from Shell Pile on Site																			
9-B	3.0	110	88																
Fill from Old Canal Bottom																			
11	3.0	140	87																
Shell Bottom																			
13	3.0	130	81																
20	3.0	117	81																

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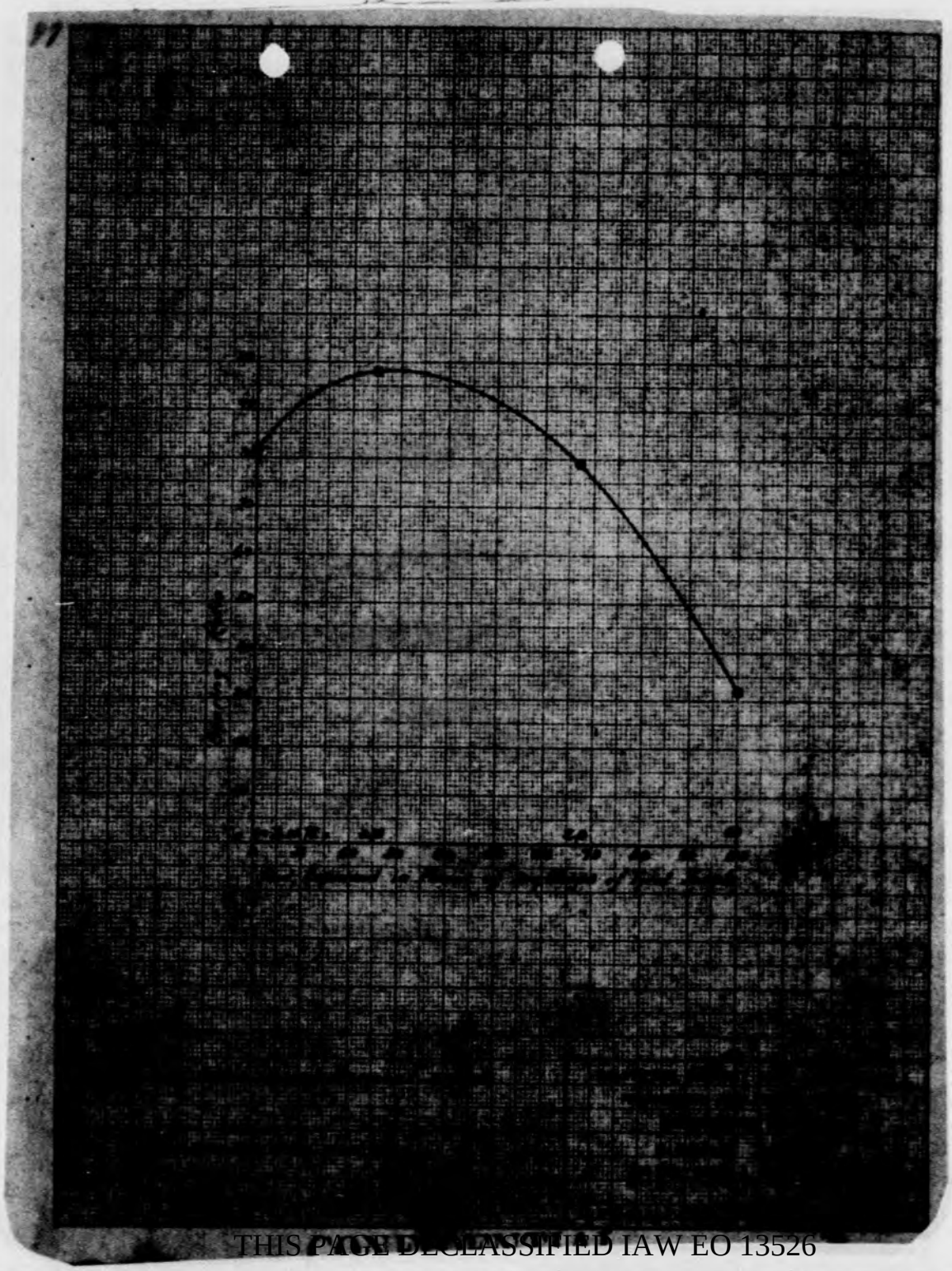

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APPENDIX D

PAVEMENT DESIGN DATA

ENGINEERING REPORT
HIGGINS AIRCRAFT PLANT

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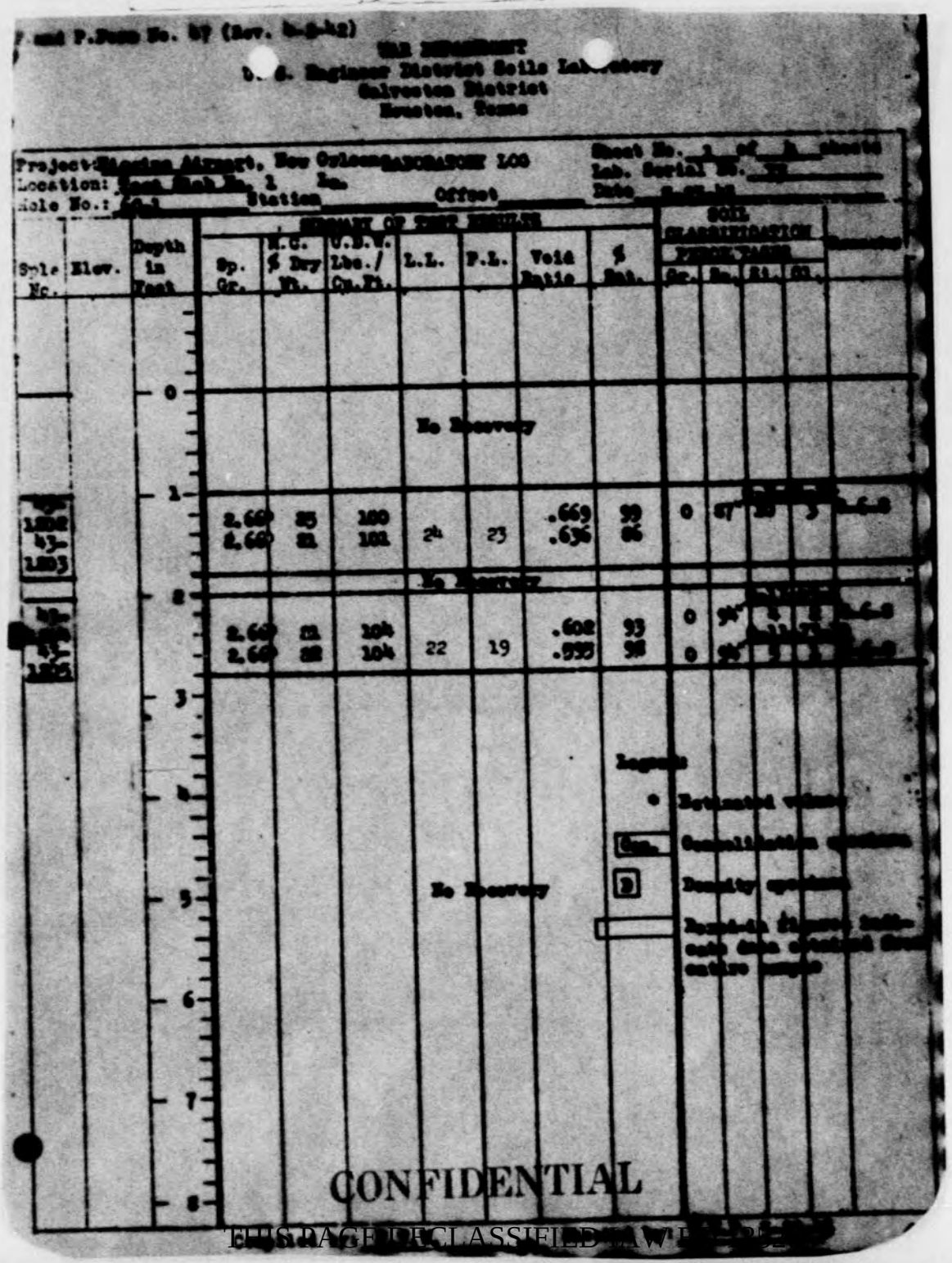

and P.Data No. 57 (Rev. 6-54)

U. S. Engineer District Soils Laboratory
Galveston District
Houston, Texas

Project: Ellington Airport, New Orleans BACKBONE LOG
Location: Test Hole No. 2 Ln.
Hole No.: Sta. Station Offset
Sheet No. 1 of 1 sheets
Lab. Serial No. XX
Date 6-25-54

Sple No.	Elev.	Depth in Feet	Sp. Gr.	M.C. % Dry Wt.	U.B.W. Lbs./Cu.Ft.	L.L.	P.L.	Void Ratio	% Sat.	SOIL CLASSIFICATION Percentages Gr.	Sa.	Si.	Cl.	Remarks
		0				No Recovery								
		1	2.66	25	100	24	23	.669	99	0	67	28	5	L.L.
			2.66	22	101			.636	86					
		2				No Recovery								
			2.66	21	104	22	19	.608	93	0	96	4		L.L.
			2.66	22	104			.595	98	0	95	5		
		3												
		4												
		5				No Recovery								
		6												
		7												
		8												

Legend:
- Undisturbed sample
- Consolidation specimen
- Density specimen
- Symbols to appear with each data or graphical item on the log sample

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F and P.Form No. 47 (Rev. 4-2-42)

WAR DEPARTMENT
U. S. Engineer District Soils Laboratory
Galveston District
Houston, Texas

Project: Higgins Airfield
Location: Test Hole No. 1
Hole No.: [illegible] Station _____ Offset _____

LABORATORY LOG

Sheet No. 2 of 4 sheets
Lab. Serial No. 73
Date 5-23-43

Sple No.	Elev.	Depth in Feet	SUMMARY OF TEST RESULTS: Sp. Gr.	M.C. % Dry Wt.	U.D.W. Lbs./Cu.Ft.	L.L.	P.L.	Void Ratio	% Sat.	SOIL CLASSIFICATION PERCENTAGES: Gr.	Sa.	Si.	Cl.	Remarks
						No Recovery								
53-1167 1		9	(peat) (peat) (clay)	76 68 55	Sample contains clay and peat, also sticks from 1/2" to 2" diameter									1-Peat-V 2-15"-Sa-P
						No Recovery								
			2.20	85%			Peat							Dr Peat
53-1168 2		10	2.69 2.69	55 77	48 53	72	27	2.539 2.175	100 95	0 0	4 7	33 46	63 53	2-15-Sa 2-15-Sa
		11				No Recovery								
53-1169 3				47	Sample very badly disturbed (Peat and Clay)									2-15-V 1-Peat-V
		12				No Recovery								
		13												
		14	2.69 2.69	69 61	59 63	104	22	1.836 1.674	100 98	0	2	12	86	2-15-Sa-Cl 2-16-Sa-Cl
		15												
		16				No Recovery								
		17												

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F. and P. Form No. 47 (Rev. 4-2-42)

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WAR DEPARTMENT
U. S. Engineer District Soils Laboratory
Galveston District
Houston, Texas

Project: Hearing Airport
Location: Ranch Field No. 2
Hole No.: SO-1 Station Offset

LABORATORY 100

Sheet No. 3 of 4 sheets
Lab. Serial No. 23
Date 8-23-43

Sple No.	Elev.	Depth in Feet	Sp. Gr.	N.C. % Dry Wt.	U.D.W. Lbs./Cu.Ft.	L.L.	P.L.	Void Ratio	% Sat.	SOIL CLASSIFICATION PERCENTAGES Gr.	Sa.	Si.	Cl.	Remarks
						No Recovery								
		19				Piece of wood, 5" dia.								
43-1198 5			2.67	61	63			1.630	99	0	3	44	53	0-15-8
		20	2.67	38	83			1.004	100	0	4	66	30	0-12-8
		21				No Recovery								
43-1198 6				89		Sample contains roots and sticks probably brought from above strata, also contains peat.								0-7-8
		22	2.65	[illegible]	90			.838	99	0	[illegible]	[illegible]	10	0-10-8
		23				No Recovery								
43-1198 7		25		186		Fairly firm, [illegible] peat, sticks and clay, probably from [illegible] stumps								0-[illegible]
			2.67	42	78			1.133	100	0	3	68	29	0-[illegible] 21
		26												

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WAR DEPARTMENT
U. S. Engineer District Soils Laboratory
Galveston District
Houston, Texas

Project: Higgins Airport
Location: [illegible] 1
Hole No.: [illegible] Station Offset

LABORATORY LOG

Sheet No. 4 of 4 sheets
Lab. Serial No. [illegible]
Date [illegible]

Sole No.	Elev.	Depth in Feet	SUMMARY OF TEST RESULTS: Sp. Gr.	N.C. % Dry Wt.	U.D.W. Lbs./Cu.Ft.	L.L.	P.L.	Void Ratio	% Sat.	SOIL CLASSIFICATION PERCENTAGES: Gr.	Sa.	Si.	Cl.	Remarks
[illegible]			2.67	[illegible]	[illegible]			[illegible]	[illegible]					
		27	No Recovery											
		28	2.67	27	95			.757	97	0	40	47	13	[illegible]
		29	2.67	[illegible]	79			1.104	98	0	8	62	30	[illegible]
		30	Bottom of Hole											

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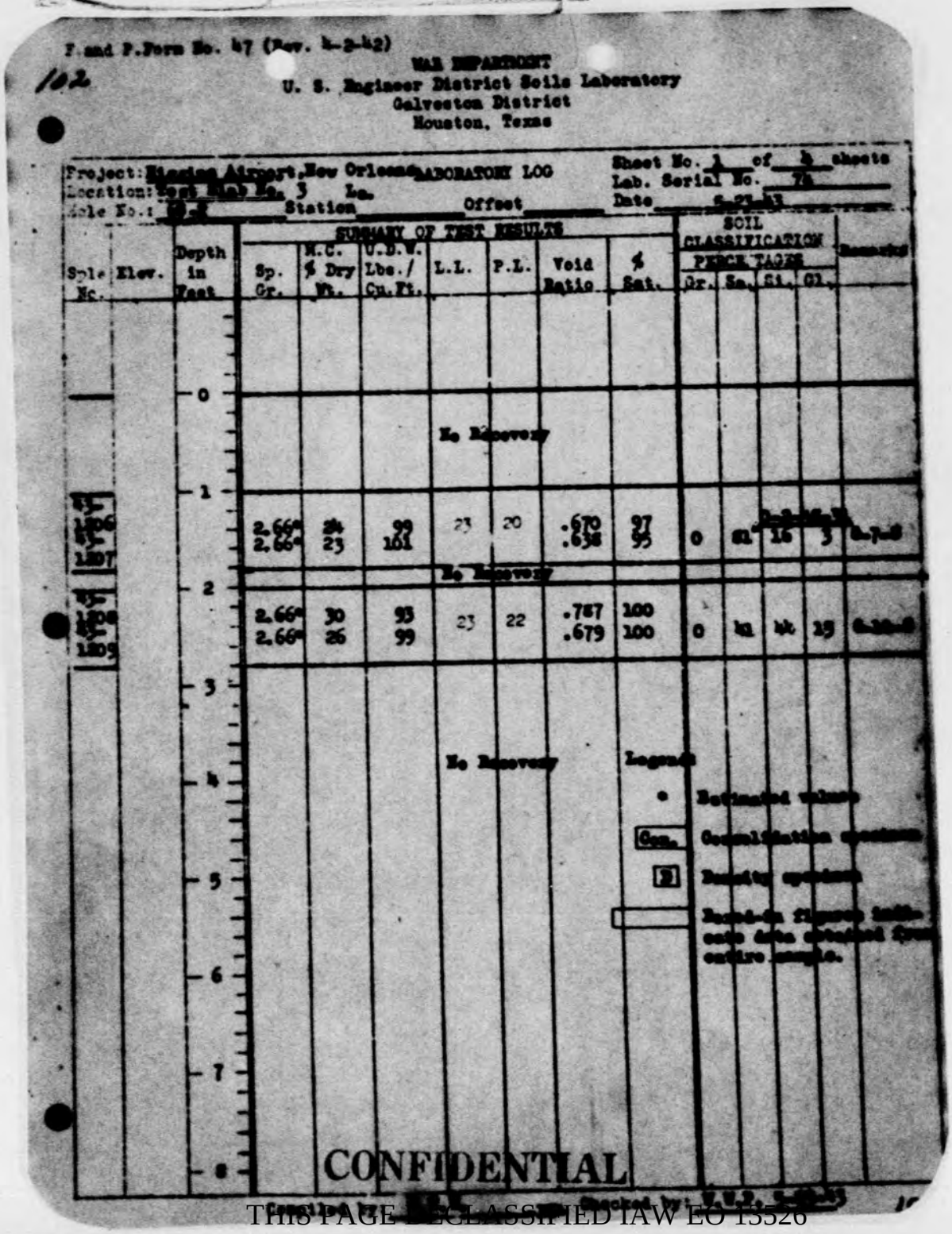

P. and P. Form No. 47 (Rev. 4-2-42)

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WAR DEPARTMENT
U. S. Engineer District Soils Laboratory
Galveston District
Houston, Texas

Project: Moisant Airport, New Orleans LABORATORY LOG
Location: Test Hole No. 3 La.
Hole No.: [illegible] Station Offset
Sheet No. 1 of 2 sheets
Lab. Serial No. 76
Date 6-23-43

Sple No.	Elev.	Depth in Feet	Summary of Test Results: Sp. Gr.	M.C. % Dry Wt.	U.D.W. Lbs./Cu.Ft.	L.L.	P.L.	Void Ratio	% Sat.	Soil Classification Percentages: Gr.	Sa.	Si.	Cl.	Remarks
		0				No Recovery								
1807		1	2.66	24	99	23	20	.670	97	0	41	16	3	A-7-6
			2.66	23	101			.638	95					
		2				No Recovery								
1805			2.66	30	93	23	22	.787	100	0	44	44	12	A-[illegible]
			2.66	26	99			.679	100					
		3												
		4				No Recovery								
		5												
		6												
		7												
		8												

Legend:
• Estimated values
Con. Consolidation specimen
Remolding specimen
Bracketed figures indicate data obtained from entire sample.

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Computed by: [illegible] Checked by: [illegible]

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Form P.Form No. 47 (Rev. 4-2-42)

WAR DEPARTMENT
U. S. Engineer District Soils Laboratory
Galveston District
Houston, Texas

Project: Louisiana Airport, New Orleans, LABORATORY LOG — Sheet No. 2 of 4 sheets
Location: Test Hole No. 3 La. — Lab. Serial No. 74
Hole No.: 42-2 — Station ____ Offset ____ — Date 5-21-43

Sample No.	Elev.	Depth in Feet	SUMMARY OF TEST RESULTS: Sp. Gr.	M.C. % Dry Wt.	U.D.W. Lbs./Cu.Ft.	L.L.	P.L.	Void Ratio	% Sat.	SOIL CLASSIFICATION PERCENTAGES: Gr.	Sa.	Si.	Cl.	Remarks
		9												
		10			No Recovery									
		11												
		12												
		13												
				74	Mixture of gray-black silty clay with some peat.									Peat
		24	2.68*	97	Sample contains roots and sticks. Badly disturbed					0	4	33	63	0.15-0.71
		25	2.67*	31	98			No tests. .853	100	0	45	39	8	0.10-0
		26			No Recovery									
					Badly disturbed									
			2.68*	25	66			2.75*	100					
			2.68*	25	78			2.150	100	0	16	64	20	0.10-0.0
		27												

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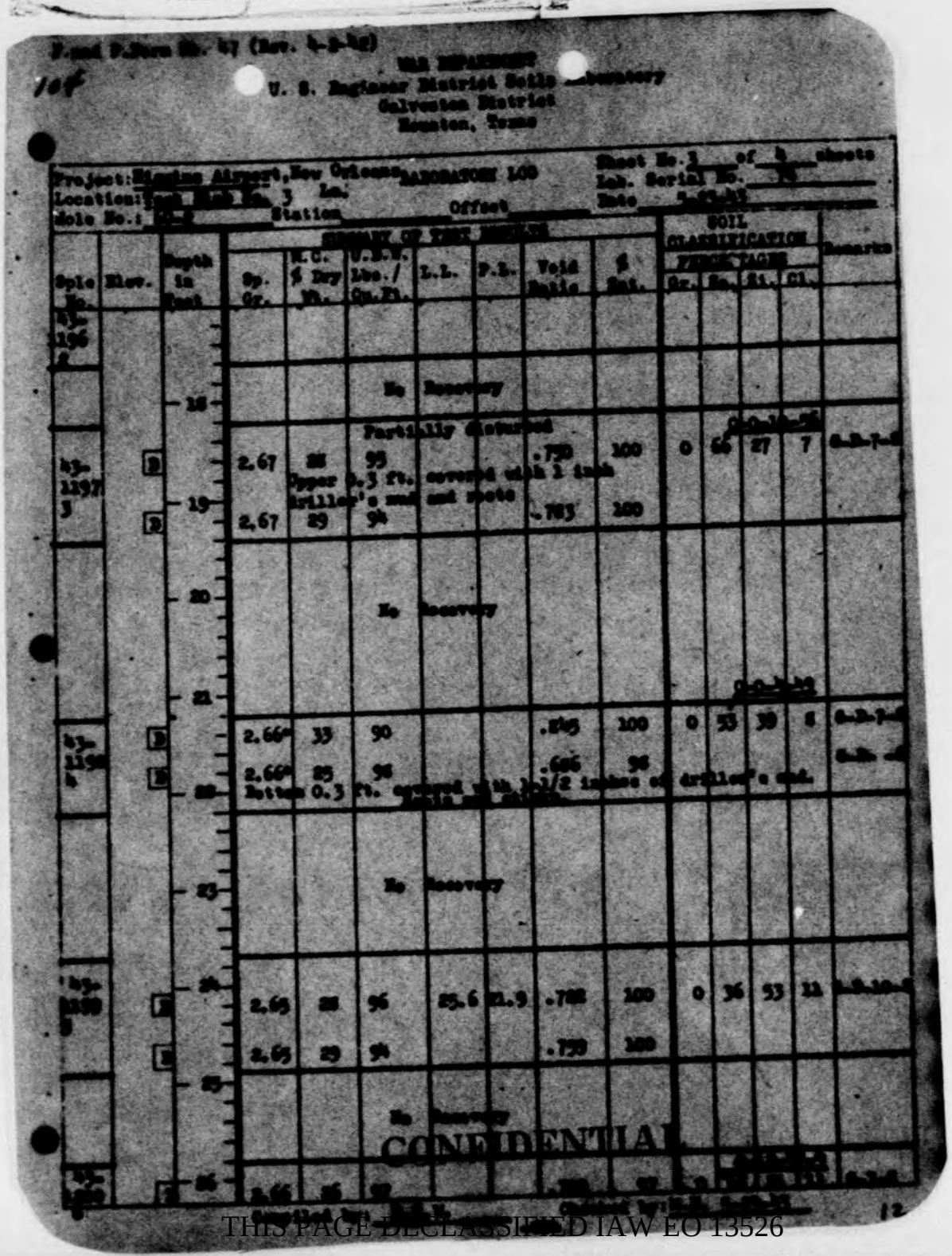

WAR DEPARTMENT
U. S. Engineer District Soils Laboratory
Galveston District
Houston, Texas

Project: Moisture Airport, New Orleans, Louisiana — BORINGS 100
Location: [illegible] Sta. 3 Ln. Station Offset
Hole No.: [illegible]
Sheet No. 1 of 4 sheets
Lab. Serial No. [illegible]
Date [illegible]

Spls No.	Elev.	Depth in Feet	Sp. Gr.	M.C. % Dry Wt.	U.S.W. Lbs./Cu.Ft.	L.L.	P.I.	Void Ratio	% Sat.	SOIL CLASSIFICATION PERCENTAGES Gr.	Sa.	Si.	Cl.	Remarks
B3-1196 2		18			No Recovery									
B3-1197 3		19	2.67	28	95 Partially disturbed			.730	100	0	66	27	7	
			2.67	29	94 Upper 0.3 ft. covered with 1 inch drillers mud cut core			.783	100					
		20			No Recovery									
B3-1198 4		22	2.66	33	90			.845	100	0	53	39	8	
			2.66	25	96			.686	96					
			Bottom 0.3 ft. covered with 1 1/2 inches of driller's mud.											
		23			No Recovery									
B3-1199 5		24	2.65	28	96	25.6	12.9	.782	100	0	36	53	11	
			2.65	29	94			.750	100					
		25			No Recovery									
B3-1200 6		26	2.66	26	97			.708	97					

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F. and P. Form No. 67 (Rev. 4-8-42)

WAR DEPARTMENT
U. S. Engineer District Soils Laboratory
Galveston District
Houston, Texas

Project: Moisant Airport, New Orleans, La. LABORATORY LOG
Location: East Mall No. 3
Hole No.: [illegible] Station Offset
Sheet No. 4 of 4 sheets
Lab. Serial No. 76
Date 5-29-43

Sample No.	Elev.	Depth in Feet	Sp. Gr.	N.C. % Dry Wt.	U.D.W. Lbs./Cu.Ft.	L.L.	P.L.	Void Ratio	% Sat.	Soil Classification Percentages Gr.	Sa.	Si.	Cl.	Remarks
					Silty fine, sharp, sand									
	D		2.66	21	105			.578	98					0-7-8
		27			No Recovery									
	D	28	2.64	22	103			.595	97	0	85	7	8	0-D-6-8
					No Recovery									
		29			Bottom of Hole									
		30												

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Compiled by: [illegible] Checked by: [illegible]

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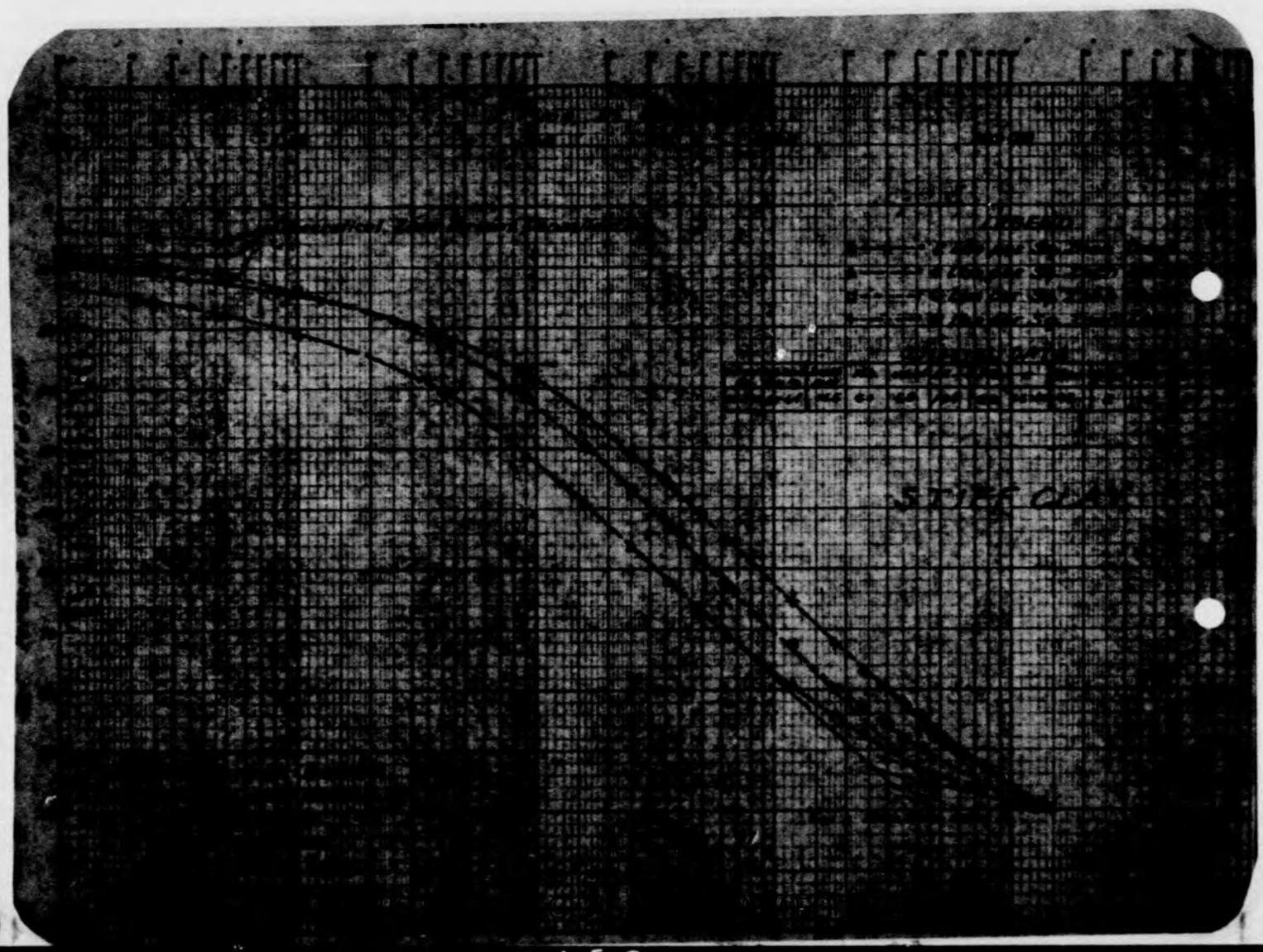

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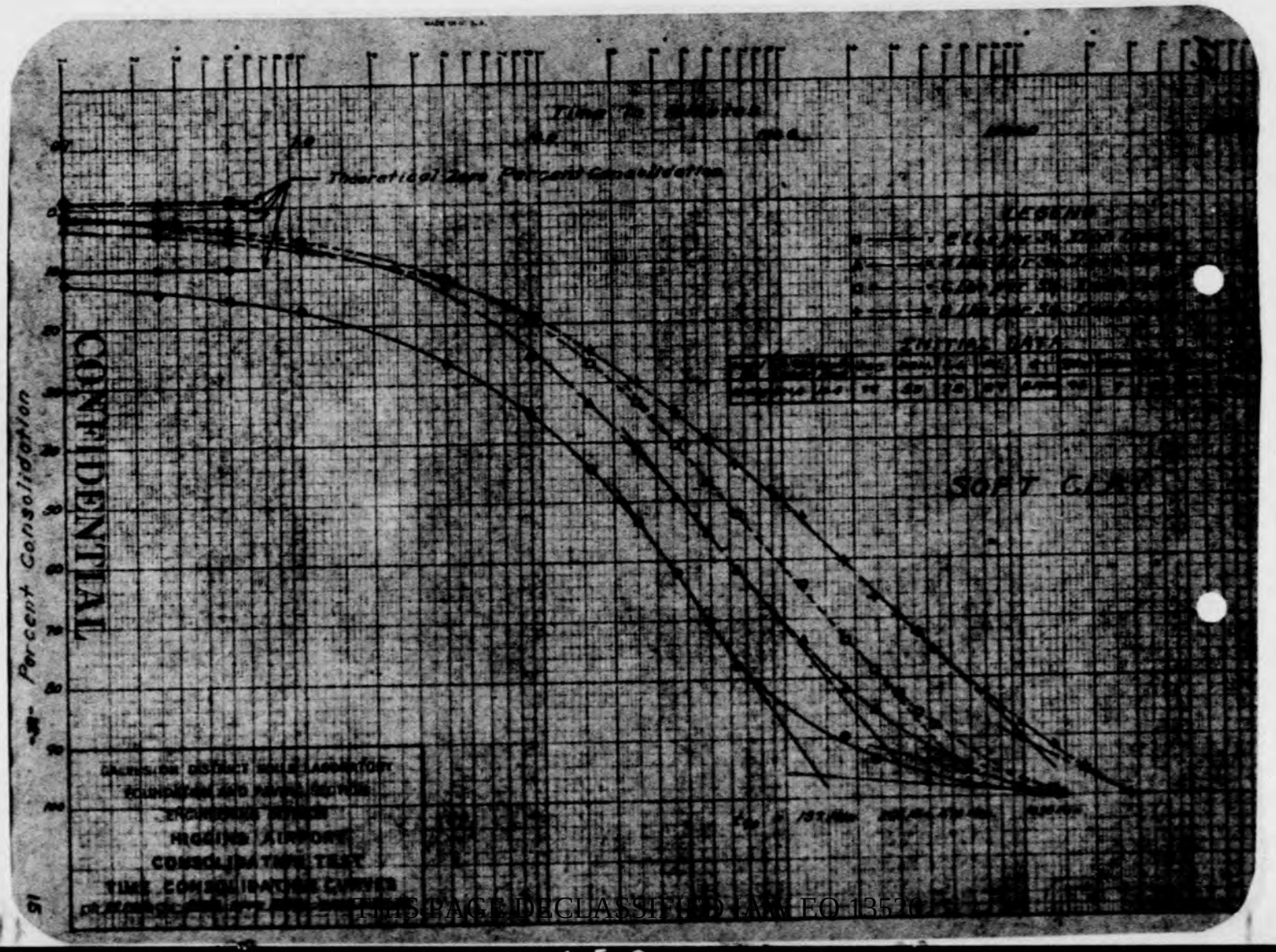

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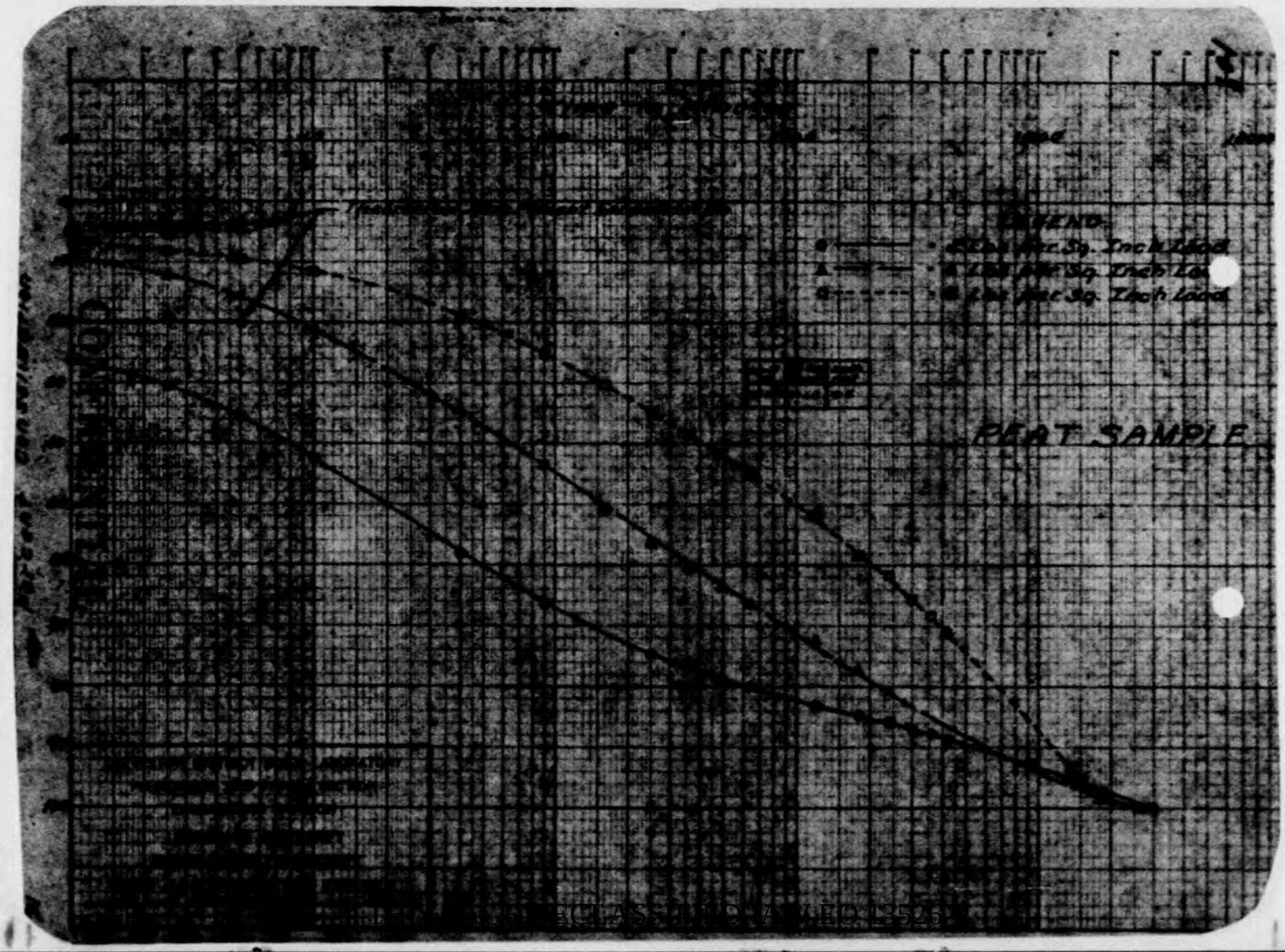

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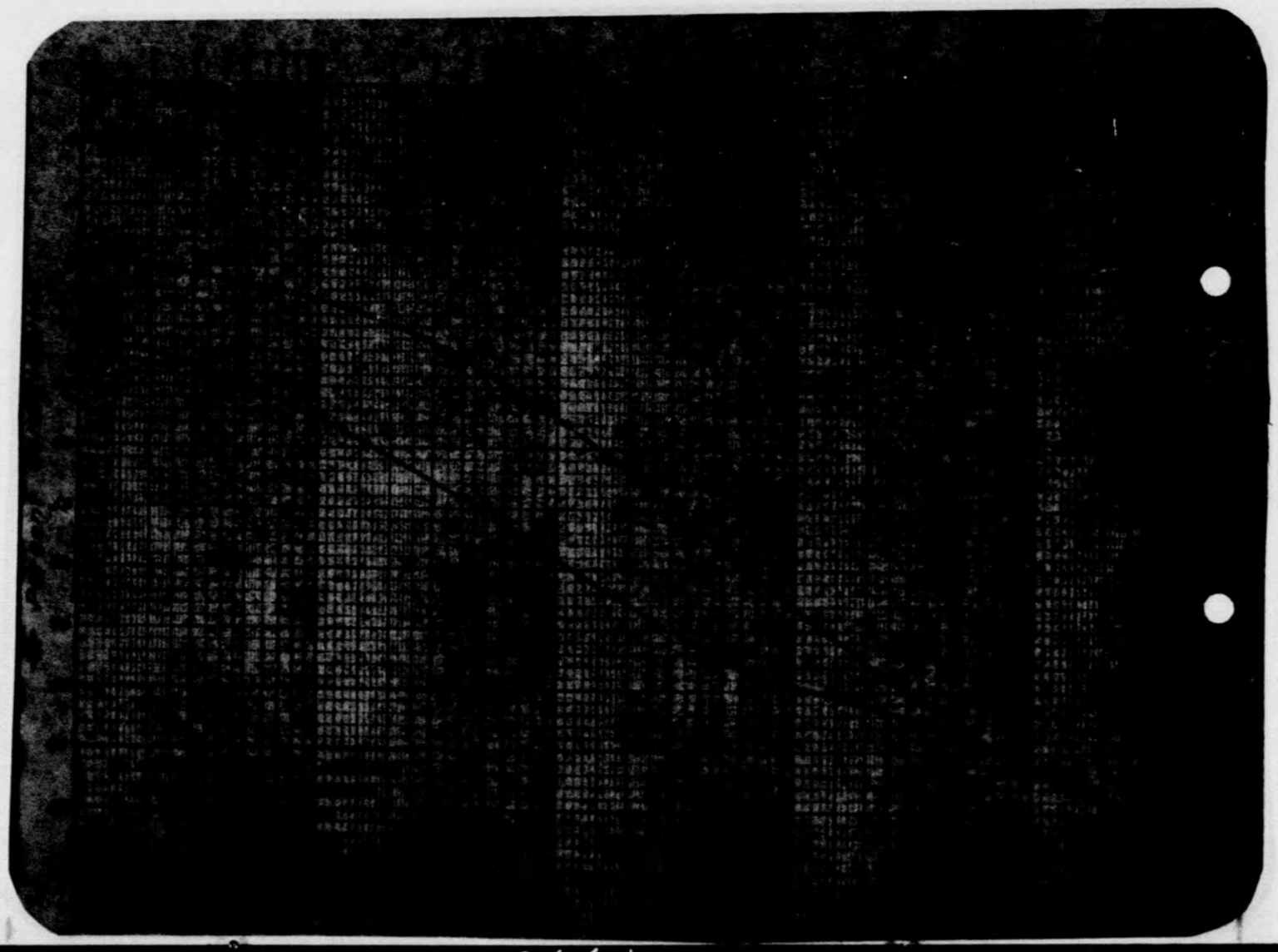

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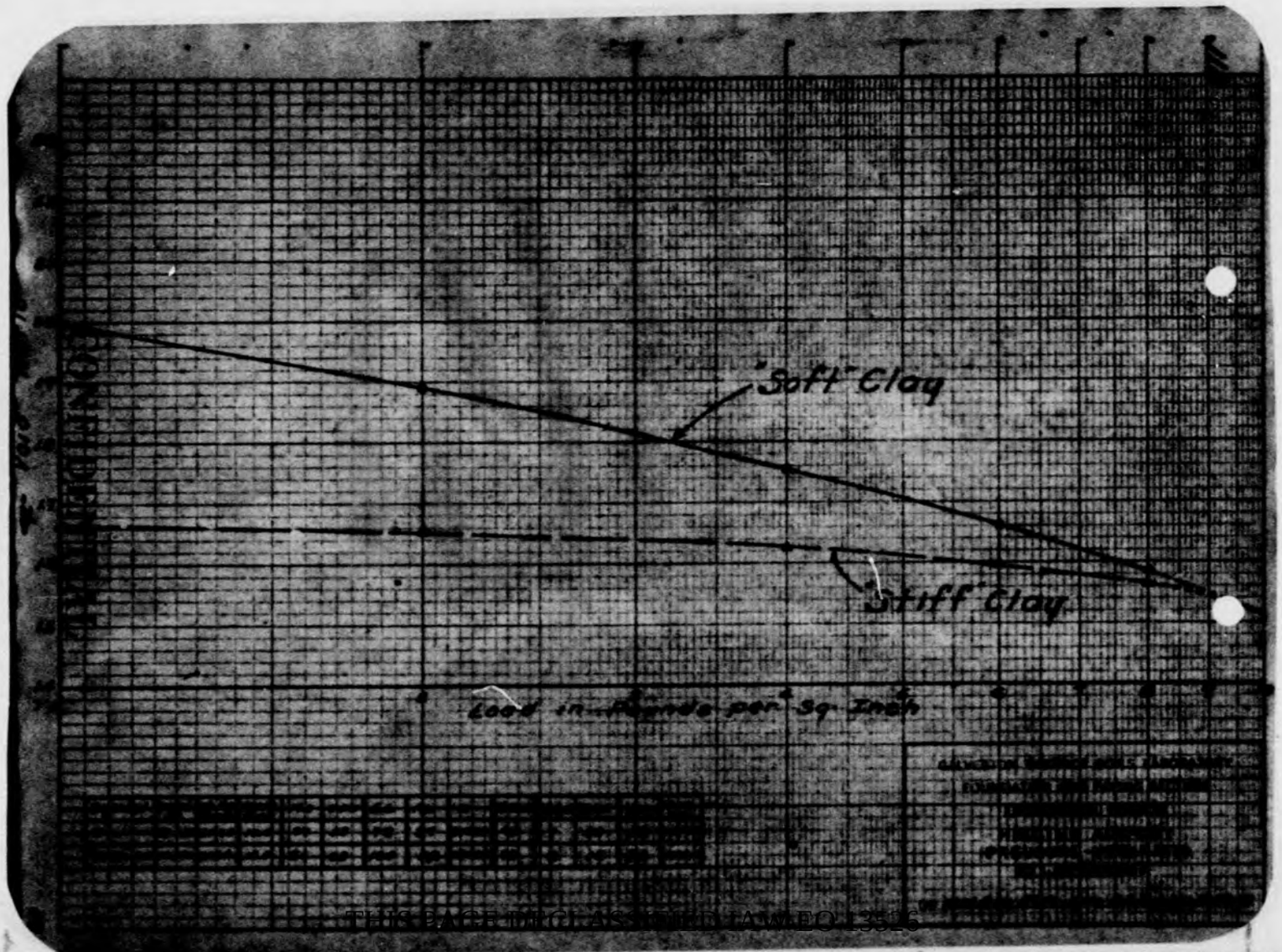

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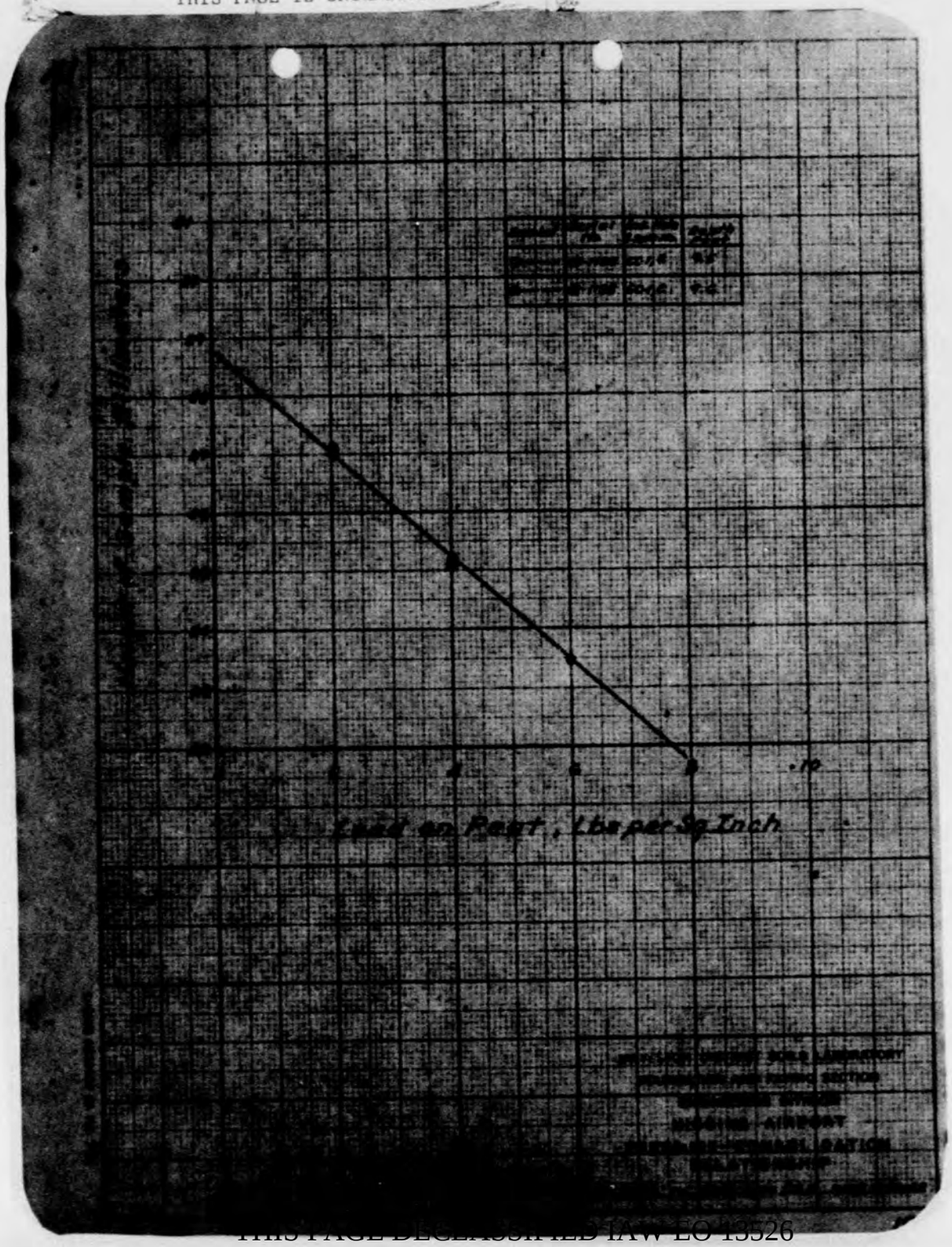

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Soils Memorandum No. 85
Higgins Airport, New Orleans, La.

Table II

Estimated Settlements

Subgrade	Estimated Settlement in Feet Due To:											
	Fill Only			Fill + 6" Shell + 5" Concrete			Fill + 16" Shell			Fill + 16" Shell + 5" Concrete		
	In Peat	In Clay*		In Peat	In Clay*		In Peat	In Clay*		In Peat	In Clay	
		Soft	Stiff		Soft	Stiff		Soft	Stiff		Soft	Stiff
4 Ft. fill over 7 ft. Peat	0.5	0.7	0.2	0.8	1.0	0.4	0.8	1.0	0.4	0.9	1.3	0.6
6 Ft. fill over 4 ft. Peat	0.4	0.9	0.3	0.5	1.2	0.5	0.6	1.3	0.6	0.6	1.4	0.8
7 Ft. fill over 2 ft. Peat	0.2	1.0	0.4	0.3	1.3	0.5	0.3	1.4	0.6	0.3	1.6	0.8
Maximum differential settlement	0.7			1.0			1.0			1.0		

* Thickness of clay layer is assumed to be 20 ft.

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APPENDIX D

ANALYSIS OF PAVEMENT DESIGN

VALUES OF K AND C.B.R. USED IN DESIGNS.-

In determining K a study was made of the bearing plate tests included in Appendix A. It will be seen that a K value of approximately 160 was obtained in some areas, but that a K value of only 42 was obtained in areas where there were 5 feet of fill overlying 10 feet of humus. All of these tests were made on fill placed during 1942, which had approximately one year to drain. By the time the pavement is placed, some of the new fill will probably not be this old. It is believed, however, that if the methods recommended in this report for draining, removing the pockets of clay, and consolidating the existing fill are carefully followed, a K value of 100 can be safely used in the event concrete pavement is to be placed as the first method of stage construction. In the event a flexible base pavement is placed as the first stage of stage construction, however, it is believed that the use of flexible base for one year, which will allow additional drainage and consolidation and the removal of unstable areas not discovered in the original construction, plus additional consolidation in the underlying humus, and plus the presence of the shell base itself, will increase the bearing power to such an extent that a K value of 200 can be used at the time the concrete is placed in the second

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stage. Due to the more satisfactory type of fill anticipated in the event Method No. 1 is used, a K value of 200 was assumed for initial use by this method.

Although a bearing ratio of 31 was obtained for the sand tested in the laboratory, a bearing ratio of 13 was chosen in the inclosed designs to be used for the subgrade under shell shoulders or shell flexible base to be placed immediately on the existing fill. This lower value was chosen because it is believed that, despite diligent efforts to locate and remove bad pockets and properly consolidate the fill, there will be some areas of the existing fill that will contain unstable material and some areas that will not be properly drained and consolidated.

It is emphasized, however, that the above values are merely chosen for estimating purposes at this time and are probably on the conservative side. It is strongly recommended that, prior to the actual placement of any pavement in either stage of construction, additional tests be made in the field in order to more accurately determine the load carrying capacity of the various areas of the subgrade and to allow the thickness of pavement to be more accurately designed. It may even be desirable to vary the thickness of the pavement, depending on the stability of the subgrade in the various areas of the site.

DESIGN TYPE LOADS.-

Alternate designs are inclosed throughout, based on 74,000-lb.

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gross load and 120,000-lb. gross load. The contact pressures and contact areas for wheel loads are those which accompany these gross loadings as outlined in Chapter XX of the Engineering Manual. In designing the taxiways, the above gross loadings were increased 25 percent, which gives results of 92,500 lbs. and 150,000 lbs. respectively. The runway shoulders were designed for 50 percent of the design gross load, which gives values of 37,000 lbs. and 60,000 lbs. respectively. The taxiway shoulders were designed for 50 percent of the taxiway loadings used above, which gives values of 46,250 and 75,000 lbs. respectively.

CONCRETE DESIGN.-

All portland cement concrete pavement included herein is designed as a non-reinforced slab. The assumed flexural strength of the concrete at 28 days is 700 lbs. per sq. in. The factor of safety of 1.75 is used which results in a working flexural strength of 400 lbs. per sq. inch. In calculating the thickness of the concrete pavement, the Westergaard method as modified by the Chief of Engineers in Chapter XX of the Engineering Manual is used.

Enough reinforcing steel is designed in order to satisfactorily drag the concrete back and forth across the subgrade during periods of expansion and contraction due to temperature changes. It is believed that this amount of steel will also be sufficient to hold the pavement together and allow it

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to deflect under differential settlement. An analysis of the design of reinforcing steel to be used for the various thicknesses of pavement is as follows:

Allowable working strength of steel, 20,000 lbs. per sq. inch

Weight of concrete pavement equals 150 lbs. per cu. ft.

Friction of subgrade equals 1-1/2

First section to be moved equals 20 ft, equals distance between dummy joints; assuming only half of this slab is pulled, actual weight of pavement being moved per foot of width equals 20/2 x 1.

As an example, the amount of steel in any one direction per lin. ft. of pavement for 11" pavement is calculated as follows:

$$\frac{\frac{20}{2} \times \frac{11"}{12} \times 1 \times 150 \times 1\frac{1}{2}}{20{,}000} = \frac{2060}{20{,}000} = 0.103 \text{ sq. in. per ft.}$$

This will require 3/8" bars at 12" centers in both directions.. Based on these assumptions, the following amounts of steel were calculated for the following depths of pavement:

7" = 3/8" bars @ 20" cc
8" = 3/8" bars @ 18" cc
9" = 3/8" bars @ 16" cc
10" = 3/8" bars @ 14" cc
11" = 3/8" bars @ 12" cc

TABULATION OF DESIGNS.-

Based on the above assumptions, a tabulation of the various thicknesses of the materials to be used for the various wheel load is as follows:

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TABULATION OF PAVEMENT DESIGN

DESIGN GROSS LOAD *POUNDS	LOCATION	WIDTH FEET	STAGE CONSTRUCTION METHOD NO. 2 1st Stage K = 100 CBR = 13	2nd Stage	STAGE CONSTRUCTION METHOD NO. 3 1st Stage CBR = 13	2nd Stage K = 200
74,000 lb. Gross Load Design						
74,000	Runway	150	8" Port.Com. Conc. on 4" Shell Base	3" Hot Mix Asphaltic Concrete	15" Shell Flex. Base	7" Port.Con Conc. or * 12" Shel
92,500 (74,000 Plus 25%)	Taxiway	100	8" Port.Com. Conc. on 4" Shell Base	3" Hot Mix Asphaltic Concrete	17" Shell Flex. Base	7" Port.Co Conc. o * 12" Sh
37,000 (74,000 Less 50%)	Runway Shoulder	75 ea. side	12" Shell Flex. Base	Addn'l. Shell as Required	12" Shell Flex. Base	Additional Shell fm Runway
46,250 (92,500 Less 50%)	Taxiway Shoulder	[illegible] ea.	13" Shell Flex. Base	Addn'l. Shell as Required	13" Shell Flex. Base	Additional Shell fm. Taxiway
120,000 lb. Gross Load Design						
120,000	Runway	150	10" Port.Com. Conc. on 4" Shell Base	3" Hot Mix Asphaltic Concrete	18" Shell Flex. Base	9" Port.Com. Conc. on * 14" Shel
[illegible] Plus 25%	Taxiway	100	10" Port.Com. Conc. on 4" Shell Base	3" Hot Mix Asphaltic Concrete	21" Shell Flex. Base	9" Port.Con Conc. on * 15" Shel
60,000 (120,000 Less 50%)	Runway Shoulder	75 ea. Side	14" Shell Flex. Base	Addn'l. Shell as Required	14" Shell Flex. Base	Additional Shell fr Runway
75,000 (150,000 Less 50%)	Taxiway Shoulder	12.5 ea. Side	15" Shell Flex. Base	Addn'l. Shell as Required	15" Shell Flex. Base	Additional Shell fr Taxiway

* Approximately 3 to 4 inches of shell to be removed from runway and taxiway and placed on shoulder at time concrete pavement is placed to balance grades.

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CMT
30 AUGUST 1945

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Initials: CMT
Date: 30 AUGUST 1945

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By: Lt. Col. Julian B. Cross, USAF date
JUN 8 1960

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OF THE AAF
File No. 202.4-8

CLASSIFICATION CHANGED TO [redacted]
By authority of the CG, AMC
By [redacted]
Date 14 NOV. 1950
EB Stevenson
LT Col USAF

Classification changed to [redacted]
By auth. of LTR: AMC 23 Jul 54
8 MAR 1954 Donald R. Smith, Capt. USAF

[redacted]

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Initials: C.M.T
Date: 30 AUGUST 1945

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by authority of
by _____ date _____

JUN 8 1960

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Date: 30 August 1945

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Original
Higgins - 285
2D-39
MM+D.

JOSEPH D. HUDDLESTON
SECRETARY

Congress of the United States
House of Representatives
Washington, D. C.

38

May 6, 1943

CONFIDENTIAL

Colonel J. C. Vaughan
Army Air Corps
Room 5084 Pentagon Building
Washington, D. C.

Dear Colonel Vaughan:

I have been informed by Mayor Robert S. Maestri of the City of New Orleans that the Army Air Corps has changed the specifications of the runways at the Higgins Michaud site.

Mayor Maestri states that he has been informed by the Civil Aviation Division that these runways will be changed from 150,000 pounds to 50,000 pounds, which, in his opinion, indicates that the government is planning to abandon the location of a contemplated Modification Center which was to be operated in connection with the Higgins Aircraft-Michaud plant.

Such a center would be of tremendous importance to New Orleans and Louisiana and would prove of incalculable importance in post-war aviation development in New Orleans, particularly since the recent inauguration of the Pan-American Airline from New Orleans to Guatemala and Central and South America.

New Orleans, in my opinion, should have this Modification Center. I should like to point out that the Michaud site is ideal, being located on a hard shell reef and gravel bottom, capable of bearing the heaviest type of runway.

I strongly urge that the Army Air Corps reconsider its decision and go through with the 150,000 pound runways. May I have your reaction on this matter?

Sincerely yours,

J. Edward Hébert

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CE 686.61(Higgins Aircraft Plant,
New Orleans, La) SPREM

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Subject: Airfield in Connection with the Higgins [illegible] Plant, New Orleans, Louisiana. (Ltr. from U. S. Engr. Office, [illegible], dated April 27, 1943).

Office, C. of E., May 10, 1943.

TO: THE COMMANDING GENERAL, ARMY AIR FORCES, [illegible]

1. The report contained in the basic [illegible] on the possibility of constructing an airfield for use in connection with the Higgins [illegible] Plant in New Orleans was prepared at the oral request of Colonel [illegible], Area, of your office.

2. As explained in detail in the basic [illegible], the site is completely unsatisfactory as an airfield site. Not only are the [illegible] of these reasonably to be expected for facilities at [illegible] time required is so long as to raise a serious [illegible] facilities for practical use in connection with the [illegible] factors, runways should be constructed at this site [illegible] excessive maintenance would be involved because of [illegible] subsidence of the adjacent fill over a period [illegible]

3. If the suggestion in paragraph [illegible] from an operating standpoint, it is recommended that pavement design may be strengthened [illegible] This construction is feasible and can be [illegible]

4. It is recommended that an [illegible] airfield at the Higgins site unless [illegible] construction mandatory, and unless [illegible] factors.

For the Chief [illegible]

1 Enclosure
Sketch Location Map.

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A. N. WILLIAMS, PRESIDENT — NEWCOMB CARLTON, CHAIRMAN OF THE BOARD — J. C. WILLEVER, FIRST VICE-PRESIDENT

40

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1943 MAY 15 PM 9 19

MAJOR J L BOWLING=

ARMY AIR FORCES PRODUCTION RESOURCES SECTION STEELE

HIGH BLDG DAYTON OHIO=

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REFERENCE HIGGINS AIRFIELD. IT IS OUR OPINION THAT RUNWAYS CAN BE BUILT ON THE PRESENT SITE FOR ONE HUNDRED FIFTY THOUSAND POUND PLANES PROVIDED ADEQUATE DRAINAGE TO REMOVE ENTRAPPED WATER IN HYDRAULIC FILL IS INSTALLED. THE NORTH-SOUTH RUNWAY UNDER WHICH LIES FOUR FEET TO FOURTEEN FEET OF HUMUS WILL REQUIRE REVETMENT PROTECTION ALONG CANAL BANK TO PREVENT LATERAL MOVEMENT. THE ENTIRE AREA OF RUNWAY PAVEMENTS TO BE UNDERLAID WITH TWELVE TO EIGHT INCHES OF THOROUGHLY ROLLED AND COMPACTED SHELLS AFTER COMPLETE DRAINAGE OF HYDRAULIC FILL HAVE BEEN EFFECTED. IT IS ANTICIPATED THAT DUE TO THE VARIABLE THICKNESS OF HUMUS UNDERLYING THE SITE THAT DIFFERENTIAL SETTLEMENTS MAY OCCUR FOR WHICH HOWEVER IT IS BELIEVED ADEQUATE CORRECTIVE MEASURES CAN BE EMPLOYED. ABOVE CONCLUSIONS ARE DRAWN FROM EVIDENCE OF ARMY ENGINEERS SOIL TESTS AND OUR OWN OBSERVATION AND WHILE ADDITIONAL TESTS ARE NOW IN PROGRESS WE BELIEVE THAT SUCH TESTS WILL BEAR OUT THE OPINIONS GIVEN ABOVE=

ALBERT KAHN ASSOCIATED ARCHITECTS & ENGINEERS INC R E LINTON.

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.REVETMENT.

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May 17, 1943
3:30 P.M.
Production Resources Section

RESOURCES DIVISION
ATT.: BRIG. GEN. FREDERICK A. HOPKINS, JR.
U.S.A.

E. W. RAWLINGS
Colonel, Air Corps

FRS 057127 JLB ..... RELATIVE TO TELEPHONE CONVERSATION WITH MAJOR BOWLING, FACILITIES UNIT, MAY 15, 1943, AND WITH PARTICULAR REFERENCE TO REPORT MADE BY CORPS OF ENGINEERS, REGARDING UNDESIRABILITY OF THE PRESENT SITE AT HIGGINS AIRCRAFT, INC., NEW ORLEANS, FOR AN AIRFIELD. APPROXIMATELY 98% OF ENTIRE SITE HAS BEEN COVERED WITH HYDRAULIC CLAY AND SAND FILL TO A DEPTH OF 5 TO 8 FEET. THIS FILL HAS SETTLED FORMING A SOLID FOUNDATION FOR EAST-WEST RUNWAY NO. 2 AND NORTH-SOUTH RUNWAY NO. 3, NEITHER OF WHICH WILL REQUIRE ANY PILING. THE NORTH-EAST, SOUTH-WEST RUNWAY NO. 1 WHICH RUNS PARALLEL TO A WATER CANAL AND ADJACENT THERETO WILL REQUIRE SOME PILING AND REVETMENT PROTECTION TO PREVENT LATERAL MOVEMENT OF SOIL, BUT THIS HAS BEEN TAKEN INTO CONSIDERATION AND IS INCLUDED IN THE PRESENT PROJECT NO. 361 A. NO PILING REQUIRED FOR THE OTHER TWO RUNWAYS. HEGGIE ENGINEERING COMPANY OF NEW ORLEANS, A FIRM OF MANY YEARS EXPERIENCE, FURNISHED BORING TESTS OF SOIL CONDITIONS TO ALBERT KAHN ASSOCIATED ARCHITECTS-ENGINEERS AND TURNER CONSTRUCTION COMPANY THE CONTRACTORS. FURTHERMORE, THE DISTRICT ENGINEER, CORPS OF ENGINEERS AT NEW ORLEANS, FURNISHED ALBERT KAHN ASSOCIATED ARCHITECTS-ENGINEERS AND THE CONTRACTORS WITH ADDITIONAL DATA OF SOIL CONDITIONS AND THEIR RESULTS ABOUT SEVEN OR EIGHT WEEKS AGO, SO WE WERE INFORMED. THIS

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PRS 057127 JLB (CONT'D)

RESOURCES DIVISION

OFFICE IS OF THE OPINION THAT THE TENTATIVE ESTIMATE SUBMITTED BY THE CORPS OF ENGINEERS, WASHINGTON, THAT IT WOULD COST 17-1/2 TO 22-1/2 MILLION DOLLARS TO BUILD THIS AIRFIELD IS ENTIRELY OUT-OF-LINE WITH THE KNOWN FACTS. ACTUAL COMPRESSION SLAB TESTS ARE NOW BEING MADE AT THE SITE BY THE ENGINEERS FROM THE DEFENSE PLANT CORPORATION, AS WELL AS THE ARCHITECTS AND ENGINEERS, AND THE FINAL RESULT WILL BE KNOWN ON OR ABOUT MAY 20. SUCH TESTS ARE BEING MADE FOR THE RUNWAYS TO BE CONSTRUCTED FOR 150,000 LB. PRESSURE. THERE IS QUOTED HEREWITH WIRE RECEIVED THIS A.M. FROM ALBERT KAHN ARCHITECTS-ENGINEERS RELATIVE TO THE SUBJECT:

QUOTE. "REFERENCE HIGGINS AIRFIELD. IT IS OUR OPINION THAT RUNWAYS CAN BE BUILT ON THE PRESENT SITE FOR ONE HUNDRED FIFTY THOUSAND POUND PLANES PROVIDED ADEQUATE DRAINAGE TO REMOVE ENTRAPPED WATER IN HYDRAULIC FILL IS INSTALLED. THE NORTH-SOUTH RUNWAY UNDER WHICH LIES FOUR FEET TO FOURTEEN FEET OF HUMUS WILL REQUIRE REVETMENT PROTECTION ALONG CANAL BANK TO PREVENT LATERAL MOVEMENT. THE ENTIRE AREA OF RUNWAY PAVEMENTS TO BE UNDERLAID WITH TWELVE TO EIGHT INCHES OF THOROUGHLY ROLLED AND COMPACTED SHELLS AFTER COMPLETE DRAINAGE OF HYDRAULIC FILL HAVE BEEN EFFECTED. IT

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PMS 057127 JAB (CONT'D)

RESOURCES DIVISION

IS ANTICIPATED THAT DUE TO THE VARIABLE THICKNESS OF HUMUS UNDERLYING THE SITE THAT DIFFERENTIAL SETTLEMENTS MAY OCCUR FOR WHICH HOWEVER IT IS BELIEVED ADEQUATE CORRECTIVE MEASURES CAN BE EMPLOYED. ABOVE CONCLUSIONS ARE DRAWN FROM EVIDENCE OF ARMY ENGINEERS SOIL TESTS AND OUR OWN OBSERVATION AND WHILE ADDITIONAL TESTS ARE NOW IN PROGRESS WE BELIEVE THAT SUCH TESTS WILL BEAR OUT THE OPINIONS GIVEN ABOVE." END QUOTE.

THERE IS ALSO QUOTED HEREWITH COPY OF MESSAGE RECEIVED FROM GEORGE F. SHELLY, SENIOR ENGINEER DEFENSE PLANT CORPORATION, RECEIVED THIS DATE, REGARDING THE MATTER:

QUOTE. "REUR PHONE MESSAGE THIS MORNING US ENGINEERS CORP FROM GALVESTON TEXAS OFFICE TOGETHER WITH ENGINEERS FROM THIS DPC OFFICE ARE NOW MAKING COMPLETE TESTS SOIL LOADING THIS SITE THESE TESTS WILL NOT BE COMPLETED UNTIL APPROXIMATELY MAY 20 AT WHICH TIME WE WILL WIRE YOU SUMMARY AND MAIL COMPLETE REPORT WOULD RECOMMEND DELAYING FINAL ACTION ESPECIALLY IF ADVERSE UNTIL THIS REPORT IS RECEIVED US ENGINEERS AND DPC ENGINEERS BOTH PLEASED WITH TESTS MADE SO FAR DISREGARDING PREVIOUS BORINGS MADE BEFORE FILL IN AND MAKING NEW BORINGS ON RUNWAY LINES ALSO USING US ENGINEERS DISC SOIL TESTING APPARATUS. IN ADDITION TO ABOVE

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PRS 057127 JLB (CONT'D)

RESOURCES DIVISION

INSTALLING FOUR CONCRETE SLABS AT VARIOUS LOCATIONS FOR ACTUAL STATIC LOADS RETURNS OF TESTS SO FAR INDICATE ABILITY TO BUILD THE RUNWAYS CONTEMPLATED AND AT COSTS COMPARABLE TO ARCHITECTS REVISED ESTIMATE SHOWING $5,500,000 FOR THE 150,000 LBS AND $4,360,000 FOR 80,000 LBS BOTH EXTENDED LENGTH RUNWAYS AND $3,200,000 FOR 35,000 LBS SHORT RUNWAY ALBERT KAHN AND HIGGINS AIRCRAFT ASSISTING IN TESTS BEING MADE BY US ENGINEER AND DPC STATIC LOAD ON FIRST SLAB TESTED SHOWED TESTS FAR ABOVE ALL EXPECTATIONS NOW HAVE A 80 FT BY 20 FT SLAB LOADED WITH 150,000 LBS LOAD WITH ENGINEER CHECKING SETTLEMENT EVERY TWO HOURS DURING DAY." END QUOTE.

THERE IS ALSO QUOTED COPY OF STATEMENT MADE BY COLONEL DEWITT C. JONES, DISTRICT ENGINEER IN NEW ORLEANS IN HIS LETTER DATED JULY 10, 1942, RELATIVE TO THE SITE AND SOIL CONDITIONS WHICH MIGHT BE OF INTEREST:

QUOTE. ".....THE FILLING WHICH HAS BEEN PLACED OVER THE SHIPYARD SITE HAS BEEN BROUGHT TO AN AVERAGE ELEVATION OF ABOUT FIVE FEET ABOVE SEA LEVEL. THIS LOADING HAS COMPRESSED THE SUBSOIL TWO TO THREE FEET. IT IS ANTICIPATED THAT ANOTHER FOOT OF SETTLEMENT PROBABLY WILL OCCUR.

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PRS 057127 JLB (CONTINUED)
RESOURCES DIVISION

SLOWLY OVER A PERIOD OF PERHAPS TWO YEARS OR THEREABOUTS. FILLING HAS BEEN PLACED OVER ABOUT 50 PER CENT OF THE AREA REQUIRING FILL, ABOUT 40 PER CENT OF THE TOTAL VOLUME HAVING BEEN PLACED WITH REFERENCE TO THE SOLIDITY OF THE SUBSOIL. IT IS THE OPINION OF THIS OFFICE THAT THE GROUND SURFACE IN ITS ORIGINAL CONDITION WAS ENTIRELY UNSATISFACTORY TO SUPPORT ANY SORT OF LOADS. WHEN FILLED TO THE DEPTH PROPOSED AT THE SHIPYARD ITS SUPPORTING POWER IS BELIEVED TO BE SATISFACTORY FOR ORDINARY LOADING BUT NOT FOR CONCENTRATED LOADS. PILE FOUNDATIONS ARE PRACTICABLE AND ARE CONSIDERED ESSENTIAL FOR CONCENTRATED LOADS. ORDINARY TRUCK LOADING WOULD REQUIRE A SHELL OR GRAVE SURFACE OF 8 TO 10 INCH COMPACTED THICKNESS OVER THE FILL. EXCEPTIONALLY HEAVY LOADING WOULD REQUIRE THE EQUIVALENT OF AN 8-6-8 CONCRETE ROAD SLAB. THERE IS NO TRACT KNOWN TO THIS OFFICE OF SIMILAR SIZE SITUATED ADJACENT TO DEEP WATER, SERVED BY HIGHWAYS AND RAILROADS, AND CONVENIENTLY SITUATED TO THE CITY OF NEW

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ORLEANS OTHER THAN THIS PARTICULAR SITE. THE AVAILABILITY OF UNDERLYING SAND AS AT THIS SITE IS UNUSUAL IN THIS VICINITY. SITES ON THE MISSISSIPPI RIVER, OTHERWISE SUITABLE, WOULD BE UNSATISFACTORY BECAUSE OF THE FLOOD LEVEES AND THE GREAT FLUCTUATION IN RIVER STAGES." END QUOTE,

THIS PROJECT HAS BEEN CAREFULLY PLANNED AND THIS OFFICE CAN SEE NO REASON WHY THE AIRFIELD SHOULD BE ABANDONED AT THIS SITE AND MOVED TO ANOTHER LOCATION. THE IMPORTANT QUESTION IN OUR MIND AT THE MOMENT IS TO WHETHER OR NOT THE NO. 1 RUNWAY, WHICH IS 6500 FEET LONG AND 160 FEET WIDE AND PARALLEL TO THE WATER CANAL, SHOULD BE CONSTRUCTED AT ALL FOR THIS RUNWAY CAN BE USED ONLY 5% OF THE ENTIRE YEAR. RUNWAY NO. 2, WHICH IS 8500 FEET LONG AND 160 FEET WIDE, CAN BE USED 58% OF THE YEAR DUE TO PREVAILING WIND CONDITIONS. THIS RUNWAY CAN BE LAID OVER IDEAL SOIL CONDITIONS. RUNWAY NO. 3, WHICH IS 5500 FEET LONG AND 160 FEET WIDE, WILL BE USED 57% OF THE YEAR DUE TO PREVAILING WIND CONDITIONS. BOTH RUNWAY NO. 2 AND RUNWAY NO. 3 CAN BE LAID OVER IDEAL SOIL CONDITIONS AND NO PILING WILL BE REQUIRED. WE ANTICIPATE CONSTRUCTION DIFFICULTIES IN THE PLACING OF RUNWAY NO. 1 PARALLEL TO THE WATER CANAL, AND, AS PREVIOUSLY STATED, SOME PILING WILL HAVE TO BE PLACED AND REVETMENT CONSTRUCTION PROVIDED TO PREVENT THE LATERAL MOVEMENT OF SOIL CONDITIONS, INTO WATER CANALS. PRODUCTION RESOURCES SECTION

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ARMY AIR FORCES
MATERIEL CENTER
MIDWESTERN PROCUREMENT DISTRICT
OFFICE OF THE DISTRICT SUPERVISOR

CONFIDENTIAL

Production Resources Section
Facilities Branch
WJB:mj
MUNICIPAL AIRPORT, WICHITA, KANSAS
P. O. BOX 117

May 17, 1943

SUBJECT: Humidifying Equipment, Higgins Aircraft, Inc., New Orleans, Louisiana

TO: Commanding General
AAF Materiel Command
Steele High Building
Dayton, Ohio

Reference: PRS TWX 056004 GHM dated May 5, 1943

1. An analysis was made of the atmospheric conditions at New Orleans, Louisiana, in connection with the request for air processing equipment for the Higgins Aircraft, Inc., New Orleans, Louisiana, as directed in referenced TWX.

2. The records of the New Orleans Weather Bureau Station covering over 50 years reveals that the monthly temperature averages 69.6° and records for the last 25 years reveal that the monthly humidity averages 72%. Copies of the monthly averages are attached.

3. There are four operations involving the use of plywood and laminated spars to be carried out in the plant during which it is absolutely essential to maintain a moisture content of the wood between 8° and 12°. Unless the moisture content is absolutely controlled, internal stresses in the plywood will cause warping and reduce dimensional stability. The moisture content range between 8° and 12° at which the plywood must be maintained during the manufacture of plywood airplanes is contained in AN G-8 Supplement 1 dated of June 22, 1942. The operator of this plant has contracted to deliver plywood airplanes manufactured under these specifications.

4. The data and curves prepared by the Department of Agriculture, Forest Products Laboratory, reveal that the moisture content of the plywood can be maintained between the specified limits only in an atmosphere with a relative humidity of 55%.

5. During these operations it is also necessary to maintain a temperature between 72° and 85° to make drying time of the glue long enough to permit assembly and application of pressure before setting begins. The optimum temperature is 80°. At a temperature of 90° or higher prevailing in summer, the setting time is too short to accomplish all operations. At a temperature lower than 72° prevailing in winter, the glue setting time is too long to permit efficient operation.

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It is the opinion of this office that because of the atmospheric conditions prevailing in New Orleans, it will be essential to control the humidity and temperature within the subject plant and therefore recommends the installation of an air processing system.

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MONTH	AVERAGE DRYBULB TEMPERATURE	AVERAGE RELATIVE HUMIDITY
January	54.7	75%
February	57.2	73%
March	63.0	71.3%
April	69.0	70.0%
May	75.4	69.3%
June	81.0	70.3%
July	82.5	73.7%
August	82.5	73.7%
September	79.5	72.3%
October	71.3	70.0%
November	61.9	71.7%
December	55.9	75.0%
Average for Year	69.6	72%

Above averages are from the Weather Bureau records covering over fifty years.

Records are from New Orleans Weather Bureau's Monthly Meteorological Summary Form 1030. Drybulb temperatures are based on records covering 72 years. Relative humidity based on average readings taken at 6:30 AM and 6:30 PM for 54 years, and noon for 25 years. Relative humidity average at 12:30 AM for following years were:-

1940 - 82%
1941 - 83%
1942 - 82%

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Major Bowlin

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MIN PLS

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Facilities Unit Operations

ARL 459 MATERIEL MAINTENANCE AND DISTRIBUTION WASHNDC MAY 1816032 LW

MAY 17 1943

CHIEF , PRODUCTION RESOURCES SECTION

AFDMA-3-TWX-76.... /JCV/... RE TEEEEYPED PRS-TWX-057127/JLB/ DATED MAY 17, , , 1943, RELATIVE TO INVESTIGATION OF SOIL CONDITIONS AT NIGGINS AIRPORT, NEW ORLEANS, LA., IT IS THE OPINION OF THIS OFFICE IN VIEW OF THE PRELIMINARY FINDINGS THAT ONLY TWO RUNWAYS SHOULD BE CONSTRUCTED INASMUCH AS THESE RUNWAYS CAN BE USED 95 PERCENT OF THE TIME BECAUSE OF PREVAILING WIND CONDITIONS. THIS WILL ELIMINATE THE EXPENDISVE CONSTRUCTION OF THE NE/SW RUNWAY RUNNING PARALLEL TO A CANAL. INASMUCH AS THE CRITERIA FOR ARMY AIR FORCES RUNWAY CONSTRUCTION IS 5,000 FT. LONG AND 150 FT. WIDE AT SEA LEVEL, IT IS BELIEVED THAT THE TWO RUNWAYS TO BE PROVIDED SHOULD BE 5,000 FT. LON LONG AND 150 FT. WIDE AND UNDER NO CIRCUSMXXX CIRCUSTANCES SHOULD BE LONGER THAN 6,000 T. IN VIEW OF THE TYPE OF AIRPLANE PROPOSED TO BE FUILT BY THE NIGGINS AIRCRACXXX AIRCRATXXX AIRCRAFT COMPANY AND THE LATEST INFORMATION FROM THE AIRCRAFT MODIFICATION SECTION THAT THEY DO NOT INTEND TO USE THIS SITE FOR A MODIFICATION CENTER, IT IS BELIEVED THAT A RUNWAY OF 74,000 LBS. GROSS LOADING WOULD BE ADEQUATE FOR THIS SITE AND WOULD/EEE/ WOULD ALLOW THE USE OF THIS AIRPORT FOR ALL AIRPLANES EXCEPT THOSE IN THE CLASS OF THE B-29. THIS POINT SHOULD BE CORXXX COORDINATED WITH THE AIRCRAFT MODIFICATION SECTION. IT IS ALSO THE OPINION OF THIS OFFICE THA THE COSE OF PROVIDING AN ADEQUATE AIRPORT SHOULD BE HELD WITHIN THE COST ALLOWED IN THE APPENDIX "A", THAT IS , $3,700,000. THIS PAGE DECLASSIFIED IAW EO 13526 ON

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Major Bowlin

TSCHED UNIT WB DY78 GAPLS

MIN PLS

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Facilities Unit Section

ARL 459 MATERIEL MAINTENANCE AND DISTRIBUTION WASHNDC MAY 1816032 LW

MAY 17 1943

CHIEF , PRODUCTION RESOURCES SECTION

AFDMA-3-TWX-76.... /JCV/... RE TEEEEYPED PRS-TWX-057127/JLB/ DATED MAY 17, , , 1943, RELATIVE TO INVESTIGATION OF SOIL CONDITIONS AT HIGGINS AIRPORT, NEW ORLEANS, LA., IT IS THE OPINION OF THIS OFFICE IN VIEW OF THE PRELIMINARY FINDINGS THAT ONLY TWO RUNWAYS SHOULD BE CONSTRUCTED INASMUCH AS THESE RUNWAYS CAN BE USED 95 PERCENT OF THE TIME BECAUSE OF PREVAILING WIND CONDITIONS. THIS WILL ELIMINATE THE EXPENDISVE CONSTRUCTION OF THE NE/SW RUNWAY RUNNING PARALLEL TO A CANAL. INASMUCH AS THE CRITERIA FOR ARMY AIR FORCES RUNWAY CONSTRUCTION IS 5,000 FT. LONG AND 150 FT. WIDE AT SEA LEVEL, IT IS BELIEVED THAT THE TWO RUNWAYS TO BE PROVIDED SHOULD BE 5,000 FT. LON LONG AND 150 FT. WIDE AND UNDER NO CIRCUSMXXX CIRCUSTANCES SHOULD BE LONGER THAN 6,000 T. IN VIEW OF THE TYPE OF AIRPLANE PROPOSED TO BE FUILT BY THE HIGGINS AIRCRACXXX AIRCRATXXX AIRCRAFT COMPANY AND THE LATEST INFORMATION FROM THE AIRCRAFT MODIFICATION SECTION THAT THEY DO NOT INTEND TO USE THIS SITE FOR A MODIFICATION CENTER, IT IS BELIEVED THAT A RUNWAY OF 74,000 LBS. GROSS LOADING WOULD BE ADEQUATE FOR THIS SITE AND WOULD/WXX/ WOULD ALLOW THE USE OF THIS AIRPORT FOR ALL AIRPLANES EXCEPT THOSE IN THE CLASS OF THE B-29. THIS POINT SHOULD BE COXXXX COORDINATED WITH THE AIRCRAFT MODIFICATION SECTION. IT IS ALSO THE OPINION OF THIS OFFICE THA THE COSE OF PROVIDING AN ADEQUATE AIRPORT SHOULD BE HELD WITHIN THE COST ALLOWED IN THE APPENDIX "A", THAT IS , $3,700,000. THE FOREGOING REMARKS ARE SUBJECT TO FINAL REPORT ON SOIL CONDITIONS.

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ENGINEERING DIVISION

WDC PLS

WORD/LINE/FROM/BOTTOM

FOURTH LINE FROM BOTTOM SIXTH WORD IS THAT EIGHTH WORD IS COST

END ACK PLS

FROM ARL OK DY77 WD

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(22-6/pp)
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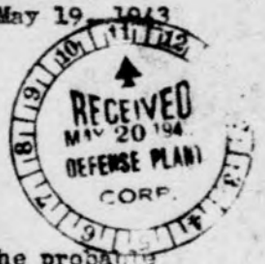
TURNER-RAYMOND
CONTRACTORS
Higgins Aircraft Plant
Higgins, La.

DATE May 19, 1943

MEMORANDUM



TO: Mr. George F. Shelley, Senior Engineer
Defense Plant Corporation

Subject: Probable Completion Dates

1. Following your request, we have made a study of the probable completion dates for the various parts of this project, based on working generally a six day, forty-eight hour week with only such casual overtime as may be required to bring specific parts of the work in line with others. These completion dates are for beneficial use and occupancy only. Certain specific items probably will not be completed until later dates as noted under each building.

1. Office Building

July 1st, with exception of ventilating system, which may not be in complete operation until September 15th because of late delivery of fans, etc.

2. Engineering Building

August 1st, with exception of ventilating system, as noted under Office Building, and sprinkler work, which is currently being revised and for which we do not now have the details.

3. Manufacturing Building

August 1st, with probable exception of autoclaves, which we understand are not scheduled for delivery until about August 1st, and portions of exterior enclosing brick wall, which may be delayed if it is not possible to increase our bricklaying forces. The exact status of the Air Processing System is not known, so we cannot forecast the completion date for this work.

Note: The proper functioning of the above noted three buildings depends upon installation and completion of Water, Electric and Sewage Systems. Temporary arrangements might be made for these facilities at increased cost, but we know that final installations cannot be completed until about November 1st because of late deliveries of certain controlling items, such as Sprinkler Pumps, Master Electric Substation Equipment, etc.

4. Fire Engine House

August 1st.

5. Plant Maintenance and Truck Garage

August 1st.

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PD-121-2/44

Mr. George F. Shelley
Defense Plant Corporation

May 19, 1943

6. Garage

August 1st.

7. Dry Kiln Building

August 1st.

8. Boiler House

Structure August 1st, with exception of enclosing brick walls. It is possible that temporary arrangements can be made for steam service about this same time, but to meet this date would require some additional cost for overtime work on both our part and that of the subcontractor. We believe it will be impossible to complete the entire building and installation of boiler equipment for permanent operation before November 1st.

9. Fuel Oil Tanks

August 1st.

10. Potable Water Tank

Bids are now being requested for this prestressed-steel tank, and we cannot give you completion date until these figures are received. It is probable that this tank will be completed by August 1st, but it would not be of any value to the operation of the plant until the extensions of the city water lines to this tank are completed.

11. Cooling Tower

No information received, but we understand this is a comparatively simple structure and should be completed by August 1st.

12. Flight Hangar

It is impossible to give an exact date at this time, as we understand from the Bethlehem Steel Company that they cannot start delivery of steel until about July 1st. This building should be completed in about two months after erection of steel is started.

13. Elevated Water Tank

Piles are being driven for the foundations, but we have not yet received any definite information regarding the superstructure.

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14. Oxygen-Acetylene Building

August 1st.

15. Veneer Mill

July 1st. It should be noted that we have not yet received any information regarding mechanical trades in this building, so have not considered them in establishing this completion date.

Note: We have not yet received information regarding the Sawmill and Power House to be built adjacent to the Veneer Mill, so cannot give completion dates for these structures. Also, understand W.P.B. permission must be obtained for Refrigeration equipment in Glue Room.

16. Sewage Disposal Plant

This plant should be structurally complete by August 15th, but we understand that manufacturers of certain pumps, valves and fittings required to put the plant in operation have stated they cannot make deliveries before September 1st. Therefore, it is probable that it will be October 1st before this plant will be in operation.

17. Lumber Storage Building

August 15th. This date for structure only, as we do not have complete information for mechanical work.

18. Guard Houses

These three buildings can be completed within a month from the time their exact location is determined and they are released for construction.

19. Master Substation and Switch House

Structures will be completed before August 1st, but we understand certain electrical equipment will not be shipped before August 15th, and unless shift work is authorized, it would require about two months more, or until October 15th to put this station into permanent operation.

20. Runways, Taxiways and Aprons

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We do not know when this work is to be released for construction, so cannot establish completion date. It is our opinion it will require about five months to complete this operation, including [illegible]

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RG-122 (9/44)

Mr. George F. Shelley
Defense Plant Corporation

CONFIDENTIAL

May 19, 1943

21. **Incinerators**

We understand two Incinerators will be required, but have not yet received any information.

22. **Roads and Parking Areas**

Roads should be done in conjunction with Airfield Paving, but we have not yet received details for this work. The parking areas should be completed by August 1st.

23. **Railroads**

August 1st.

24. **Fence**

August 1st.

25. **Finished Grading and Seeding**

September 1st.

26. **Wells**

Two wells were contemplated by the original set up under Appendix "A", but we are not sure at this time whether they are to be installed or not.

27. **Paint Storage Building**

We understand a Paint Storage Building is to be constructed, but we have not yet received any information.

2. Herewith is copy of "Status of Plans" report as of May 19, 1943.

3. There is also attached report of "Status of Cost of Work" as of May 19, 1943. This report is necessarily quite approximate, but reflects our best, present judgment and indicates the total cost of the work as now known and contemplated will amount to approximately $20,451,391.00, or $3,509,466.00 above the estimated cost established in Appendix "A".

GEO. E. HORR

GEH:ABJ
CC-R.L.Atkinson, Jr.
Albert Kahn-N.O.
Albert Kahn-Detroit

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WAR PRODUCTION BOARD

OFFICE MEMORANDUM

CONFIDENTIAL

Date: May 20, 1943

To: Mr. W. B. Murphy

45

From: M. E. Simpson

Subject: Wooden Aircraft

It is noted from the daily information report of the Production Resources Section, May 18, that a proposal is being considered for Higgins Aircraft in New Orleans to expend $2,313,563.40 to provide dehumidification in connection with the C-76 Program.

This proposal, which is simply one item in an overall program, leads me to suggest that perhaps it would be wise to completely review the subject of wooden airships, particularly of the cargo ship size, before proceeding with manufacturing facilities on such a massive scale.

Experience is available in Canada on wooden ship construction which we must assume has been weighed by the Army Air Forces but beyond that it would seem simply prudent to allow Curtiss to fully demonstrate the design and all-round practicability of this craft before becoming so deeply involved in the Higgins' enterprise.

Col Evans;
Gen Arnold
says go ahead on
C-76 program—
memo from Gen
Hale—we keep
going on both
Curtiss and
New Orleans ca
TWW

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BOARD OF LEVEE COMMISSIONERS

ORLEANS LEVEE DISTRICT

New Orleans, La.

CONFIDENTIAL

May 21, 1943.

Mr. George E. Shelley,
Higgins Aircraft Corporation,
Box 32,
New Orleans, Louisiana.

Dear Mr. Shelley:

This letter is to confirm some of the recent discussions we have had regarding the possibility of constructing an eighty thousand pound concrete runway at the Higgins Aircraft Corporation Airport.

From the large amount of experience that I have had in the last fifteen years with roadways and runways built on hydraulic fills along our Lakefront Improvements, I can state without hesitancy, that the site of the Higgins Aircraft Corporation Airport as built up with a hydraulic fill can support an eighty thousand pound concrete runway, if the subgrade is propoerly prepared and the slab correctly designed.

At the New Orleans Airport we have runways that have been laid on similar hydraulic fills, which runways consist of only 4" of sand asphalt surfaces, altho they are now somewhat irregular in surface after some ten years of use, without resurfacing in that time, they are now being used for the landing of all types of military planes, including Fortresses, and to my knowledge no plane has ever broken thru the surfaces.

I have already called your attention to the fact that adjacent to the Higgins Aircraft Corporation Airport, we have highways constructed on exactly the same type of soil that was elevated by hydraulic fill, and these highways are carrying very heavy traffic and they have stood up in good shape.

Yours very truly,

A. L. BILLOT
Chief Engineer

ALB:A

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May 31, 1943

SUBJECT: Higgins Aircraft, Incorporated
New Orleans, Louisiana
PRS Project 381 A-1

TO: Commanding General, Army Air Forces
Resources Division, Asst. C/AS, M. M. & D.
Washington, D. C.

1. The subject company has presented to this office a request for funds necessary to provide air processing equipment for the control of temperature and humidity in connection with its plant now under construction for the manufacture of plywood cargo airplanes.

2. Items to be Produced: The item to be produced by the subject company in its New Orleans plant is the C-76 molded plywood cargo airplane.

a. The subject company will not be the sole source of supply for the C-76 airplane.

3. Justification: The air processing equipment now being requested by the subject company was anticipated in the original processing teletype INDT 111907 JHH, PRS Project 381 A, dated November 2, 1942, in the amount of $30,000,000. The necessity for the air processing equipment was not at that time definitely established and consequently was deleted before the takeout letter in the amount of $23,735,000 was issued. Specifications and directives applying to the use of wood in aircraft structures recommend that the moisture content of wood parts be held within the range from 8 to 12% during fabrication as set forth in AN-C-6 Supplement 1, dated June 22, 1942. The subject company has contracted to deliver plywood airplanes manufactured under these specifications. The data and curves prepared by the Department of Agriculture, Forest Products Laboratory, reveal that the moisture content of plywood can be maintained between the specified limits only in an atmosphere with a relative humidity of 55%. During the operations of fabrication it is necessary to maintain a temperature of not less than 70° Fahrenheit to meet Army-Navy aeronautical specifications AN-C-20 for glueing operations wherein cold setting urea resin glues are used. There is no maximum temperature for glueing operations known to this office, established by Army specifications. However, the allowable glueing time is greatly reduced as the temperature is increased above 85° Fahrenheit, making

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it necessary to maintain a temperature of below 85° to allow enough time to permit assembly and application of pressure before glue setting begins. The average prevailing humidity of 72% and the prevailing summer temperature of 90° Fahrenheit or higher make the requested air processing equipment necessary for the successful operation of the subject plant. A meeting was held for the purpose of investigating the necessity of the subject air processing system in the new plant for Higgins Aircraft, Incorporated, New Orleans, La., by representatives of the War Production Board, Higgins Aircraft, Incorporated, and Albert Kahn, Incorporated, in the New York office of the War Production Board, Empire State Building, on March 31, 1943. Following the complete discussion of the various conditions required for manufacturing and the atmospheric conditions at New Orleans it was decided that an air processing system is essential to maintain the moisture content of wood used in the manufacture of plywood planes at an average of 10%, which is within the moisture content limitations set by Army & Navy specifications at a minimum moisture content of 8% and a maximum of 12%. Copy of report dated 4/2/43 is attached.

4. Capacity: The subject request includes no additional capacity in addition to the 96 C-76 airplanes per month including 20% spares with an estimated yearly sales value of $149,760,000, as set forth in the above-noted teletype IHDT 111907 JRM.

5. Previous Expansion: Previous expansion of the Higgins Aircraft, Incorporated, with Government aid which was recommended by the Army Air Forces is as follows:

PRS Project	Date Processed	Plant or #	Amount
361 A	11/2/42	1469	$23,735,000

6. Estimated Costs of Expension:

Buildings	$ 387,200.00
Building Installations (Not Mech.)	1,822,363.40
Service Costs	104,000.00
Total	2,313,563.40

No machine tools are included.

a. The estimated costs of the proposed facilities are based upon preliminary analysis of the project and are subject to change. The Defense Plant Corporation lease agree-

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ment should, however, not exceed the overall estimate.

b. There are inclosed three copies of preliminary Appendix "A" submitted by subject company, which forms the basis of this processing memorandum. It is the understanding of this office that one copy will be forwarded to the Defense Plant Corporation for its information and guidance.

c. As soon as the Appendix "A" has received final approval in this office, any material changes affecting the preliminary estimate will be submitted to your office in order that the lease agreement may be amended accordingly.

7. Plan of Financing: Defense Plant Corporation lease agreement, Plan IV, with amendment to Planor 1969 recommended.

8. Type and Location of Facilities: The proposed facilities which constitute equipment and installations necessary for air processing are to be located in the main manufacturing building presently under construction with Defense Plant Corporation funds for Higgins Aircraft, Incorporated, New Orleans, Louisiana.

9. Additional Monthly Utility Requirements:

Type	Average	Source of Supply
Gallons of Fuel Oil	242,000	Local Oil Refineries
Cu. Ft. of Water	900,000	City of New Orleans
Electricity in KWH	3,670	New Orleans Public Service

The sources of supply are considered adequate for maximum needs.

10. Labor: The proposed air processing system will not involve any additional labor requirements.

11. Special Requirements: The above information was given this office by the subject company and has been verified by the Midwestern Procurement District Supervisor.

12. Certification: It is hereby certified that the facilities proposed in the subject project are essential for practical and satisfactory operation for the subject company's Defense Plant Corporation-leased manufacturing plant for the production of C-76 molded plywood cargo aircraft.

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Commanding General, Army Air Forces
Resources Division, C/AS, M. M. & D.
SUBJECT: Higgins Aircraft, Inc.
May 31, 1943

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13. Reimbursement: The company has certified that no part of the cost of facilities covered by this proposal has been or will be included in the prices of articles furnished the Government or prime contractors to the Government.

14. Recommendations: It is the understanding of this office that the Construction Division of the War Production Board has approved the use of all materials necessary for the air processing as set forth in this presentation. It is recommended that approval of all agencies concerned be obtained to this proposal in the amount of $2,313,963.40, and that this office be authorized to proceed with final negotiations with the corporation.

For the Chief of Production Division:

E. W. RAWLINGS
Colonel, Air Corps
Chief, Production Resources Section

1 Incl.:
Pro. App. "A"
(In trip.)

Distribution:
Production Division
Budget Officer
Ch., Fac. Br., Proc. Div.
Inspection Section

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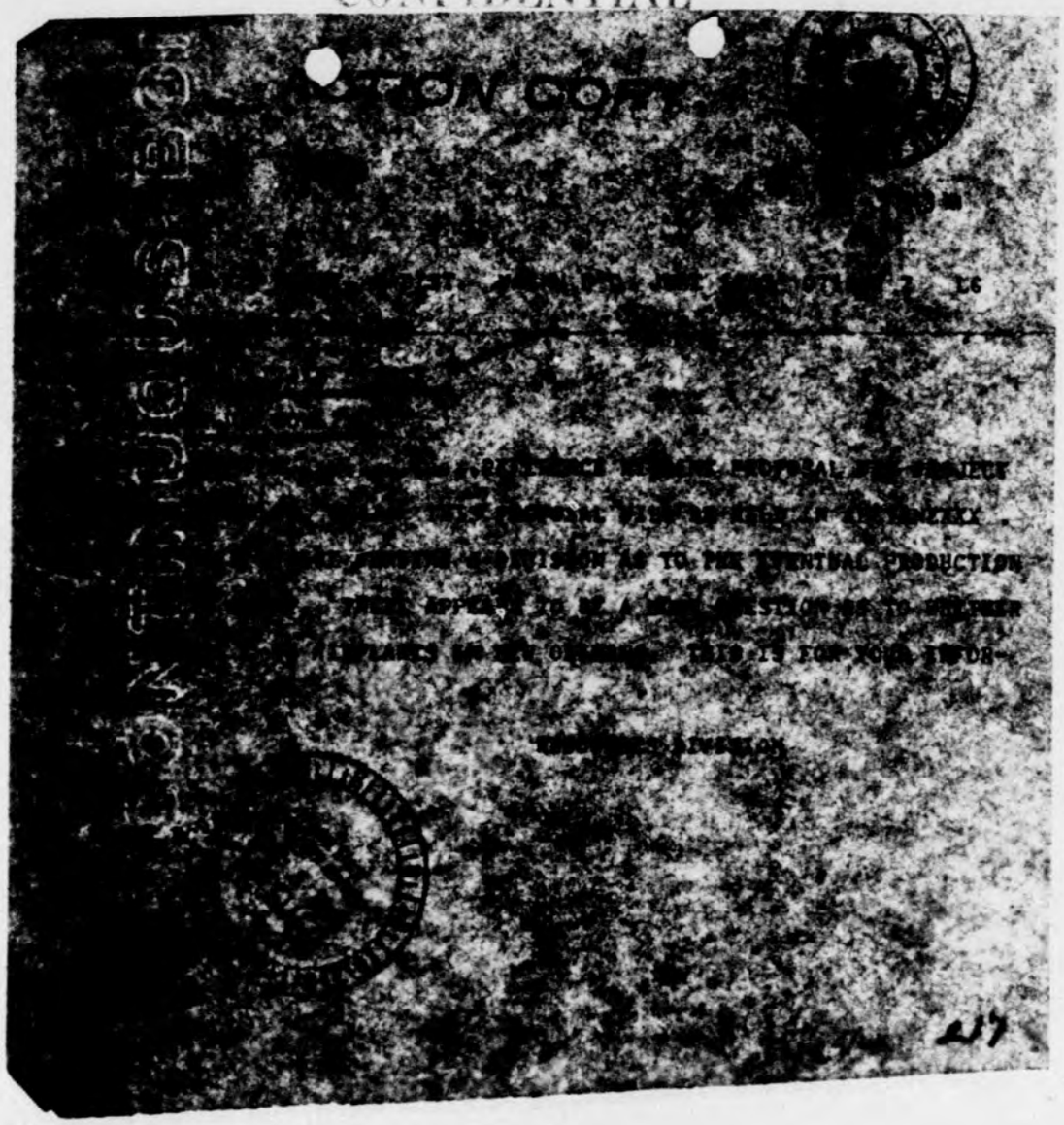

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Carbon
Higgins 285
F.D.-47
Memo.

AFDMA-3
FMH/mh

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June 11, 1943

PRODUCTION RESOURCES SECTION
COLONEL RAWLINGS

Frederick M. Hopkins, Jr.
Brigadier General, U.S.A.

EXTRA PRIORITY

AFDMA-3-FMH-123 (FMH)..... THE ASSISTANT CHIEF OF AIR STAFF, [redacted] HAD ADVISED CHIEF, RESOURCES DIVISION THAT THE COMMANDING GENERAL, [redacted] HAS A DECISION THAT THE C-76 PROGRAM WOULD GO FORWARD [redacted] AT LOUISVILLE AND NEW ORLEANS. THIS FOR YOUR INFORMATION AND GUIDANCE. [redacted].

RESOURCES DIVISION

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CHIEF OF ENGINEERS, U. S. ARMY
WASHINGTON, D. C.

REFER TO FILE NO. CE

WAR DEPARTMENT
OFFICE OF THE CHIEF OF ENGINEERS
WASHINGTON

SPEMA

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June 7, 1943

Subject: Airfield Construction in Connection With The Higgins Aircraft Plant, New Orleans, La.

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To: THE COMMANDING GENERAL,
ARMY AIR FORCES.

(Attention: Colonel James B. Newman, Jr.)

1. Reference is made to letter dated April 27, 1943, subject as above, from the District Engineer, Galveston, and to first indorsement dated May 10, 1943, from this office to your headquarters. Paragraph eleven of the District Engineer's letter stated that the estimates included were of a preliminary nature prepared on the basis of a short field survey and rough tentative designs, and that a complete engineering report based on more detailed investigation would be submitted at the earliest practicable date.

2. The complete engineering report has been received and is inclosed herewith. It will be noted that the report includes estimates of cost and construction time required to construct either three 7000' runways (which would involve relocation of the intracoastal canal), or three runways respectively 7000', 6000', and 5200' in length within the boundaries of the present site, and that three alternate methods of construction are considered.

3. Based upon a 37,000 pound wheel load, the report indicates that construction of three 7000' runways would require a minimum of sixteen months' time to provide a usable field, at a total ultimate cost of approximately $7,600,000. It is therefore recommended that construction be limited to runways within the boundaries of the present site.

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4. Of the three alternate methods of construction of runways within the boundaries of the present site, Method No. 3 as proposed in the report based upon initial construction of a flexible pavement with a concrete surface to be constructed at a later date, is considered the most satisfactory solution to the problem. By this method, a usable field can be provided in approximately ten months at an estimated cost of approximately $3,616,000 for the initial work with a total ultimate cost of approximately $4,900,000. Method No. 2, although less desirable, would provide a usable field approximately two months earlier than Method No. 3, at approximately the same ultimate cost.

Thomas M. Robins,
Major General,
Acting Chief of Engineers.

1 Inclosure:
Site Board Report.

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Facilities Unit

ACTION COPY

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EXECUTIVE OFFICE — WAR PRODUCTION BOARD — IND. PLANNING SECTION

JUN 14 1943

ARL 459 AAF MAT., MAINT. & DIST. WASHN D C JUNE 1943 141542 Z LG

PRODUCTION RESOURCES SECTION

AFDRE-1-TWX-3-JCV.....RE TELETYPE PRS-TWX-067086 DATED JUNE 12, 1943, CONCERNING PRS PROJECT 381 A-1 FOR HIGGINS AIRCRAFT COMPANY, NEW ORLEANS, LA., YOU ARE ADVISED THAT GENERAL ECHOLS HAS APPROVED THE PROCESSING OF THE DEHUMIDIFICATION PROJECT FOR THIS PLANT AS REPROXXX PORTED TO YOU BY MAJOR EVANS. THE HIGGINS AIRCRAFT COMPANY HAS BEEN SO NOTIFIED AND THE PROJECT IS NOW BEFORE THE WAR PRODUCTION BOARD FOR APPROVAL. YOUR OFFICE WLXXX WILL BE NOTIFIED UPON THE APPROVAL OF THIS PROJECT BY ALL AGENCIES AND UPON SIGNING OF THE TAKEOUT LETTER. IT IS ESTIMATED THAT THE TAKEOUT LETTER WILL BE SINGED IN ABOUT TEN DAYS PROVIDED THE WAR PRODUCTION BOARD APPROVES THE PROJECT.

RESOURCES DIVISION

LG

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Mr. Nunn

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New Orleans, La.
June 17, 1943

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Mr. F. O. Higgins
Higgins Aircraft, Inc.
Higgins, La.

Dear Mr. Higgins:

We are submitting herewith Schedule of Revised Costs covering additions and modifications to your Aircraft Project, exclusive of the Flying Field, which schedule is intended to cover such items of additional cost which we could not have been reasonably expected to have included in the original Appendix A.

We have not included any probable increase in cost in the construction of the Flying Field as at this time a decision has not as yet been reached which would permit us to establish a significant estimate. We are aware that due to field conditions which were undeterminable at the time of preparing our original estimate additional sums of money will be involved even though the Flying Field design may be based on a C-76 cargo plane.

We have estimated a total increased cost of $2,472,143.00 to cover the various modifications and changes made since the original concept of the project, and have allocated the estimated cost of each addition and/or modification to a respective source of authority.

It should be borne in mind that from time to time this schedule may require further changes where items of work not now contemplated may occur.

We believe it will be of interest to note that in the allocation of increased costs contributable to the different sources of authority, we have not assigned any increase to the War Production Board for the additional work brought about by the use of two old and two new boilers instead of the three new boilers originally planned. This has not been done because we feel that our original Appendix allowance is sufficiently ample to cover the cost of this work and while our probable savings will be thereby reduced, no attempt has been made to burden the War Production Board with this difference in cost.

We have made no attempt in the preparation of this schedule to cover any increases on the project brought about by inefficient field labor conditions, but have only included such legitimate additional items of cost beyond the original scope of the work. It is believe, however, that if additional funds can be authorized in the amount of our estimated increase in cost, there is reasonable expectancy that we can come within the original

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Appendix allowance as modified by these legitimate cost increases.

Very truly yours,

ALBERT KAHN Associated Architects
and Engineers, Inc.

By- R. E. Linton

cc: Mr. A.J. Higgins, Sr.
Mr. C. F. Shelley

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SCHEDULE III d.	ITEM	APPENDIX A AMOUNT	DESCRIPTION OF CHANGE	ESTIMATED INCREASE IN COST	W. P. B.	AUTHORITY LETTER	A
	Kitchen & Cafeteria	$ 347,000.00	The sum of $[illegible] was included in original Appendix for food trucks. These are now eliminated and Canteens and Equipment to be furnished.	Credit..$12,000.00	Credit..$12,000.00		
	TOTALS.	$ 347,000.00		Credit..$12,000.00	Credit..$12,000.00		

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#1951
REL:WEV:HS
June 16, 1943

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ITEM	APPENDIX A AMOUNT	DESCRIPTION OF CHANGE	ESTIMATED INCREASE IN COST	AUTHORITY W. P. B.	AUTHORITY LEASE	AUTHORITY ARCH. ENGR.
& Cafeteria	$ 347,000.00	The sum of $[illegible] was included in original Appendix for food trucks. These are now eliminated and Canteens and Equipment to be furnished.	Credit..$12,000.00		Credit..$12,000.00	
TOTALS.	$ 347,000.00		Credit..$12,000.00		Credit..$12,000.00	

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SCHEDULE II b. Cont'd.	ITEM	APPENDIX A AMOUNT	DESCRIPTION OF CHANGE	ESTIMATED INCREASE IN COST	W. P. B.	APPROXIMATE LABOR
	Brought Forward	$ 4,999,980.00		$ 144,770.00	$ 87,250.00	$ 57,520.00
	1,000,000 Gal Potable Water Tank	-------	Connection from City Main to Tank	3,000.00		3,000.00
	Paint Storage Room	-------	Plumbing Work	200.00		200.00
			Electric Work	5,000.00		5,000.00
	Fire Engine House and Maintenance Building		Plumbing Work	425.00		425.00
			Heating Work	650.00		650.00
			Electric Work	2,500.00		2,500.00
	Garage	-------	Plumbing Work	400.00		400.00
			Electric Work	500.00		500.00
	Saw Mill	-------	Electric Light Only	1,000.00	-------	1,000.00
	TOTALS	$4,999,980.00		$158,445.00	$87,250.00	$71,195.00

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	APPENDIX A AMOUNT	DESCRIPTION OF CHANGE	ESTIMATED INCREASE IN COST	W. P. B.	AUTHORITY LUMBER	AUTH., MISC.
rd	$ 4,999,980.00		$ 144,770.00	$ 87,250.00	$ 57,[illegible].00	
Tank	-------	Connection from City Main to Tank	3,000.00		3,000.00	
Room	-------	Plumbing Work	200.00		200.00	
		Electric Work	5,000.00		5,000.00	
ouse and uilding		Plumbing Work	425.00		425.00	
		Heating Work	650.00		650.00	
		Electric Work	2,500.00		2,500.00	
	-------	Plumbing Work	400.00		400.00	
		Electric Work	500.00		500.00	
	-------	Electric Light Only	1,000.00		1,000.00	
	$4,999,980.00		$158,445.00	$87,250.00	$71,195.00	

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SCHEDULE II c.	ITEM	APPENDIX A AMOUNT	DESCRIPTION OF CHANGE	INCREASED (DECREASED) AMOUNT	W. P. B.	ADJUSTED AMOUNT
	Rough & Finished Grading	$ 80,000.00	Increased depth of fill	$ 116,689.00		$ 116,689.00
	Employees Parking Lot	40,000.00	New West Parking Lot added	70,250.00		70,250.00
			New west parking lot drainage	16,000.00		16,000.00
			New west parking lot electrical	3,000.00		3,000.00
	Railroad Spur Track	12,500.00	No change			
	Fence Work	53,375.00	Increased Area	27,000.00		27,000.00
	Grading and seeding at Adm. Bldg.	15,000.00	No change			
	Deep Wells	15,000.00	No change			
	Sewage	200,000.00	No change			
	1,000,000 Gal. Potable Water Tank	------	No allowance in original Appendix	61,846.00		61,846.00
			Re-name. Fire Protection tank in lieu of steel	20,000.00	$ 20,000.00	
	Outside Pipe Lines to Flight Hangar	------	No allowance in original Appendix	4,600.00		
	City Water Connection to Boiler House	------	No allowance in original Appendix	10,000.00		
	TOTALS	$460,375.00		$ 459,365.00	$20,000.00	$ 484,765.00

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ITEM	APPENDIX A AMOUNT	DESCRIPTION OF CHANGE	INCREASED (DECREASED) AMOUNT	W. P. B.	APPENDIX AMOUNT	APPR. REQR.
& Finished Grading	$ [illegible]	Increased Depth of fill	$ 216,609.00		$ 216,609.00	
...ee Parking Lot	[illegible]	New West Parking Lot added	70,850.00		70,850.00	
		New west parking lot drainage	16,000.00		16,000.00	
		New west parking lot electrical	3,000.00		3,000.00	
...nd Spur Track	40,500.00	No change				
...Work	53,375.00	Increased Area	27,000.00		27,000.00	
...g and cooling ch Bldg.	15,000.00	No change				
...Wells	15,000.00	No change				
...	200,000.00	No change				
...,000 Gal. ...e Water Tank	------	No allowance in original Appendix	61,846.00		61,846.00	
		Re-comm. Fire Protection tank in lieu of steel	20,000.00	$ 20,000.00		
...de Pipe Lines ...ight Hangar	------	No allowance in original Appendix	4,600.00			$ 4,600.00
...Water Connection ...iler House	------	No allowance in original Appendix	10,000.00			10,000.00
TOTALS	$440,375.00		$ 459,365.00	$20,000.00	$ 434,765.00	$ 14,600.00

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SCHEDULE II b.	ITEM	APPENDIX A AMOUNT	DESCRIPTION OF CHANGE	ESTIMATED INCREASE IN COST	N. F. B.	AUTHORITY LETTER
	Office Building	$ 119,000.00	Electric wiring for fan rooms for Warm Air Heating System	$ 9,000.00	$ 9,000.00	
	Engr. Building	161,000.00	Special lighting for executive offices	1,740.00		$ 1,740.00
			Change in Heating System	40,000.00	40,000.00	
	Manufacturing Bldg.	3,570,230.00	Addl. Plumbing for Canteen Equipment	12,000.00	12,000.00	
			Addl. Electric for Canteens	9,250.00	9,250.00	
			Fluorescent Lighting over loft floor for 50 ft. candles	17,300.00		17,300.00
			Air lines etc. in under floor trenches in Sub Assembly Area	12,000.00		12,000.00
	Flight Hangar	90,050.00	Increase in Electrical Work	7,130.00		7,130.00
			Increase in Heating Work	7,000.00		7,000.00
			Increase in Plumbing Work	11,000.00		11,000.00
	Repair Hangar (New re-conc. Lumber Storage)	23,000.00	Addl. Plg. facilities required	1,000.00		1,000.00
	Boiler House Equipment	513,700.00	Boiler House Equipment Revised	--		
			Addl. Electric Work	17,000.00	17,000.00	
	Veneer Mill	45,000.00	Electric Work in Glue Storage Room	350.00		350.00
	Dry Kiln	69,000.00	No change			
	Acetylene Bldg.	9,000.00	No change			
	Carry forward totals	$4,599,980.00		$114,770.00	$87,250.00	$57,520.00

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	APPENDIX A AMOUNT	DESCRIPTION OF CHANGE	ESTIMATED INCREASE IN COST	AUTHORITY		
				H. P. B.	LEGGE	ARCH. ENGR.
	$ 119,000.00	Electric wiring for fan rooms for				
	161,000.00	Warm Air Heating System	$ 9,000.00	$ 9,000.00		
		Special lighting for executive offices	1,740.00		$ 1,740.00	
		Change in Heating System	40,000.00	40,000.00		
Bldg.	3,570,230.00	Addl. Plumbing for Canteen Equipment	12,000.00	12,000.00		
		Addl. Electric for Canteens	9,250.00	9,250.00		
		Fluorescent Lighting over loft floor for 50 ft. candles	17,300.00		17,300.00	
		Air lines etc. in under floor trenches in Sub Assembly Area	12,000.00		12,000.00	
	90,050.00	Increase in Electrical Work	7,130.00		7,130.00	
		Increase in Heating Work	7,000.00		7,000.00	
		Increase in Plumbing Work	11,000.00		11,000.00	
(New r Storage)	23,000.00	Addl. Plg. facilities required	1,000.00		1,000.00	
Equip-	513,700.00	Boiler House Equipment Revised	--			
		Addl. Electric Work	17,000.00	17,000.00		
	45,000.00	Electric Work in Glue Storage Room	350.00			350.00
	69,000.00	No change				
g.	9,000.00	No change				
otals	$4,599,980.00		$114,770.00	$87,250.00	$57,520.00	

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SCHEDULE II & Cont'd.	Ft.	APPENDIX A AMOUNT	DESCRIPTION OF CHANGE	ESTIMATED INCREASE IN COST	E. P. B.	AUTHORITY LEASE
	Brought Forward	$ 5,896,250.00		$ 994,895.00	$ 384,170.00	$ 382,780.00
	Boiler House	208,000.00	Increase size of Boiler House to accommodate added Boiler facilities	38,800.00	38,800.00	
	Flight Hangar	353,350.00	Increase in size of Bldg.	213,540.00		213,540.00
	Dry Kiln Bldg.	192,000.00	No change at present time			
	Oxygen & Acetylene Bldg.	16,000.00	No change at present time			
	Veneer Plant	120,000.00	Change from wood to reinforced conc.	71,136.00	71,136.00	
			Add. Refrigerated storage room for Glue	11,280.00		11,280.00
			Equipment foundations	26,000.00		26,000.00
			Saw Mill	120,000.00		120,000.00
			LogPond and wharf	110,000.00		110,000.00
	Additional RR Trackage due to revised location layout of various buildings and services	45,762.00		85,000.00		85,000.00
	Repair Hangar (Now Re-conc. Lumber Storage)	75,000.00	This building is not to be constructed but in lieu thereof a re-conc. lumber storage building will be built at an additional cost	110,000.00	110,000.00	
	Guard Houses	3,000.00	No change at present time			
	Paint Storage Bldg.	--------	No allowance in original Appendix to be of reinforced concrete	31,650.00		31,650.00
	Fire Engine & Maintenance Bldgs.	--------	No allowance in original Appendix to be of reinforced concrete	28,666.00		28,666.00
	Garage Bldg.	--------	No allowance in original Appendix to be of reinforced concrete	10,366.00		10,366.00
	Airfield Control Tower on Fire Protection Tank	--------		15,000.00	--------	15,000.00
	TOTALS	$6,909,362.00		$1,866,333.00	$604,106.00	$ 974,802.00

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	APPENDIX A AMOUNT	DESCRIPTION OF CHANGE	ESTIMATED INCREASE IN COST		AUTHORITY	
				W. P. B.	LEASE	ARMY, NAVY,
			$ 994,895.00	$ 984,170.00	$ 382,780.00	$ 288,085.00
ard	$ 5,896,250.00					
	200,000.00	Increase size of Boiler House to accommodate added Boiler facilities	38,800.00	38,800.00		
ar	353,350.00	Increase in size of Bldg.	213,540.00		213,540.00	
dg.	192,000.00	No change at present time				
etylene Bldg.	16,000.00	No change at present time				
t	120,000.00	Change from wood to reinforced cone.	71,136.00	71,136.00		
		Add. Refrigerated storage room for Glue	11,280.00		11,280.00	
		Equipment foundations	26,000.00		26,000.00	
		Saw Mill	120,000.00		120,000.00	
		LogPond and wharf	110,000.00		110,000.00	
	HR Trackage due location layout buildings and		85,000.00		85,000.00	
	45,762.00					
ar (New mber Storage)	75,000.00	This building is not to be constructed but in lieu thereof a re-conc. lumber storage building will be built at an additional cost	110,000.00	110,000.00		
	3,000.00	No change at present time				
ge Bldg.	———	No allowance in original Appendix to be of reinforced concrete	31,650.00		31,650.00	
& Maintenance.	———	No allowance in original Appendix to be of reinforced concrete	28,666.00		28,666.00	
g.	———	No allowance in original Appendix to be of reinforced concrete	10,366.00		10,366.00	
			15,000.00		15,000.00	
Control Tower Protection Tank	———					
	$6,909,362.00		$1,866,333.00	$604,106.00	$ 974,802.00	$288,085.00

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BOEING AIRCRAFT, INC.
AIRPLANE MANUFACTURING PLANT
[illegible], IA.

SCHEDULE OF REVISED COSTS

SCHEDULE II a.	ITEM	APPENDIX A AMOUNT	DESCRIPTION OF CHANGE	ESTIMATED INCREASE IN COST	AUTHORITY W. P. B.	AUTHORITY LESSER	AU
	Office Building	$ 388,600.00	Metal Suspension of Acoustic Ceilings to conserve wood	$ 3,710.00	$ 3,710.00		
	Engr. Building	476,000.00	Fan Rooms for Warm Air Heating System to conserve critical materials	21,000.00	21,000.00		
	Manufacturing Bldg.	5,031,650.00	Re-conc. floor over Kitchen and Cafeteria Area	60,000.00		$ 60,000.00	
			Reinforce ground floor slab of bldg.	103,700.00			$
			Contcone for feed distribution	33,760.00	33,760.00		
			Change from wood roof deck to Cement Tile and 1" Vermiculite	242,000.00	242,000.00		
			Raise elevation of floor 1' 0"	184,325.00			
			Under floor trenches in Sub Assembly area	71,300.00		71,300.00	
			Additional mesh in walls of Building	50,800.00		50,800.00	
			Change toilet partitions from plywood to Cemesteboard	3,900.00	3,900.00		
			Employees Pass and Searching Gates	10,800.00		10,800.00	
			Autoclave foundations	14,900.00		14,900.00	
			Structural Steel Requirements for Monorail System	38,000.00		38,000.00	
			Temporary Covers for 8 Dehumidifying Houses	9,700.00		9,700.00	
			800 Ton Hydraulic Press	4,500.00		4,500.00	
			Cone Stamp Foundations	2,700.00		2,700.00	
			Plane Parking Apron	60,000.00		60,000.00	
			Additional Intermediate Piles between Main Columns for Exterior Foundation Walls around Mfg., Office and Engr. Bldgs. required because of prohibition of use of Steel rod reinforcement	79,800.00	79,800.00		
Carry Forward...[illegible]		$5,896,250.00		$ 994,895.00	$ 384,170.00	$588,700.00	

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BOEING AIRCRAFT, INC.
AIRPLANE MANUFACTURING PLANT
[illegible], IA.

SCHEDULE OF REVISED COSTS

APPENDIX A AMOUNT	DESCRIPTION OF CHANGE	ESTIMATED INCREASE IN COST	AUTHORITY W. P. B.	AUTHORITY LESSEE	AUTHORITY ARCH. ENGR.
$ 388,600.00 476,000.00	Metal Suspension of Acoustic Ceilings to conserve wood	$ 3,710.00	$ 3,710.00		
	Fan Rooms for Warm Air Heating System to conserve critical materials	21,000.00	21,000.00		
Bldg. 5,031,650.00	Re-conc. floor over Kitchen and Cafeteria Area	60,000.00		$ 60,000.00	
	Reinforce ground floor slab of bldg.	103,700.00			$ 103,700.00
	Contcons for feed distribution	33,760.00	33,760.00		
	Change from wood roof deck to Cement Tile and 1" Vermiculite	242,000.00	242,000.00		
	Raise elevation of floor 1' 0"	184,325.00			184,325.00
	Under floor trenches in Sub Assembly area	71,300.00		71,300.00	
	Additional sash in walls of Building	50,800.00		50,800.00	
	Change toilet partitions from plywood to Cemesteboard	3,900.00	3,900.00		
	Employees Pass and Searching Gates	10,800.00		10,800.00	
	Autoclave foundations	14,900.00		14,900.00	
	Structural Steel Requirements for Monorail System	38,000.00		38,000.00	
	Temporary Covers for 8 Dehumidifying Houses	9,700.00		9,700.00	
	800 Ton Hydraulic Press	4,500.00		4,500.00	
	Core Stamp Foundations	2,700.00		2,700.00	
	Plane Parking Apron	60,000.00		60,000.00	
	Additional Intermediate Piles between Main Columns for Exterior Foundation Walls around Mfg., Office and Engr. Bldgs. required because of prohibition of use of Steel red reinforcement	79,800.00	79,800.00		
...85,896,250.00		$ 994,895.00	$ 384,170.00	$382,700.00	$288,025.00

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HIGGINS AIRCRAFT, INC.
AIRPLANE MANUFACTURING PLANT
NEW ORLEANS, LA.

SCHEDULE OF REVISED COSTS

SUMMARY SHEET

SCHEDULE	ITEM	FROM PAGE NUMBER	APPENDIX A AMOUNT	ESTIMATED INCREASED COST	AUTHORITY W. P. B.	AUTHORITY [illegible]	AUTHORITY ARCH. ENGR.
II a.	Buildings, etc.	2	$ 6,909,362.00	$1,866,333.00	$ 604,106.00	$974,202.00	$ 288,025.00
II b.	Building Installations (Not mechanical)	4	4,599,980.00	158,445.00	87,250.00	71,195.00	
II c.	Leasehold Improvement	5	462,375.00	459,365.00	20,000.00	424,765.00	14,600.00
III d.	Kitchen & Cafeteria Equipment	6	347,800.00	12,000.00 Credit	12,000.00 credit		
	TOTALS		$12,318,717.00	$2,472,143.00	$699,356.00	$1,470,162.00	$ 302,625.00

WPB1
HHL:HBV:HS
June 16, 1943

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HIGGINS AIRCRAFT, INC.
AIRPLANE MANUFACTURING PLANT
NEW ORLEANS, LA.

SCHEDULE OF REVISED COSTS

SUMMARY SHEET

	FROM PAGE NUMBER	APPENDIX A AMOUNT	ESTIMATED INCREASED COST	AUTHORITY W. P. B.	AUTHORITY [illegible]	AUTHORITY ARCH. ENGR.
	2	$ 6,909,362.00	$1,866,333.00	$ 604,106.00	$974,802.00	$ 288,025.00
[illegible]-nical)	4	4,599,980.00	158,445.00	87,250.00	71,195.00	
[illegible]ment	5	462,375.00	459,365.00	20,000.00	424,765.00	14,600.00
[illegible]ria	6	347,000.00	12,000.00 Credit	12,000.00 credit		
TOTALS		$12,318,717.00	$2,472,143.00	$699,356.00	$1,470,162.00	$ 302,625.00

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Facilities

WAR DEPARTMENT
HEADQUARTERS OF THE ARMY AIR FORCES
Washington

CONFIDENTIAL

June 21, 1943.

SUBJECT: Construction of Higgins Airfield, New Orleans, La.

TO: Commanding General Materiel Command, AAF, Attn.: Production Resources Section Steele High Building, Dayton, Ohio.

1. Forwarded herewith is a copy of an engineering report made by the Corps of Engineers with respect to the Higgins Airport site. This report, with attached correspondence from the Corps of Engineers and the Building & Grounds Section of the Air Staff is furnished to be used as a guide in approving that part of the Appendix "A" of the Higgins project concerning the airport layout and method of construction to be used by the Defense Plant Corporation for this project.

2. It is the opinion of this office that two 5500 foot runway, 150 feet wide, of 70,000 pound gross loading will be sufficient to serve the purpose intended. As to whether Method #2 or Method #3 should be used in construction, [illegible] this point should be decided by [illegible] the Defense Plant Corporation, the architect-engineer, and the contractor. Method #2 apparently will provide airport facilities two months earlier than Method #3 and if this time element is important, may be more desirable than Method #3.

3. The Defense Plant Corporation has been contacted by this office and requested to forward your office for approval of the Airport Appendix "A". The construction of the airport should be expedited in view of the two months delay caused by the engineering investigation of the site. It is desired to hold the cost down to the $3,700,000 originally approved in the Appendix "A".

By command of [illegible]:

John C. Vaughn Colonel

FRANKLIN H. [illegible], JR.,
[illegible] Corps, U. S. A.,
Chief [illegible] Division,
Office [illegible] Chief of
Air [illegible], U. S. A.

6-7/13 sent to T4 Legal.
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Project held up until July 13, 1943 and July 17, 1943 by Comptroller and attached Prod. Board pending an investigation

WAR PRODUCTION BOARD

WASHINGTON, D. C.

CONFIDENTIAL

June 30, 1943

MEMORANDUM

TO: Headquarters, Army Air Forces
Facilities Section
Materiel Command

SUBJECT: Higgins Aircraft, Inc.
New Orleans, Louisiana
PRS Project 381 A-1

The Industrial Facility Committee hereby approves the application of subject company in the amount of $2,313,564 for an air processing system, required to provide humidity and temperature control necessary for the manufacture of Type C-76 airplanes.

In order to avoid delay and duplication of effort, a signed copy of this letter of approval must be included in the case folder of this project, as a part of the permanent record.

W. B. Murphy

W. B. Murphy, Chairman
Industrial Facility Committee

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For Bowling 7/4/43

AAF Material Command
Steele High Building, Dayton, Ohio

CONFIDENTIAL 1 July 1943 JLB:ja:90-3-3 3:00 P.M.

E. W. HAWLINGS
Colonel, Air Corps

MR. GEORGE F. SHELLEY
DPC SUPERVISING ENGINEER
306 WALTER BUILDING
NEW ORLEANS, LOUISIANA

..... REGARDING HIGGINS AIRPORT AND OUR CONVERSATION OF THIS DATE, BLUEPRINTS RECEIVED INDICATING TWO RUNWAYS, EACH OF WHICH WILL BE 150 FT. WIDE AND 5,500 FT. LONG. THE THIRD RUNWAY RUNNING PARALLEL TO MOLYE CANAL HAS BEEN ELIMINATED. THIS OFFICE APPROVES THE NEW LAYOUT FOR THE AIR FIELD, INCLUDING THE RUNWAYS AND THE DRAINAGE SYSTEM. UPON RECEIPT OF BIDS AND BEFORE CONTRACTS ARE AWARDED, ADVISE THIS OFFICE OF THE AMOUNTS OF EACH BID. REFER REFERENCE PRS 877001 J.B. AND AFAMC.

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GOVERNMENT PAID
PRODUCTION DIVISION, WRIGHT FIELD

Copy to:
Albert Kahn, Detroit, Attn: Mr. S. Smolens
A. A. Wilson, DPC, Washington
Higgins Aircraft, Inc., New Orleans, La.

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Final
Irvine
Murphy, D. Wash.
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AIRCRAFT PRODUCTION BOARD
RESOURCES CONTROL OFFICE
Pentagon Building
Washington, D. C.

CONFIDENTIAL

July 7, 1943.

Asa 7-077

MEMORANDUM FOR: Colonel C. S. Irvine
Mr. W. B. Murphy

SUBJECT: Higgins Company - Facilities

The following, which is of interest to you, is quoted from the minutes of the July 5, 1943, meeting of the Aircraft Production Board:

"[redacted] There was considerable discussion relative to the requirements submitted by the Higgins Company, particularly with regard to (a) the total cost of the project which is running several million dollars beyond the original agreement and (b) the extent of construction which is exceeding the original agreement by more than 500,000 sq.ft., and which appears to be double the requirements for the production as originally negotiated.

With the agreement of the Board, Mr. Wilson requested that General Hopkins and Mr. W. B. Murphy appoint representatives from their respective organizations to review the entire case with the Higgins Co. to determine what can be done to keep the construction program within the boundaries of the original agreement and in keeping with the production commitments."

T. P. Wright, Recorder
Aircraft Production Board

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WAR PRODUCTION BOARD
WASHINGTON, D. C.

AIRCRAFT PRODUCTION BOARD

IN REPLY REFER TO

CONFIDENTIAL

July 16, 1943

MEMORANDUM

To: Major General Oliver P. Echols

From: C. E. Wilson

Supplementing consideration at last Monday's meeting of the Aircraft Production Board of the [illegible] wooden cargo plane for which Higgins, of New Orleans, has been given an order for 1200 planes and permitted to construct a new plant, runway, etc., as agreed at that time, Mr. Murphy of the War Production Board is to investigate some phases of the demands of Mr. Higgins, and I hope will be able to report at next Monday's meeting on the essentiality of certain of these demands.

Beyond the question of the rather substantial cost of the Higgins plant, it seems to me is the basic question of the desirability of proceeding with the wooden construction program at New Orleans. Certainly the statements that were made at the meeting last Monday were not reassuring on this point. If I recall correctly, Mr. Wright was quite opposed to the design, and I believe your own attitude was one of considerable question as to the desirability of proceeding.

I make the suggestion, therefore, that at next Monday's meeting we give further consideration to the matter to the end that even if we conclude it is desirable to complete the Higgins plant, possibly its most practical and desirable utilization can be along the lines of parts production for some much more desirable type. At the same time I would like to invite consideration of the possible utilization of the Louisville plant, where the other wooden construction plane is being made, for another purpose, provided of course the conclusion is reached that in view of current developments it may be unwise to proceed with the building of these planes which are already long delayed.

For example, this Louisville factory may be suitable for use to house possibly eight extrusion presses, together with the miscellaneous equipment for heating, straightening, etc., thus quickly providing badly needed additional facilities, rather than to resort to the building of an additional plant of five or six hundred thousand square feet of floor space. Incidentally, the use of the Louisville airframe plant for this purpose would probably save four or more months

FOR VICTORY BUY UNITED STATES WAR BONDS AND STAMPS

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Memorandum to General Echols July 10, 194[illegible]

in getting another extrusion [illegible]

CONFIDENTIAL

Again, the suggestion is predicated entirely on the question of whether the wooden airplane is really essential in the carrying out of the war program. If I am correctly informed, the use of these wooden ships was largely determined by the existing shortage of aluminum at the time the decision was made, which shortage is now substantially behind us, and I am further advised that their ability to land on comparatively small fields is no longer as important a consideration as it was at the time it was decided to go through with these projects. If it is true that the C-76, and possibly more particularly the C-[illegible], actually provide far better cargo ships, would it not be feasible and desirable to give consideration to possible steps to increase the output of these conventional planes in preference to the rather uncertain wood construction design? Suggestion for consideration of this substitution is made, regardless of the fine experience of the British with the Mosquito wooden design, because it seems to me that this small plane is a far cry from the comparatively large and sturdy requirements of a cargo ship.

C-76

In view of the considerable economy and time-saving that can be effected by the use of the Louisville plant, particularly, I hope we can come to a conclusion on the general subject of wooden ships at Monday's meeting.

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CONFIDENTIAL July 11, 1943

MEMORANDUM FOR - File

SUBJECT - Higgins Aircraft, New Orleans, La.

1. In accordance with the action of the Aircraft Production Board at ~~him~~ its meeting on July 5, 1943, Mr. W. B. Murphy, Colonel Irvine and I proceeded to New Orleans, Louisiana, for a staff inspection of the facilities now being provided the Higgins Aircraft Company for the production of C-76 airplanes. A conference was held on July 9, 1943, attended, in addition to the above three, by Mr. Frank Higgins, Mr. Shelly of the Defense Plant Corporation and Captain Sherman, Army Air Forces Resident Representative.

2. Status of Construction -

The facilities are approximately 70 per cent complete with approximately 90 per cent of the equipment delivered. The only bottlenecks existing at this time are:

a. Construction of a 12-inch water main to the plant. Bids will be opened July 14 by the New Orleans Sewer & Water Board for the construction of approximately 42,000 ft. costing approximately $399,000. This is a FWA project and may be on a 45, 60 or 100-day basis bid.

b. Some delay is anticipated in leasehold electric lines due to the failure of the Maloney Electric Company to deliver the necessary transformers and regulators.

c. The machining of castings by Adamson is preventing the delivery of autoclaves by the Lancaster Iron Works. The present promised delivery is September 1, 1943.

d. Some delay is anticipated in the construction of the sewage disposal plant.

All of the above will be submitted in writing to this office and action will be taken to assist in the completion of the plant.

3. Labor -

Originally on the basis of a production of 100 C-76 airplanes per month, it was estimated that 25,000 laborers would be required. Under the new B-4 schedule of 90 airplanes per month, Mr. Frank Higgins indicates that he has estimated he will need approximately 15,000 per month. New Orleans is an excellent labor market. Very few of the industries are employing female help.

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At the present time there are 831 employees at the plant of which 44 constitute the engineering staff. There are 200 trainees awaiting employment. On the construction project there are 4500, many of which expect to go to work for Higgins since no more construction work is contemplated in the New Orleans area.

4. Floor Area -

The main manufacturing building consists of 1,827,000 sq. ft.

Of the total 2,278,700 sq. ft. in the total plant, there are in the office building, 63,500 sq. ft; engineering building, 115,500 sq. ft; plywood and veneer building, 39,864 sq. ft; flight hangar building, 85,900 sq. ft. dry kiln building, 25,435 sq. ft; rought mill & lumber storage building, 34,660 sq. ft; and some additional small square footage such as the acetylene building, etc.

5. Financial Costs -

Of the $23,735,000 originally set up for this project, $22,735,239.81 has been committed by Defense Plant Corporation. Mr. Skelly of Defense Plant Corporation estimates the additional costs will be $2,300,000 for humidifying equipment, $750,000 for building installations, and $200,000 service costs. This will bring the ~~ultimate~~ cost of the facilities to approximately $25,800,000. It is interesting to note that decisions of the Construction Division, War Production Board, have increased the cost of these facilities by $699,356, chiefly caused by the substitution of long critical but more expensive materials. The plywood plant added to the project after the initial subdivision of the Appendix "A" will cost approximately $300,000. The above costs are based on an airport construction cost of $2,300,000 which should be ample. A flight hangar capacity from four to eight planes recommended by the Material Command resulted in an increase of $213,000. Against an original estimated cost of $520,000 for the veneer plant, the final costs are [redacted]. Underground costs which were entirely unpredictable have been high because of the nature of the sub-soil. As a matter of information, approximately $500,000 of material was taken over from the Maritime Commission involving chiefly transformers, cable, wires, trucks, drag lines, piling, railroad ties, etc.

6. Because of the present situation with regard to A-76 airplane production, no drawings have been released for production by Material Command. Drawings have been released for jigs for only the motor mount, fuselage ring No. 4, the pilot hatch and the fuselage door which amount to less than one-half of one per cent of the total jig design.

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Frederick A. Hopkins, Jr.,
Brigadier General, U. S. A.

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WAR PRODUCTION BOARD
WASHINGTON, D.C.

CONFIDENTIAL

July 12, 1943

Colonel C. S. Irvine
Office of Ass't Chief of Air Staff
Materiel, Maintenance & Distribution
Headquarters, Army Air Forces
Room 5-C-880
Pentagon Building
Washington, D. C.

Dear Colonel Irvine:

Confirming the understanding arrived at during the Aircraft Production Board meeting this morning, the air processing project of approximately $2,313,500 for Higgins Aircraft, Inc. is to go ahead as approved by the Industrial Facility Committee, and the airport facilities for this same project, which were included in the original $23,700,000 are to be held up for further consideration sixty to ninety days from now when it is decided whether or not Higgins will build a complete airplane.

Very truly yours,

/s/ W. B. Murphy

W. B. Murphy, Chairman
Industrial Facility Committee

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to Higgins
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AIRCRAFT PRODUCTION BOARD
RESOURCES CONTROL OFFICE
Pentagon Building
Washington, D. C.

July 14, 1943.

CONFIDENTIAL

A:a 7-170

MEMORANDUM FOR: Colonel C. S. Irvine
Mr. W. B. Murphy, WPB

SUBJECT: Aircraft Production Board meeting of July 12, 1943

The following relating to proceedings of the Aircraft Production Board is quoted from the minutes of the meeting of July 12, 1943:

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HIGGINS: Mr. Murphy and Colonel Irvine reported on the investigation of the Higgins Company facilities, which are well advanced and have sufficient area to build 250 airplanes per month (C-76 type) compared with the original commitment for 100 airplanes per month, which was subsequently cut back to 50 per month. It is their opinion that the air conditioning equipment is more essential than the airport, and that if a choice has to be made between the two, the airport should be eliminated.

The immediate important considerations in connection with the Higgins Company are (a) the availability of a very good labor market (b) the urgent need for immediate work to utilize the available facilities and (c) the willingness of the Higgins Co. to accept work of any nature. It is the opinion of Colonel Irvine and Mr. Murphy that the Company will be able satisfactorily to enter into metal construction. They recommended that the production of C-46 wings (for Curtiss-Wright, Buffalo and St. Louis) be placed in the Higgins factory on a subcontracting basis, since present facilities are insufficient for that production, and tooling will be required by whatever facility undertakes the job.

There is an immediate need for 50 sets of C-46 wings per month, which may possibly increase to 100 sets per month. (Approximately 250,000 sq.ft. of floor space will be required to produce 50 sets per month of C-46 wings.)

With the concurrence of the Board, General Echols requested Colonel Irvine to take immediate action with regard to assisting the Higgins Company in negotiating a contract for C-46 wings and to then explore other subcontracting possibilities in order to get parts into the Higgins factory as fast as possible. The Board also agreed that the War Production Board should proceed with approval of the air conditioning equipment but that construction of the airport should be held in abeyance.

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P.C. Higgins
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Wash.
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The Board discussed the following as additional possibilities to augment the above immediate action:

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(a) Since the Higgins Company is set up for precision production of plywood, it may be possible to use that Company as the source of supply for the Curtiss-Wright Corporation in the production of C-76 airplanes. This would involve cancelling the Higgins C-76 contract and tentatively planning on increasing the production of the Louisville plant to capacity for more efficient operation if type tests of the airplane indicate such production to be desirable. (The capacity of the Louisville plant is greater than 100 C-76 airplanes per month, whereas present peak production is scheduled at 50 per month.)

(b) In view of the British need for additional night bombers, tentative plans are being made to increase the Canadian production of the Lancaster bomber. There is not sufficient capacity in Canada, however, and it appears that United States assistance will be required in some form or other. Production of the Lancaster wings, which will be required at the rate of 50 sets per month with a possible increase to 100 sets per month, could possibly be placed in the Higgins factory.

(c) There is a possibility that additional production of the Mosquito airplane may be required. This is certain from the standpoint of the utility of the airplane, but it may not be feasible in view of the Packard-Merlin engine situation, which incidentally also applies to the Lancaster production."

T. P. Wright

T. P. Wright, Recorder
Aircraft Production Board

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ADDRESS REPLY TO
THE ADJUTANT GENERAL
HEADQUARTERS OF THE ARMY AIR FORCES
WAR DEPARTMENT
WASHINGTON, D. C.

Col Irvine
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WAR DEPARTMENT
HEADQUARTERS OF THE ARMY AIR FORCES
WASHINGTON

CONFIDENTIAL

15 July 1943

MEMORANDUM FOR - Brigadier General Frederick M. Hopkins, Jr.

1. In view of the fact that I expect to depart tomorrow morning on a trip with General Echols I am dictating the attached notes for your information in connection with conferences on Wednesday, July 14, at Curtiss, Buffalo, and on Thursday, July 15, at Dodge Chicago.

C. S. Irvine

C. S. IRVINE,
Colonel, Air Corps

cc: Major Gen. O. P. Echols
Major Gen. C. E. Branshaw
Mr. W. B. Murphy
Mr. T. P. Wright

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Notes on Conference Held at Curtiss Buffalo on Wednesday, July 14, 1943.

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1. A conference was held at the Curtiss factory for the purpose of arranging for the Curtiss Company to sub-contract certain airplane parts to Higgins Aircraft, Inc. Those present were:

Mr. Burdette Wright, Curtiss-Wright Company
Mr. Joe Feirhart, " " "
Mr. Frank Higgins, Higgins Aircraft, Inc.
Major John H. Crago, Materiel Center, Wright Field
Capt. S. A. Oviatt, " " "
Mr. J. W. Jenkins, Special Industrial Consultant, WPB
Col. C. S. Irvine, Office, AC/AS, MM&D

2. The present schedule at Curtiss Buffalo calls for 150 C-46's per month and the schedule for Curtiss St. Louis calls for 50 C-46's per month. At the present time Curtiss Buffalo delivered 34 airplanes in June and contemplates delivering 42 this month. These compare to their schedule of 40 and 50 respectively. They will reach their peak of 150 per month in May, 1944. Curtiss St. Louis is scheduled to deliver the first airplane in December, 1943, reaching a peak of 50 in December, 1944. The Firestone Company in Akron is presently scheduled to deliver 50 sets of outer wing panels per month and plans are under way to increase them to 100. Firestone in turn sub-contracts approximately 20% in money value of the outer wing panel parts.

3. Mr. Wright estimated that spares in the nature of approximately 15% would be required in addition to the installation outer panels. Both St. Louis and Buffalo have been tooled up to build limited quantities of outer wing panels to insure the continuance of production. A backlog of approximately one month's supply of outer panels has been accumulated.

4. It is estimated that including starting inertia about 7500 man-hours will be required per set of outer panels. It was agreed between representatives of the Air Force, Mr. Wright and Mr. Higgins that preliminary negotiations would be based on Higgins supplying Curtiss with 75 sets of outer wing panels per month. It was estimated that this job, performed almost entirely in the Higgins plant proper, would require about 300,000 sq. ft. and about 3,000 to 4,000 people. It was agreed that the job would be set up on a sub-contract basis from Curtiss to Higgins with the initial production on a cost plus basis which after production was well under way would be converted to a fixed price contract.

5. It was agreed that the Curtiss Company would permit Higgins to send in operators for training as lead men as well as individuals for training as inspectors. It was agreed that Curtiss would furnish representative groups of parts insofar as practicable where it would not

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interfere with their own production. It was agreed that material would be handled through Curtiss' allocation under CMP. It was agreed that the extra set of manufacturing jigs now partly on hand and partly on order would be turned over by Curtiss to Higgins as quickly as possible. It was agreed that every possible step would be taken by Curtiss to accelerate Higgins' entry into production.

6. In view of the fact that the undersigned desired to depart from Buffalo for Chicago arrangements were made for Mr. Higgins, Mr. Reichert, Mr. Jenkins, Major Crego and Capt. Owlett to work out the necessary details such as immediate release to Higgins of all necessary drawings, manufacturing data, lists of tools required, material commitments, etc.

7. Mr. Higgins stated that there were now in the New Orleans area about 30,000 unemployed employable people. In view of this fact it seemed desirable in the event that the Higgins Company demonstrates its ability to satisfactorily produce items such as C-46 panels to give them additional work and limit expansions with companies such as Firestone at Akron where the labor situation is certain to become increasingly critical particularly in view of the expansions now under consideration for the fabrication of large quantities of synthetic rubber. The program for the manufacture of 30,000,000 passenger car tires in 1944 plus the request for some $60,000,000. in fabricating equipment is a good barometer of what we may expect.

C. S. IRVINE,
Colonel, Air Corps

Dictated but not read.

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CONFIDENTIAL 7-2

AIRCRAFT PRODUCTION BOARD
RESOURCES CONTROL OFFICE
Pentagon Building
Washington, D. C.

July 22, 1943.

CONFIDENTIAL

A:a 7-252

MEMORANDUM FOR: Colonel C. S. Irvine
Mr. W. B. Murphy
Dr. A. E. Lombard, Jr.

SUBJECT: Higgins Company - Aircraft Production Board
Meeting of July 19, 1943.

The following relating to the above subject is quoted from the minutes of the Aircraft Production Board meeting of July 19th:

"HIGGINS: General Echols advised that arrangements have already been made to place 75 sets per month of C-46 wings in the Higgins factory. This will require approximately 4000 employees compared with the present 800. The Higgins Co. already has the drawings and is receiving a set of jigs. Their reaction to this arrangement is favorable, although it is felt that they will eventually insist on producing complete airplanes.

General Echols advised that the final decision on the C-76 airplane will have to be held in abeyance pending results of tests on which the utility of the type will be appraised. No drawings of this airplane are available to the Higgins Company at the present time.

Mr. Wright stated that he has discussed the "Lancaster" situation with Mr. Ralph Bell of Canada, who advised that United States assistance will be required in the production of outer wings, landing gears, tail surfaces and control surfaces. Mr. Bell expects to have a definite report on this within the next week or ten days."

T. P. Wright, Recorder
Aircraft Production Board

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WAR DEPARTMENT - ARMY AIR FORCES
Office, Asst. Chief of Air Staff, Material, Maintenance and Distribution

Inter-Desk Memorandum

TO: Major Gen. O. P. Echols **CONFIDENTIAL** 29 July 1943

SUBJECT: Progress on Higgins-Curtiss C-76 and C-46 Programs.

1. The Chief, Production Division, Materiel Command, has initiated correspondence to the Procurement Division requesting the immediate cancellation of the C-76 program at Higgins. He has further requested that a letter of intent for 500 C-46's plus spare parts be given to Higgins. The foregoing with the understanding that Higgins will act as sub-contractor to Curtiss for first, the outer and next the inner wings until he has demonstrated reasonable and satisfactory progress at which time he will go into production of complete C-46 airplanes at an ultimate rate of 50 per month.

2. The Production Division has further proposed the cancellation of the C-76 airplanes at a final total of 25 airplanes plus spares. An additional contract for 500 C-46 airplanes will be given the Curtiss Company with the understanding that the St. Louis and Louisville plants of the Curtiss Company, together will reach an ultimate rate of 50 additional C-46's per month.

3. A conference has been scheduled at Curtiss-Wright Louisville of the major sub-contractors on the C-46 program including Mengel, Universal Moulding, Baldwin, Tennessee Aircraft, Tuthill, Inc., Marwick Stove, Higgly, Inc., and a number of other small concerns for the purpose of closing out their C-76 work and initiating such manufacturing programs as appear proper on the C-46.

cc: Gen. Hopkins
Gen. Craigie

C. . IRVINE,
Colonel, Air Corps

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WAR DEPARTMENT
ARMY AIR FORCES
MATERIEL CENTER
OFFICE OF THE COMMANDING GENERAL

87-4[illegible]:JW

WRIGHT FIELD, DAYTON, OHIO

2 August 1943

CONFIDENTIAL

NAME: Higgins Aircraft Inc.,
ADDRESS: P.O. Box 793
New Orleans, 2,
Louisiana

Dear Sirs:

The United States of America, hereinafter called the Government, will place a formal contract with you for the purchase of the following articles:

Item 1 - 500 AAF Type C-46A Airplanes, in accordance with Curtiss-Wright Specification No. 20-2-16, as revised by revision L, identical with those being procured from Curtiss-Wright Corporation.

Item 2 - Spare parts for the airplanes called for in Item 1, in a quantity, the cost of which shall not exceed $21,700,000.00.

Item 3 - Certain Engineering Data.

At a total estimated cost of $130,200,000.00, exclusive of a fixed fee not to exceed $[illegible].

The Government finds that to facilitate the prosecution of the war it is necessary that production be not delayed awaiting the placing of the aforesaid formal contract. The exact unit prices to be paid, the dates of delivery and other contractual matters will be negotiated between you and the Government. Pending such negotiation you are authorized to incur such costs and, subject to the approval of the Contracting Officer, to make expenditures not to exceed the sum of $39,060,000.00, or 30% of the total estimated cost, for such jigs, dies, tools and fixtures, and such materials and equipment, as are necessary for the production of the articles above referred to, and to proceed forthwith with the production thereof. Requests for such approval by the Contracting Officer will be accompanied by a list of the items proposed to be procured together with estimated maximum prices therefor. The purchases herein referred to contemplate the entering into by you of subcontracts for the material or work involved.

In the event the formal contract for the articles referred to above is not placed with you prior to 1 October 1943, then upon demand made by you prior to 1 November 1943, this contract shall terminate. The Government may at any time at its option terminate this contract. If this contract is terminated either by you or the Government, the Government will pay you in full settlement of all your rights hereunder a sum equal to reimbursement for all costs incurred and expenditures made by you pursuant to the provisions of the preceding paragraph, plus such other sums as have actually been expended by you, with

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the prior written approval of the Contracting Officer, in settlement of all obligations, commitments and claims which you may theretofore have incurred, but in any event the aggregate of such payments shall not exceed the sum stated in the next preceding paragraph. Upon such payments title to all material, equipment, work in process, finished articles and all other things procured or produced by you in the performance of this contract shall vest in the Government.

Any claim arising under this contract and any contract supplementing it may be assigned subject to the terms of the Assignment of Claims Act of 1940 unless the subject matter of this contract has been classified as secret, confidential, or restricted, and any claims arising under this contract shall not be subject to reduction or set off for any indebtedness of the assignor to the United States arising independently of this contract.

Upon your acceptance hereof, advance payments in accordance with the existing requirements of the War Department may be made to you upon your application.

CONFIDENTIAL

Such formal contract will include all applicable contract clauses required by Federal Law, Executive Order, War Department Regulations, or Army Regulations to be incorporated in contracts for articles of the kind herein purchased; and all such clauses are hereby incorporated herein by reference.

Title to all work under this contract, completed or in the course of manufacture or assembly at your plant, shall be in the Government, and title to all materials, parts, assemblies, machinery, equipment and supplies for which you are entitled to reimbursement hereunder shall vest in the Government upon delivery to you. Property accountability shall be in the AAF Property Accountability Officer at your plant or such other officer as may be appointed by the AAF District Supervisor for your District. Your liability for such property shall be the same as that provided for Government-owned property in paragraph 333 of the War Department Procurement Regulations in effect on October 14, 1942.

The formal contract referred to in this letter shall be designated as W33-038 ac-298 (11033).

If the foregoing is acceptable to you, will you kindly so indicate on the original and two copies of this letter and return same to the Contracting Officer on or prior to 12 August 1943, thereby constituting this letter a contract, subject, however, to the written approval of the Secretary of War or such individual as said Secretary may designate.

This contract was negotiated under the authority of the First War Powers Act, 1941, and Executive Order No. 9001, December 27, 1941.

Very truly yours,

(Name) J. C. [illegible], JR.
(Rank) CAPTAIN, AIR CORPS,
Contracting Officer

ACCEPTED: [illegible] 194_

[illegible] AIRCRAFT INC.,
(Name of Contractor)

By [illegible]
(Name)
(Official Title) [illegible]

The Finance Officer, Wright Field, Dayton, Ohio, is designated as the officer to make payments in accordance with this contract.

The supplies and services to be obtained by this instrument are authorized by, are for the purposes set forth in, and are chargeable to allotments below enumerated, the available balances of which are sufficient to cover the cost thereof

ACA 1942-44, 2-4005 112-09 212/40705; CA 1942-44, 2-4005 112-09 A 212/40705;

Contract No. W33-038 ac-298 (11033)
Purchase Order No.
Authority for Purchase No. 15009
Allotment No. (See above)
Priority Rating AA-1
Equipment Class 01-A
Type Contract Cost-plus-a-fixed-fee
Classification CPFF
Program Fl. 1944

WP-1-10-42-10M

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ARMY AIR FORCES
Materiel Command

CONFIDENTIAL

In reply please refer to:
87-13 JAC:cl

Wright Field, Dayton, Ohio
5 August 1943

Contract W535-AC-34484

HIGGINS AIRCRAFT, INC.
New Orleans, Louisiana

1. Pursuant to the provisions of Article 9 of Contract No. W535-AC-34484 between the Government and yourself, that contract is hereby terminated. Effective at once, you will terminate all subcontracts and cancel all existing orders and cause all work thereunder to cease, with the following exceptions:

NONE

2. Subject to customary approval or ratification by the Contracting Officer, you are authorized and requested to pay all invoices, charges, salaries, wages and other obligations actually incurred by you in connection with this contract and due on or before the effective date of this notice.

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3. You are requested to advise all vendors and subcontractors to submit to you, as promptly as possible, a statement of the charges that will be involved in the cancellation and termination of their orders or subcontracts. Such charges shall be set forth substantially under the following headings:

(1) Amount of total contract price previously paid.
(2) Direct labor.
(3) Direct materials.
(4) Indirect factory expense.
(5) Administrative expenses.
(6) Subcontractors claims.
(7) Credits for scrap, etc.
(8) Production engineering expense, indicating labor and burden.
(9) Other engineering and similar expenses.
(10) Other items of claim in detail.

4. Vendors or subcontractors whose classification of accounts is similar to the above may follow their own classification. All such vendors and subcontractors should be advised that they may be required to support such statement of charges with appropriate and

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pertinent accounting and other records; that the statement of charges may be subject to an audit by Government auditors; and that an inspection of the supplies and materials covered by the Purchase Order or subcontract will be made by a Government inspector. Vendors and subcontractors should be directed to preserve all relevant records and papers.

5. You will be reimbursed for the cost of all services rendered by you in connection with this termination of Contract No. W535-AC-34484 in accordance with the provisions of the contract.

M. C. HARDING
Major, Air Corps
Contracting Officer

cc: Midwestern District Supervisor
Midwestern Termination Branch
Follow-up, Procurement Division
Follow-up, Production Control
Office of Traffic & Transportation, Control Branch
Inspection Section
Finance Officer
Budget and Fiscal Officer, Wright Field
Production Division, JHC:mke
Aircraft Procurement Branch
Fiscal Branch
AAF Resident Representative

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M.M.P.

WAR PRODUCTION BOARD

WASHINGTON, D. C.

CONFIDENTIAL

August 5, 1943

IN REPLY REFER TO:

Colonel C. S. Irvine
Office of Ass't Chief of Air Staff
Material, Maintenance & Distribution
Headquarters, Army Air Forces
Room 5-C-880, Pentagon Building
Washington, D. C.

Dear Colonel Irvine:

The attached memorandum requires action.

Some special basis must be found for justifying the air conditioning ($2,300,000), which was granted to Higgins on the premise that it was important for wooden aircraft and does not have that justification, or the air conditioning part of the Higgins project should be killed.

We would appreciate a recommendation from the Army Air Forces on this matter at the earliest possible date.

Very truly yours,

W. B. Murphy

W. B. Murphy, Chairman
Industrial Facility Committee

Attachment:
Memo, 8/5/43, from
Harlow Lewis, Chief
Materials Control Br.

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WAR PRODUCTION BOARD

WASHINGTON, D. C

IN REPLY REFER TO

August 6, 1943

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C.M.S. W.

and W.F. advised 8/9/43

MEMORANDUM

TO: Headquarters, Army Air Forces, Att: Brig. Gen. F. M. Hopkins

FROM: W. B. Murphy, Chairman, Industrial Facility Committee

SUBJECT: Higgins Aircraft, PRS Project 381-A-1

On June 30, 1943, the Industrial Facility Committee approved the application of Higgins Aircraft Corporation in the amount of $2,313,564.00 for an air processing system required to provide humidity and temperature control necessary for the manufacture of Type C-76 airplanes.

The cancellation of the contract with Higgins to build the C-76 airplane removes the necessity for the air processing system. The only remaining justification for the air processing equipment is for the comfort of the employees. We are advised that applications for air conditioning solely for comfort are prohibited. This prohibition is necessary because refrigeration machinery is not available to take care of comfort requirements. If the Higgins air conditioning system were to be permitted, there would be no basis for denying applications for comfort air conditioning for other plants throughout the country where there are weather conditions similar to those prevailing in New Orleans.

In view of the above, the Industrial Facility Committee has decided to revoke the previous approval of this project and suggest that it be resubmitted in the early months of 1944 when there is some possibility that the prohibition against refrigeration machinery for air conditioning equipment designed for comfort purposes will be removed.

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WAR DEPARTMENT
OFFICE OF THE UNDER SECRETARY
WASHINGTON, D. C.

CONFIDENTIAL

August 6, 1943

Defense Plant Corporation
Lafayette Building
811 Vermont Avenue, N. W.
Washington, D. C.

Gentlemen:

1. This letter agreement is to supplement this Department's letter agreement with Defense Plant Corporation (hereinafter called "DPC") dated November 27, 1942, with respect to the acquisition and establishment by DPC, and the lease to Higgins Aircraft, Incorporated, (hereinafter called "Higgins") of certain plant facilities at or near New Orleans, Louisiana for the production of cargo airplanes for the War Program.

2. In consideration of the execution by DPC of an agreement with Higgins in the form hereto annexed, amending its agreement of lease with Higgins dated December 4, 1942, and covering the acquisition and establishment by DPC, and the lease to Higgins of additional facilities in the maximum amount of $2,313,564, deemed by this Department to be necessary in the interests of national defense, this Department agrees to supplement, and does hereby supplement, its aforesaid letter agreement with DPC dated November 27, 1942, as follows:

(a) promptly upon receipt of evidence of the signing and delivery by DPC of the aforesaid amendment of its agreement of lease, this Department will pay to DPC the sum of $1,156,782, which is one-half of the aforesaid maximum increase approved;

(b) there shall be included in the interest payable under paragraph 1(b) of our aforesaid letter agreement dated November 27, 1942, interest on the expenditures for which payment is made under paragraph 2 (a) hereof, from the date or dates of the making thereof to the date of such payment, and for the purpose of computing such interest and all other interest provided for by said paragraph 1(b), the first expenditures made by DPC in accordance with its aforesaid lease agreement, for which payment has not previously been made by this Department, shall be deemed to be offset by the payment made under paragraph 2 (a) hereof;

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Defense Plant Corporation
(Higgins Aircraft, Inc.)

8/6/43

CONFIDENTIAL

(a) the provisions of paragraph 1(b), paragraph 2 (except subparagraph (b) thereof), and paragraph 3 of our aforesaid letter agreement dated November 27, 1942, shall be applicable to our entire agreement with respect to this project, including this and any subsequent supplements or amendments, except that in subparagraphs (a) and (g) of said paragraph 2 the words and figures Twenty-six Million Forty-eight Thousand Five Hundred Sixty-four Dollars ($26,048,564) shall be substituted for and in place of the words and figures Twenty-three Million Seven Hundred Thirty-five Thousand Dollars ($23,735,000).

3. This letter is signed in triplicate by the War Department, acting under authority of the First War Powers Act, 1941, and Executive Order No. 9001. If the arrangement set forth therein is satisfactory to DPC, its acceptance thereof should be noted on each of the three copies executed by this Department and the bond original and one carbon should be returned, with a certificate of the Secretary (or Assistant Secretary) of DPC with respect to action taken by the Board of Directors of DPC regarding this proposed arrangement, in order that the records of this Department and of the General Accounting Office may be completed.

Approval recommended:

W. F. VOLANDT
Colonel, Air Corps
Chief, Procurement Branch
Materiel Division

W. F. VOLANDT, Colonel, Air Corps
Contracting Officer

Accepted: AUG 20 1943
DEFENSE PLANT CORPORATION
By: [signature]
Vice President
(Official Title)

APPROVED: 26 August 1943
By direction of the Secretary of War

[signature]
Asst. Secretary of War

ROBERT P. PATTERSON
Under Secretary of War

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Maj. Gen. C. P. Echols

11 August 1943

Higgins Aircraft.

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1. While the Higgins project seems to be going along quite satisfactorily at this time it remains a most touchy subject in view of the interest of the Truman Committee.

2. Would like to suggest that it might be desirable for Col. O'Dwyer to make a visit to the plant and have an informal discussion with Mr. Andrew Higgins and his son, Frank, just to make certain that everything is going along O. K. We want to avoid any letters or extraneous conversation from Mr. Higgins to Mr. Truman.

C. S. IRVINE, Col., AC

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HIGGINS INDUSTRIES, INC.

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NEW ORLEANS

Joint letter
to:

August 17, 1943.

1. Defense Plant Corporation,
2. U. S. Army Air Force, Materiel Command,
3. War Production Board.

Gentlemen:-

Due to the cancellation of the contract with the Higgins Aircraft Inc. for the construction of 1,200 cargo aeroplanes, Model C-76, and the award of another contract for 500 planes, Model C-46-A, the use or disposition of the saw mill, veneer plant and equipment, veneer and lumber storage facilities, dry kiln, and wood working equipment now on hand and being completed on the facilities is for consideration.

We consider these facilities needed and essential. If otherwise disposed of and dismantled, there would be a tremendous loss to the tax-payers.

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We hold, and are convinced, that all of the facilities, as built, and as planned, and being completed by the Defense Plant Corporation to construct any type of plane for the Army Air Force will be unique in that any type of plane - all metal - or metal and wood - can be built, and the equipment of this plant for fabrication of molded wood shapes and bonded wood panels, combined with the metal fabricating facilities, will make this plant adaptable, facile, and elastic for any type of plane construction and/or plane modification.

There is no question but what the entire capacity of the saw mill, veneer and wood working equipment can be utilized in the war effort. The ship and boat building plants of Higgins Industries Inc., the world's largest consumers of bonded wood panels and shapes, have been retarded and delayed frequently by inadequate deliveries due to the shortage of veneers and the inability of the plywood manufacturers to adequately supply our needs. The needs of Higgins Industries in building boats would take over fifty per cent of the entire production of the saw mill and veneer facilities at Higgins Aircraft, Micheaud.

I am attaching a copy of a telegram dated August 16th from the Containers Division, War Production Board; also a copy of a telegram from Mr. Shelley Shuster, president of the Great Southern Box Co. of this city. There are several other container manufacturers with plants at New Orleans who have likewise solicited us to furnish them with veneers presently scarce with them.

Higgins Aircraft Inc., under their contract, and for a small fee under the aircraft contract, are ready and anxious to manage and operate these facilities and dispose of the production and cooperate to fill the most vital needs of other war

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Defense Plant Corp.,
U.S.Army Air Force, Materiel Command,
War Production Board,

industries and/or the Army Air Force.

In the event that any of the government agencies to whom this is addressed do not care to have these facilities operated operated in the war effort for any one of their accounts, this is to advise that Higgins Industries Inc. would be very agreeable to take over these facilities and operate them as a private commercial concern, either to purchase same, or to lease same, and Higgins Industries Inc. would further be agreeable to binding themselves to operate these facilities to their full capacity and the productions therefrom to be restricted for disposition, disposal, or sale to concerns engaged in vital war work, any surplus, only, going to commercial firms.

Higgins Industries is prepared to negotiate, acquire, and operate these facilities either by purchase or by lease on any fair or sensible basis.

Respectfully submitted,

HIGGINS INDUSTRIES INC.,

A. J. Higgins, President.

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ANDREW J HIGGINS

HIGGINS AIRCRAFT CORP

REFERRING TO SHELBY SCHUSTER'S CONVERSATION WITH YOU

RELATIVE VENEER FOR WIREBOUND BOXES IT IS CONSIDERED THAT

SUCH VENEER IS HIGHLY ESSENTIAL TO THE WAR EFFORT SINCE CUR-

RENT INDUSTRY REPORTS SHOW 30 PERCENT OF VOLUME RATED AA-1

25 PERCENT AA-2X AND 33 PERCENT AA-3 WITH LARGE PERCENTAGE OF

THE AA-2X AND AA-3 FOR FOODS WHICH ARE ESSENTIAL DIRECTLY OR

INDIRECTLY IN THE PROSECUTION OF THE WAR

ROSWELL C MOWER CONTAINERS DIVISION WAR PRODUCTION BOARD

30-AA-1 25 AA-2X 33AA-3 AA-2X AA-3

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COPY OF TELEGRAM

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ANDREW JACKSON HIGGINS PRESIDENT CONFIDENTIAL
HIGGINS INDUSTRIES INC.

RE OUR CONVERSATION TODAY WE ARE IN POSITION TO CONTRACT WITH YOU IMMEDIATELY FOR 500,000 to 600,000 BOARD MEASURE FEET ROTARY CUT BOX GRADE SINGLE PLY VENEER PER MONTH FOR USE IN MANUFACTURING VITALLY NEEDED WIREBOUND BOXES FOR THE WAR EFFORT. OUR TOTAL REQUIREMENTS OF THIS GRADE ARE 1,400,000 FEET PER MONTH. WIREBOUND BOXES ARE BEING USED FOR PACKING FOODSTUFFS GOING OVERSEAS TO THE ARMED FORCES, LEND LEASE SHIPMENTS, METALLIC BELT LINKS. OTHER ORDNANCE REQUIREMENTS AND OTHER ESSENTIAL FOODS. STOP. OUR PREWAR REQUIREMENTS WERE ALMOST AS GREAT AS THEY ARE TODAY AND OUR POSTWAR REQUIREMENTS WE FIRMLY BELIEVE WILL BE AS LARGE AS THEY ARE AT PRESENT TIME. THE WIREBOUND INDUSTRY AS A WHOLE IS ONLY RUNNING APPROXIMATELY 50 PERCENT CAPACITY AND COULD USE SEVERAL MORE MILLION FEET OF THIS GRADE OF STOCK PER MONTH IF IT WAS AVAILABLE. YOUR CONSIDERATION OF MANUFACTURING THIS STOCK WILL BE A GREAT HELP FOR FURNISHING BOXES VITALLY NEEDED IN THE WAR EFFORT STOP YOUR MANY COURTESIES TODAY WERE GREATLY APPRECIATED.

SHELLEY SCHUSTER, PRESIDENT
GREAT SOUTHERN BOX CO.

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Col. C. J. Harris

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CONFIDENTIAL

August 20, 1943

MEMORANDUM

TO: Louis E. Adams, Assistant Chief
Project Rating Branch
Facilities Bureau

SUBJECT: Higgins Aircraft, Inc.

The Army Air Forces has recommended that the air processing equipment, approved on July 2, 1943, for Higgins Aircraft, Inc., be permitted to go through as scheduled.

This office concurs in this decision, based on the fact that there are, to our knowledge, no other requirements for air conditioning equipment which are more important than the Higgins installation, plus the fact that air conditioning has been granted to the following aircraft plants in the South because of the extreme heat conditions: Bell Aircraft, Marietta, Georgia; Douglas Aircraft, Tulsa, Oklahoma; Douglas Aircraft, Oklahoma City, Oklahoma; Consolidated, Fort Worth, Texas; North American, Dallas, Texas; Fairchild, Burlington, North Carolina, and the Consolidated Modification Center, Tucson, Arizona.

The plywood plant of Higgins is so near completion that it is our belief that there is nothing to be gained through stopping completion of this plant. Yesterday we received a proposal from Higgins, covering the possibility of using this plant for war work. This proposition is being circulated to the interested agencies.

The other project amendments for Higgins Aircraft should be handled in the regular way. We understand that an amendment has been submitted for cafeteria equipment. As stated over the telephone today, this and similar amendments should be handled by you in the usual manner that project amendments for approved projects are processed.

E. S. Murphy, Chairman
Industrial Facility Committee

CC: Mr. H. E. Boulin
WEM:jr

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WAR DEPARTMENT
OFFICE OF THE INSPECTOR GENERAL
WASHINGTON

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24 August 1943.

AIR DIV. AUG 31 1943

SUBJECT: Inspection of the Administration of Cost-Plus-A-Fixed-Fee Contracts with Higgins Aircraft, Inc., near New Orleans, Louisiana.

TO: The Inspector General.

I. DATE OF INSPECTION - INSPECTING OFFICERS.

1. This inspection was made 12-14, 18 August 1943 by Col. Ernest L. Lucas, I.G.D., and Lieut. Col. Joseph J. Imhoff, I.G.D.

II. CONTRACT DATA.

2. Original Contract.

a. Contract No. W-535-AC-34484. The Letter of Intent, dated 2 November 1942, and formal contract, dated 28 November 1942, provided for the manufacture by Higgins Aircraft, Inc., of 1,200 plywood cargo airplanes, type C-76, designed by Curtiss-Wright Corporation, Louisville, Kentucky, and spare parts sets, estimated to cost $162,720,000, exclusive of a fixed fee of $4,881,600. No actual production under the contract has been accomplished; in fact, complete drawings had not been supplied by Curtiss-Wright by 4 August 1943, date on which the contractor was notified by teletype from Wright Field of the contract's cancellation in its entirety for convenience of the Government. This was confirmed by letter of 5 August 1943, directing that all subcontracts, all existing orders and all work under the contract, without exception, be terminated immediately. (See Exhibit "A", Sheets 1 to 3). The instructions relative to stopping work under the contract were not being complied with at the time of inspection. Work on the installation of machinery and equipment in the veneer plant was continuing as was work on the sawmill. In the main plant a group of approximately fifty employees were still making jigs and templates for the C-76 plane, and in addition, other employees were seen to be performing work under the canceled contract.

b. Subcontracts. No subcontracts for sub-assemblies had been awarded by the prime contractor.

3. Other Contracts.

a. W-33-038-AC-298 (11033). Letter Contract of 2 August 1943 authorizes the manufacture of 500 metal airplanes, type C-46A, in

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accordance with Curtiss-Wright Specification No. 20-F-16 (Revision L) plus spare parts and engineering data at an estimated cost of $130,200,000, exclusive of a fixed fee not to exceed 4%. (See Exhibit "B", Sheets 1 and 2). Authority to transfer commitments for materials, facilities and supplies now on hand and on order under Contract W-535-AC-34484 to Contract W-33-038-AC-298 (11038) where usable was granted by the Midwest Procurement District 9 August 1943. No expenditures had been made under this contract at the time of this inspection.

b. Subcontract. The Curtiss-Wright Corporation awarded Higgins Aircraft, Inc. a subcontract via Letter of Intent, dated 30 July 1943, for the manufacture of 350 sets of outer wing panels for the C-76A cargo airplane at an estimated cost of $9,043,290, exclusive of a fixed fee of 4% amounting to $361,731.60. It is understood that this fee is to be paid in addition to the prime contractor's original fixed fee, and if that is the case, it is an example of pyramiding fees which will result in the Government's making payment of $361,731.60 more than would be the case if the work were done by Curtiss-Wright. It illustrates the fallacy of the Government's paying a fee predicated on its own contribution (percentage times estimated cost, of which the financing and all risks are assumed by the Government) instead of compensating a contractor on the basis of actual services rendered.

III. THE PLANT.

4. a. The plant consists of a masonry main building of one story and mezzanine, 1,843,400 sq. ft., a two-story masonry office building, 199,000 sq. ft., and other buildings, 261,256 sq. ft. Plant facilities including all land buildings, equipment, etc., the estimated value of which is $23,700,000, are leased by Higgins Aircraft, Inc. from the Defense Plant Corporation for one dollar a year. Defense Plant Corporation facilities and valuations are as follows: flying field (three runways 150 ft. x 5,500 ft.), $3,500,000; land and improvements, $1,000,000; buildings, $11,000,000; heavy machinery and equipment, $7,000,000; portable tools and equipment, $200,000.

b. Plant construction is generally of a much higher type than the proposed functional use requires, and is, therefore, not in conformity with the spirit of Directive for War-Time Construction, of 20 May 1942, signed by the Secretaries of War and Navy, and the Chairman of the War Production Board, and applying to all War Department-owned or sponsored projects. For example, extensive use of air conditioning is being provided despite the provision in the aforementioned directive to the effect that "air conditioning may be used only where manufacturing processes make its use essential and not for the comfort or to increase efficiency of personnel".

c. The original scheduled completion date of the plant was 1 March 1943; however, the latest estimated completion is 1 January 1944.

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[redacted].

[redacted] The Army Resident Representative (acting) since 12 June 1943 has been Captain Raymond Schuermann, A.C. The Resident Auditor since 9 December 1942 has been Charles G. Hallinan. Edward H. [redacted] is the Acting Chief Inspector, and Dick R. Williams is the Cost Analyst. Army Air Forces personnel on the project total 20.

b. Willis D. Wine has been assigned by General Accounting Office as its representative on the project.

6. a. Top ranking officials of Higgins Aircraft, Inc. are: Andrew J. Higgins, President; John H. Jouett, Executive Vice President, and Frank O. Higgins, Vice President in charge of production. A total of 1,483 employees of Higgins Aircraft, Inc. were on the project of which 511 were office and clerical, and 583 were trainees.

b. Turner-Raymond are constructors under Defense Plant Corporation Contract PLANCOR No. 1569.

V. AUDIT AND FISCAL STATUS.

7. As of 3 August 1943 costs submitted for audit were $777,032.97. Vouchers paid by Finance Officer at New Orleans were $684,682.58, and fixed fee paid amounted to $13,588.84. Payments by the Finance Officer are being made promptly. No audit inspections had been made by higher authority. No advance fund has been made available by the Government. Application for an advance has been made by Higgins Aircraft, Inc., however, it was denied. The financial statement of the company as of 30 June 1943 shows its capital investment to be only $100,000.

8. A proposed detailed accounting procedure of the contractor has not been submitted by the contractor. No proposed detailed audit procedure has been prepared by the Resident Auditor and submitted to higher authority for approval. Salaries of contractor employees had not been approved by the Contracting Officer's representative at the time of inspection. Wage scales approved by the Department of Labor had been requested but had not been received at the time of the visit to this plant. The contractor's cost system had not been approved.

9. The Resident Auditor makes a field time check of each of the contractor's departments once a week. Time clocks are used. Payment to employees is by check and is witnessed by a Government employee. Students in training at three schools in New Orleans are also field checked once a week at the time of payment. This is not considered adequate for the reason of the added incentive for the students' presence at that time plus the additional objection that the check may be anticipated.

10. a. Purchase orders are not given prior approval by any representative of the Government. The project Cost Analyst makes a post audit of purchases and notifies the Resident Auditor of recommended exceptions. The contractor's stated policy is to make award

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to the bidder submitting the lowest complete bid. This has resulted in a number of exceptions being taken by both the Cost Analyst and the General Accounting Office Resident Representative. A review of the contractor's purchase order files revealed instances where orders were split solely for the purpose of dividing the business among vendors; however, it was noted that in a number of cases where substantial savings to the Government could have been made by making award on the basis of lowest prices quoted on separate items the contractor chose to place the business on the basis of the lowest complete or most nearly complete bid. An example is Purchase Order No. 10007, placed with Dixie Mill Supply Company, for small tools in the amount of $4,744.80. In the case of 150 of the 328 items, C. T. Patterson Co., Inc., was low, but in spite of this received no part of the order. In the case of another invitation to bid on small tools identical bids were received from each of four bidders on each of ten items. Here no savings to the Government resulted; however, four purchase orders (10,145, 10,146, 10,147 and 10,148), one to each of the bidders, were awarded. This procedure was again followed in Purchase Orders No. 10,122, 10,123, 10,124 and 10,125. The contractor's standard form "Request for Quotation" contains the following provision: "(1) Higgins Aircraft, Inc. reserves the right to reject any or all bids, to waive any informality in bids and, unless otherwise specified by bidder, to accept any item in the bid."

b. Reasons given by the Army Air Forces representatives for their failure to insist on the contractor adhering to sound business principles as regards his purchasing procedure was that they were denied the necessary authority to take adequate measures to protect the Public interests and lacked sufficient instructions as to procedures. The correctness of these statements was verified by the Inspecting Officers. In a weekly report to the Midwestern Procurement District the Cost Analyst raised the following question: "4. Purchase order has been issued for 50,000 B.F. of Douglas Fir "B" or better, for use in 'tooling and scaffolding', scaffolds to be erected around large jigs. When Cost Analyst questioned use of such timber for purpose described it was stated that fir was chosen because of increased strength for weight and ease of moving scaffolding, because of its being light weight as compared to cheaper material such as pine or gum. As scaffolds are to be mounted on casters, creating mobility, and a saving of approximately 30% can be accomplished by use of heavier material mentioned above, Cost Analyst still questions such purchase and requests advice on course to pursue." In reply the Midwestern Procurement District gave the following instructions: "1. In answer to the question raised in paragraph 4 . . . . it is suggested that the Cost Analyst bear in mind that the contractor's judgment must be largely accepted on purchasing. The Cost Analyst can make suggestions; however, the contractor has been commissioned to do the work, and therefore is considered capable, and his judgment must be accepted. It is well for the Cost Analyst to investigate such matters and make suggestions, but the suggestions can be only in the form of reminders and the contractor cannot be

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spread to act upon these suggestions." (For copy of weekly report and letter in reply, see Exhibit "C", Sheets 1 and 2). In the opinion of the Inspecting Officers, the view expressed in the Midwestern Procurement District Office letter is in contradiction with War Department policies. To exercise effective control over the expenditure of Public Funds on cost-plus-a-fixed-fee projects, it is considered essential that the contract administrators have no doubt as regards their primary mission to adequately safeguard the Government's interests and, further, that ample authority be delegated to accomplish that mission.

11. a. During the month of July a total of 39 informal exceptions amounting to $10,090.88 were reported to the Army Air Forces Resident Auditor by the General Accounting Office Resident Representative. The breakdown is as follows:

	Classification	Number of Inspections	Total Amount
(1)	Information desired with respect to disposition of material and propriety of charge.	25	$ 3,409.18
(2)	Vendor's original bid modified	2	25.63
(3)	Excess Costs	7	84.16
(4)	Quotations not obtained from other vendors	1	518.53
(5)	Alteration of original expense voucher	1	82.47
(6)	Telephone charges not prorated between contractor and Defense Plant Corporation	3	5,970.91
		39	$10,090.88

b. A contributory cause to the large number of exceptions is an apparent lack of cooperation between the General Accounting Office and the Army Air Forces representatives. This condition should be materially improved if the contractor as well as the Army Air Forces Resident Auditor would prepare and have approved respectively their detailed accounting and audit procedures. A number of exceptions were reviewed by the Inspecting Officers and in each case the action taken by the General Accounting Office Resident Representative appeared justified. The Inspecting Officers detected a feeling of resentment on the part of the Army Air Forces Resident Auditor and the contractor's audit and administrative personnel over the presence of the General Accounting Office representative, which is not in keeping with the best interests of the Service and is contrary to principles set forth in SPFO-Appendix No. 2 to SPBPA-25A (9 July 1943) - "Relations of War Department auditors with General Accounting Office project auditors in connection with cost-plus-a-fixed-fee contracts".

12. a. Storage, safeguarding and accounting for Government-furnished equipment is considered adequate and satisfactory. Separate

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property records of Signal Corps and Army Air Forces equipment are maintained, and the checks made showed them to be current, accurate, and orderly.

b. The storage of contractor supplies is generally satisfactory. While some material is not as centrally located as desirable, corrective steps are contemplated. Test checks indicate contractor's property records on supplies, tools and equipment are current and in accordance with Army Air Forces procedure.

VI. MISCELLANEOUS.

13. a. Responsibility for the administration of plant protection is currently in the hands of the Defense Plant Corporation. It is contemplated to transfer these duties to the Air Forces at the time the plant is turned over. Higgins Aircraft at present has six guards whose duties are limited to the Administration Building and safeguarding Government-furnished equipment stores.

b. The control of visitors into the plant, as observed by the Inspecting Officers, did not appear to be adequate in view of the strategic importance of the plant.

14. A review of approved and reimbursed expense accounts of Higgins' employees and officials showed instances in which excessive charges had been made. An example is Expense Account T. E. No. 9291 for George Unsted, Director of Plant Security, attached as Exhibit "D", which shows a number of excessive claims including charges of $10.40 for three meals on 2 February 1943.

15. a. Contractor employees currently receiving $10,000 or more per annum are as follows:

Name	Position	Current Salary	Previous Salary
*John L. Jouett	Vice President	$20,000	$20,000
George A. Allward	Chief Aeronautical Engr.	12,000	7,135
Russel F. Hardy	Dayton Representative	10,000	8,700
Paul H. Beall	Chief of Production	10,000	8,050

*Note: Entire salary is not charged to contract.

b. Inasmuch as Mr. Jouett is a corporate executive officer of Higgins Aircraft, Inc., the question arises as to whether any part of his salary may properly be considered as an item for reimbursement. Mr. Jouett is, in addition, an officer of Higgins Industries and is President of Ballanca Aircraft Corporation.

16. Sub-offices are maintained in Dayton, Ohio, and Washington, D. C. Informal exception has been taken by the General Accounting Office

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Resident Representative to expenses incurred at these offices pending a showing of the useful services performed thereat. On visiting the Washington office, explanation was made to the Inspecting Officers that from five to ten percent of the expenses incurred for expediting services by this office were proposed as chargeable to this contract, the remainder being for the account of Defense Plant Corporation. The Washington representative, C. M. Dinkins, Attorney, advised that 75% of his time was devoted to Higgins Aircraft, Inc. activities and 25% to his own business. A detailed accounting is not made of time spent on activities chargeable to this contract.

17. a. Evening and afternoon classes for trainees in such subjects as blueprint reading, instrument mechanics, sheet metal work and inspection are conducted by members of the Higgins technical staff at three public schools in New Orleans. Successful completion of a course of study of 432 hours, for which students are paid at the rate of $0.50 per hour is required for employment. Upon completion of this general pre-employment course the trainees' further and more specialised training at the plant is called for, during which period the trainees earn $0.60, $0.80 or $0.90 per hour.

b. An inspection of that phase of the training conducted at the plant revealed it to be a complete waste of time and public money. Trainees were given an assignment of oiling and cleaning machines every morning, not yet placed in operating condition, which required but a few minutes. After that, the students sit around with nothing to do but look at machine parts catalogs, textbooks or "visit with one another" until time to "ring out" on the time clock. No organized schedule of instruction was in effect. The complete lack of an instructional program for these trainees is not only inexcusable from the standpoint of manpower and money waste, but is considered extremely detrimental from the standpoint of the bad habits formed. On making request for such lesson material as had been prepared for this training, those in charge produced "question and answer" sheets which were then in circulation and which, in the opinion of the Inspectors, were extremely unsatisfactory from a pedagogic standpoint. (See Exhibit "E", Sheets 1 - 4).

18. Aggressive measures were being taken by Higgins officials to prevent the moving away from this plant of any machinery on hand for the C-76 plywood plane and which is not required for production of the C-46 metal plane. It was reported that all such machinery is being frozen by the War Production Board pending a determination of machinery necessary for production under the new contract.

19. a. A large number of the exceptions taken by the Army Air Forces Cost Analyst and the General Accounting Office Resident Representative had to do with apparent favoritism in connection with orders placed with Dixie Mill Supply Company. A survey made by the Contracting Officer revealed approximately 48% of the dollar value of purchase orders ($189,649.43) for hardware, tools, equipment, nuts, bolts, screws, etc.,

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had been placed with this firm. (See Exhibit "F"). In the case of several purchases, it was observed by the Inspecting Officers that this company had been favored with the order in spite of lower prices quoted by others.

b. The tendency of the Higgins Purchasing Department to place a large portion of the orders with the Dixie Mill Supply Company is also noted in the case of its purchases of heavy machinery and equipment amounting to approximately $2,500,000 for the Defense Plant Corporation. As the bulk of the Army Air Forces and Defense Plant Corporation machinery and equipment was procured on the basis of the manufacturers' specifications, and shipment was made direct from the manufacturers' plant, it would appear that the Government received little or no return for the jobbers' commission obtained by this firm and included in the purchase price paid by the Government. Two employees of the Dixie Mill Supply Company are on loan to Higgins Aircraft, Inc. They are Milton Chatry, Director of Purchases, and E. W. Holmes, a purchasing agent.

20. Alien Employees. The contractor has five alien employees without the required permission of the Secretary of War. Immediate steps should be taken by the contractor to furnish personal histories of each individual with applications for authorization through channels to the Under Secretary of War.

VII. RECOMMENDATIONS.

21. It is recommended:

a. The contractor be required to stop all work under Contract W-535-AC-34484. (Par. 2)

b. Inquiry be made into fees paid for subcontracted wing panels to insure that payment of no more than an equitable amount is made to either prime or subcontractor. (Par. 3 b)

c. Steps be taken by proper authority to require that further construction at this plant comply with the principle of "Spartan Simplicity". (Par. 4 b)

d. Further work on the air conditioning of the plant be stopped. (Par. 4 b)

e. Accounting and audit procedures of contractor and Resident Auditor, respectively, be prepared and submitted for required approval. (Par. 8)

f. Salaries of contractor employees be submitted for approval or disapproval. (Par. 8)

g. Field checks of trainees be made at irregular and unannounced times. (Par. 9)

h. Effective control measures be applied to contractor's purchasing procedure. (Pars. 10 a and 19)

i. Adequate instructions and authority be given representatives on project by higher authority to enable them to properly protect the Government interests. (Par. 10 b)

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j. Steps be taken to bring about better coordination between contractor, Resident Auditor and General Accounting Office Resident Representative. (Par. 11)

k. Necessary steps be taken to insure that plant protection procedure satisfactorily controls visitors to the plant. (Par. 13)

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l. Expense accounts of contractor officials and employees be more closely scrutinized. (Par. 14)

m. Salary of Mr. Jouett be paid out of contractor's fee as a non-reimbursable administrative overhead cost. (Par. 15 b)

n. Detailed accounting of activities, time and expenses of sub-offices chargeable to Army Air Forces contracts be made. (Par. 16)

o. A thorough reorganization be made of the plant training program. (Par. 17)

p. Quantities called for in bid invitations be split into separate purchase orders in those cases where net savings to the Government will result. (Par. 19)

q. Sizeable purchases be procured directly from basic sources of supply unless services rendered by intermediate jobbers justify their included profits. (Par. 19)

r. Immediate steps should be taken by the contractor to obtain authorization of the Secretary of War for the employment of aliens. (Par. 20)

Ernest L. Lucas
ERNEST L. LUCAS,
Colonel, I.G.D.

Joseph J. Imhoff
JOSEPH J. IMHOFF,
Lieut. Col., I.G.D.

6 Inclosures:
Exhibit "A" - Letter - 8/3/43 and Telegram - 8/4/43.
Exhibit "B" - Contract with Higgins Aircraft, Inc.
Exhibit "C" - Weekly Report and Letter in Reply.
Exhibit "D" - Travel Authorization and Expense Account.
Exhibit "E" - Trainee Question and Answer Sheets.
Exhibit "F" - 2nd Ind. - 7/13/43.

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HIGGINS INDUSTRIES, INC.
New Orleans

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Ref: [illegible]

September 15, 1943

Defense Plant Corporation
Army Air Corps, Material Command
Dayton, Ohio
War Production Board
Washington, D. C.

Re: Plancor 1569

Gentlemen:

Due to the cancellation by the Army Air Forces of Contract No. W 535 ac 34484 (9896) for C-76 wooden cargo airplanes and its substitution with a new contract calling for all metal C-46-A cargo planes it becomes apparent that the wood working facilities that have been created under Plancor 1569 could no longer be utilized for the purpose for which they were intended and that it would be in the interest of national defense to make these facilities available for other war activities which can use the wood materials that can be produced with such facilities.

In the wooden boat building end of our industry we are using an enormous amount of plywood made of foreign and domestic woods and at present we are obtaining a major part of this plywood from remote sources such as Grand Rapids, Michigan, and the northwest Pacific coast, thereby unnecessarily taxing the railroad facilities of the country; furthermore, in order to produce plywood at Grand Rapids, Michigan, the railroads are further taxed with carrying veneer logs from the ports of arrival such as New Orleans, Louisiana, and Mobile, Alabama, to the point of fabrication of the plywood. In other instances veneer is being fabricated at Mobile, transported by rail to the plywood plants located in the north, and then shipped again back south to us in New Orleans for final use.

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our own consumption of enormous quantities of plywood there is a great shortage of veneer used by box manufacturers in New Orleans such as the Great Southern Box Co. These veneers are made of domestic woods abundant in the New Orleans area. The shortage of this material is well known to the War Production Board; we have been approached by packing box manufacturers who have offered us contracts for millions of feet of gun veneer in case we succeed in putting the facilities created at Michaud in operation.

Over and above what we stated so far we have been approached by the Army Air Forces with an experimental inquiry for a plywood moulded boat for aircraft rescue work. We know of no plant in the United States outside of the one at Michaud that could consider such an undertaking. If arrangements are made to keep the plant in its entirety we could undertake to build these boats.

We are attaching hereto a report prepared by our factory superintendent wherein it is brought out the advantages of keeping all the woodworking facilities erected at Michaud as one unit so that a multitude of items which are necessary for the war effort can be manufactured there.

Below we are making several tentative proposals for the acquisition of the facilities created for the manufacture of wood products at Michaud such as:

SAWMILL
VENEER AND PLYWOOD PLANT
DRY KILN
LUMBER STORAGE
LOADING AND UNLOADING FACILITIES
AUTO-CLAVES
WOODWORKING MACHINE TOOLS THAT CANNOT BE CONVERTED FOR METAL WORK
LAND on which the facilities are situated with sufficient area adjacent to it necessary for an operation such as we are proposing and not interfering with the metal cargo plane production for the Army Air Forces contract for metal cargo planes, or the flying fields

Proposition No. 1 - We propose to buy the hereinabove mentioned properties at an outright fixed price of $750,000 payable in monthly installments of 1-1/2% of the total volume of sales of the products manufactured at the plant. When the total of these percentage payments reaches the amount of $750,000.00, title to the plant and plant facilities and land should then pass to Higgins Industries, Inc.

Proposition No. 2 - To rent the hereinabove enumerated properties for a period of 25 years at a fixed rental of $30,000.00 per year, the government to retain title to the property and the rental contract being subject to cancellation on the failure of meeting three (3) consecutive monthly rental payments of $2,500.00 each.

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~~Proposition No. 2~~ 3 - To buy outright all the properties hereinabove described for a total of $400,000.00 of which $50,000 shall be payable in cash upon the conclusion of the sale and the balance to be secured by mortgage payable in yearly installments of $17,500.00 each for 20 years plus interest on the unliquidated balance at the rate of 1-1/2% per year.

Proposition No. 4 - To buy outright the above enumerated properties at a price of $700,000.00 payable $50,000.00 in cash while the balance is to be paid from the depreciation and amortization established for the plant and plant facilities providing that the Treasury Department certifies these facilities as necessary for the prosecution of the war and issues a necessity certificate allowing the plant's depreciation and amortization over a period of 60 months or the duration of the war, whichever occurs sooner. Under this proposition the entire selling price would be repaid to the government within a short period of time at the termination of the war or, at the latest, within 60 months from the date of the acquisition.

We ask that consideration be given to the propositions hereinabove made and we be advised which, if any, is acceptable to you.

Very truly yours,

HIGGINS INDUSTRIES, INC.

M. Gottesman
Secretary-Treasurer

MG:N

Encl.

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Mr. Donald Jay Berry

Mr. Frank O. Higgins

August 21, 1945

Woodworking Facilities

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The following is a status report of the integrated departments whose work direction is under my supervision and recommendations for use of the facilities and a comparison of this group with existing plants elsewhere.

The first unit in our sequence of operations is our Saw Mill equipment (this, however, is not a part of the writer's operational set up). This facility is rapidly nearing completion and is a very necessary function in Veneer Manufacturing operations. Flitches are to be made here for the Veneer Mill and more careful and exact control can be exercised in our manufacture of these items. The cutting of flitches for quarter sliced veneer is one of the main factors for quality for this type of veneer. A time element must be considered here as flitches are not an item easily obtainable on the open market. The length of time elapsing from removal of logs from the pond to cutting of flitches to actual slicing of veneer should be as short as possible, to prevent checking, twisting and general deterioration of the wood itself. These conditions are present when flitches are shipped long distances and during storage periods at various points of manufacture. Further use of the Saw Mill can be made to work veneer logs that will not make quality veneer into lumber products. Peeler cores from the veneer lathe can be also made into lumber. It can easily be seen how the rework of down grade logs and lathe cores can reflect upon the economy of operation of the Veneer Mill. Present Veneer Mill operations are now entering a highly competetive state with respect to price and materials produced solely on a price basis usually are inferior quality and rejections are high, thus costly. Our present set up is such that we can control quality through the products in its entirety from log to finished aircraft part. Higgins Aircraft is the only complete plant facility equipped to handle a wood product 100% in its processes. The value of this controlled supervision is inestimable.

The two most important factors for the successful completion of wood aircraft products (or of any products), is capable engineering design and superior workmanship. The Plywood Aircraft Program has taken a severe setback as a result of poor design and poor workmanship. Here at Higgins we have a most capable design group, backed by Mr. Geo. A. Allward, our Chief Engineer, who is one of the world's foremost engineers, who has been engaged in the design and research of Plywood Aircraft. A capable organization of key men is being built up for the shops, the best equipment made has been purchased and delivered and is now ready for operation. The functions of our

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engineering and manufacturing departments can be predicted as a highly successful operation.

In the Veneer Mill, we have the latest type of precision veneer cutting equipment. Tolerances on thickness can be maintained. This is important for good bonding of resin glued plywood. The veneer drying equipment has been chosen carefully as moisture content of the veneer used in these types of plywood must be exact. Veneer Jointing and Splicing machines are precision built and are highly productive. The Multiplaten Hot Plate Plywood Press has productive and other features for producing aircraft plywood existant in no other press in the country. The plant layout has been arranged for rapid production, conveying equipment is installed to reduce labor costs, yet quality will not be sacrificed to gain this rapid production.

Higgins Industries' experience with production shut downs as a result from poor plywood deliveries must not occur again. The Veneer & Plywood Plant must be put in operation as soon as possible.

At the Main Factory building, we have the latest type of dry kiln equipment. These kilns are arranged for fast loading and higher kiln production for our lumber products will reflect in the overall time element of any finished part. Exact moisture content is most important and A.A.F. Specifications are very rigid on this point. Our lumber products leave the dry kiln and enter the factory building which is under complete humidity control. Humidity control in the factory will keep our lumber and plywood parts within a range of 8 - 12% moisture content. This is required by A.A.F. for dimensional stability and weight control. The equilibrium moisture content of surrounding air in the factory building will be kept within this range.

Our Glue Laminating Department is equipped for electronic heating of resin glue lines. We will not use cold resin or casein glues for large laminates as a successful product cannot be made using these media. Our press capacity for a large laminate is 10-inches by 12-inches by 70-feet. The possibilities here for parts of this nature are unlimited.

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Our Detail Mill incorporates the latest type equipment, consisting of self feed rip saws, hi-speed moulders, saw tables of all sizes and types and a router and shaper section unequaled by any other existing plant in America. All machines are equipped for a maximum safety of operation and all woodworking machines are serviced by the most modern dust collecting system ever designed.

As a whole, we are equipped to build a complete airplane in wood and component parts of wood aircraft in any quantity or other diversified wood products.

The Wood Manufacturing Department is now engaged in the making of furniture to be used in the plant proper.

Donald Jay Derry,

/mm

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21 September 1943

Chief, Procurement Division

Engineering Service Contract with Curtiss-Wright for Data to be Furnished Higgins for Production C-46 Airplane

452.1-C 46-

1. At a meeting held in the Materiel Command on September 1943, it was decided by Major General Arnold that an engineering assistance contract would be drawn between the Curtiss-Wright Corporation and the Government covering engineering assistance to be furnished Higgins Aircraft for the manufacture of C-46 airplanes.

2. As a result of this decision, it is directed that Procurement Division take necessary action to initiate this contract which should specify among other things that the engineering data and production data to be furnished Higgins shall be identical to that used by Curtiss-Wright in the construction of the subject airplane to insure that the airplanes fabricated by the two companies are identical.

3. Transmitted herewith are two copies of Higgins Aircraft letter FOHshen dated 18 September 1943 and enclosures thereto listing engineering and production data requested by Higgins for the construction of the subject airplane. This request should form the basis for the final data to be furnished by Curtiss to the Government for use by Higgins in the construction of the C-46 airplane.

4. The subject agreement should be written on a cost plus no fee basis, if Curtiss will not agree to a fixed price contract.

R. M. HANSEN,
Colonel, Air Corps
Acting Chief, Production
Engineering Section

Att:
2 Cys ltr FOHshen
dated 9/18/43 and
enclosures

COM. GEN.	
TECH. EXC.	
ADM. EXC.	
C. O.	
BUD. OFF.	
EXP. ENG.	
CONTRACT	
INSP.	
PROD. DIV.	
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Office of the District Supervisor, AAF, Materiel Command, Midwestern Procurement District, Municipal Airport, Wichita 1, Kansas. 28 September 1943.

To: Commanding General, AAF Materiel Command, Wright Field, Dayton, Ohio.
Attention: Major [illegible]

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1. The following reply is made to those recommendations contained in subject Inspector General's report dated 24 August 1943 with the exception of paragraphs 21.e., j., and n. [illegible] the Budget + Naval Expenditures

a. ~~Reference~~ Recommendation 21.a.: "The contractor be required to stop all work under Contract # 535 ac-34484".

~~Reply:~~ The cancellation notices of Contract W 535 ac-34484 for C-76 airplanes must be construed in the light of all circumstances surrounding such termination and the concurrent placing with Higgins Aircraft, Inc., of another contract to build C-46 airplanes, a metal prototype of the C-76. On 5 August 1943, the day following receipt of the telegraphic notice of cancellation, Higgins Aircraft, Inc., wired the Contracting Officer, Wright Field: "IN ORDER TO EXPEDITE PERFORMANCE OF CONTRACT NO. 33-038-AC-298 AND IN ORDER TO REDUCE TERMINATION EXPENSE OF CONTRACT NO. W 535 AC-34484 WE REQUEST AUTHORITY TO TRANSFER COMMITMENTS FOR MATERIALS, FACILITIES AND SUPPLIES NOW ON HAND AND ON ORDER THAT WILL BE USABLE ON NEW CONTRACT NO. W 33-038 AC-298 FROM CONTRACT NO. W535 AC-34484." On 8 August 1943, this message was relayed to Midwestern Procurement District Supervisor by Wright Field for necessary action. On investigation the District Contracting Officer found that a large portion of contractor's outstanding commitments under Contract W 535 ac-34484 could be used in the performance of Contract W 33-038-AC-298; that if such commitment could be transferred from the terminated contract to the new contract, termination costs incident to the cancellation of such commitment would be avoided and a substantial savings to the Government result; that if the outstanding commitments under the terminated contract usable in the performance of the new contract were canceled, Higgins would lose its priority with the vendors holding such commitments even though the same items were immediately ordered from the same vendors under purchase orders issued under the new contract; that this would delay performance of the new contract; that the best interests of the Government would be served if Higgins were permitted to transfer those usable commitments outstanding under the terminated contract to the new contract. The determination of which outstanding commitments could be so used could not be made within a day or two. Some 20,000 to 30,000 purchase orders had to be examined by contractor to determine whether the items called for therein could be used under the new contract. This required a reasonable length of time. It was furthermore impossible for Higgins

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to lay off immediately all its employees performing work under the terminated contract because: (1) Higgins required those employees to perform its new contract and once laid off such employees would probably not be available to Higgins for re-hiring, and (2) the Louisiana State law requires two weeks notice to all employees.

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In view of all pertinent facts, theDistrict Contracting Officer authorized Higgins to transfer usable commitments from the terminated contract to the new contract. This necessarily implied the granting of a reasonable length of time in which to accomplish this end. To further safeguard the interests of the Government, a representative of the District Contracting Officer was sent to Higgins on or about 14 August 1943. The report of this representative satisfied the District Contracting Officer that the interests of the Government were being adequately protected during the transition period.

It must be realized that an operation as large as the Higgins operation cannot overnight be stopped and changed into another production program. It is the opinion of the District Contracting Officer that work under the terminated contract was stopped as quickly as possible in view of the magnitude of the operation. Any unwarranted continuance of work under the terminated contract will not be a reimbursable item of cost to the contractor, and the contracting officer in charge of the termination has been so advised and requested to scrutinize such costs carefully.

b. ~~Reference~~ Recommendation 21.b.: "Inquiry be made into fees paid for subcontracted wing panels to insure that payment of no more than an equitable amount is made to either prime or subcontractor".

~~Reply:~~ During the negotiation of any Government contract, the Government negotiators are directed to take into consideration the fee that will be paid by the prime contractor on any major portion of the work that is to be subcontracted. It is the announced policy of the War Department and Congress to encourage subcontracting to the greatest possible extent. Art. 3 (g) of the present standard form of CPFF contract provides in part: "In fixing the amount of the fee called for under the terms of par. (a) of this Article, the parties have understood and agreed that in view of the necessity for increasing war production through subcontracting, and in order to effectively carry out this contract, the contractor will enter into subcontracts for the performance by subcontractors of parts of the work to be performed in connection with the supplies or services to be furnished hereunder. Subject to the provisions of paragraph (f) of this Article and to the provisions of Article 27 hereof, any amounts paid to subcontractors under such subcontracts including any fees or profits to subcontractors for which such subcontracts may provide, shall constitute allowable items of cost

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* * * without any reduction by reason thereof in the amount of the contractor's fee called for under the terms of said paragraph (a)."

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Although a copy of the Curtiss-Wright Corporation prime contract is not available, it is believed that the above wording is contained in said contract. If this is true, it is understood that the understanding of the District Contracting Officer that the General Accounting Office will not require any adjustments in the fixed fee in the case of subcontracting which receives the approval of the Contracting Officer, given in good faith. The Contracting Officer located at the Curtiss-Wright prime plant would be responsible for giving such approval. If such approval cannot be given, a procedure is set up by directive whereby that Contracting Officer would determine the amount of reduction that should be made to the primecontractor's fixed fee and take necessary steps to see that an appropriate change order is issued to the contract.

c. Reference Recommendation 21.c.: "Steps be taken by proper authority to require that further construction at this plant comply with the principle of 'Spartan Simplicity'".

Reply: This office had no connection with the design or specifications of this plant. It is our information that the same was approved by Headquarters, Materiel Command, Defense Plant Corporation and War Production Board.

d. Reference Recommendation 21.d.: "Further work on the air conditioning of the plant be stopped."

Reply: Statement contained in paragraph c. above applicable. The plant was originally designed for the manufacture of C-76 wooden airplanes. Such wood construction required a temperature and humidity control, and the air conditioning system was essential for this purpose and was not for personal comfort. The contract for this project was recently cancelled; however, the construction and installation of the air conditioning equipment had progressed to the point where the elimination of this equipment and the cancellation of orders minimized the desirability of eliminating the air conditioning system and substituting a heating and ventilation system. An investigation and report to this effect has heretofore been made by Headquarters, Materiel Command.

e. Reference Recommendation 21.f.: "Salaries of contractor employees be submitted for approval or disapproval."

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Reply: By Executive Order 9250, the wage and salary stabilization program was placed under the supervision and direction of the Economic Stabilization Director, the National War Labor Board and the Commissioner of Internal Revenue. Findings, rules and regulations made by these bodies are specifically made binding on contracting officers who are precluded from approving anything contrary thereto. To secure the approval of the National War Labor Board and the Commissioner of Internal Revenue takes time and such approval should be secured prior to action by the contracting officer in approving or disapproving contractor's wages and salaries. In respect to the Higgins Aircraft, Inc., the Resident Contracting Officer has, pursuant to directives of higher authority, frequently demanded from the contractor its wage and salary plans and scales or rates of compensation. Contractor has not been able to comply with such demands due to rapid expansion and continual changes in job classifications and due to the fact that approval of the National War Labor Board and Treasury Department of any tentative plans and rates of pay submitted has not been received. The Resident Contracting Officer has, however, been instructed to attend to such approval at the earliest possible date.

f. Reference Recommendation 21.g.: "Field checks of trainees be made at irregular and unannounced times."

Reply: The condition complained of has been corrected and such checks are now being made at irregular and unannounced times.

g. Reference Recommendation 21.h.: "Effective control measures be applied to contractor's purchasing procedure."

Reply: Par. 10a of the Inspector General's report recites that contractor's purchase orders are not given prior approval by any representative of the Government. This is true. Under the terms of Contract W 535 ac-34484 and any standard form CPFF contract, the contractor is made responsible for meeting delivery schedules and for the performance of the contract. The contractor is obligated to purchase materials and supplies in the performance of such contract at the most advantageous prices. If the contractor complies with this requirement and pays for the supplies or services which are reasonable and necessary in the performance of the contract, he then submits his claim for reimbursement of such costs to the Government. The contracting officer at this stage approves or disapproves the costs claimed as allowable or nonallowable items of cost under the terms of the contract. Art. 27 of said contract provides that no contract shall be made by the contractor with any other party for furnishing any of the completed or substantially completed articles, spare parts or work called for without the

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written approval of the contracting officer. This requirement, for convenience, is termed as the approval of subcontracts and pursuant thereto contracting officers in the Midwestern Procurement District approve all CPFF contractors' purchases calling for outside production or purchase labor furnished in accordance with the prime contractors' drawings or blueprints. This approval, however, is not a prior approval and neither the terms of the contract nor the best interests of the Government require that such approval be prior. If prior approval by the Army were required, the Army would in fact be running the contractor's purchasing department and the contractor thereby would be relieved of the responsibility of meeting production schedules.

As to purchases of raw materials, standard and commercial items not falling within the definition of a subcontract above, directives of the Materiel Command require the contracting officer to spot check contractor's purchases after or concurrently with the time the order is placed to determine whether the contracting firm is buying such materials and items at the best prices available. Again it is impossible for the Army to give prior approval to such purchases since prior approval would mean that the Army, in fact, would be running the contractor's purchasing department, material control department, etc. The terms of CPFF contract clearly intend that the contractor shall be primarily responsible for performing the contract and that the Army supervision shall be a possible check prior to reimbursement by the Government to ascertain the interests of the Government are being properly safeguarded. To assist Resident Contracting Officers in the inspection of purchases and approval of subcontracts, cost analysts are placed in plants.

It is not believed to be the policy of any contractor always to place a purchase order or subcontract with the lowest bidder. Consideration such as the vendor's or subcontractor's ability to perform, the quality of work, delivery schedule, etc., must be taken into consideration or the best interests of the Government are not safeguarded. The function of the Resident Contracting Officer is to determine that the prices paid are the best available in view of all the circumstances, and once this determination has been made ~~bonafidely~~ by the contracting officer, it is not believed to be the function of the General Accounting Office to question the contracting officer's findings. The General Accounting Office is presumably bound by the terms of the contract which do not require the contractor to secure bids on every purchase. Even negotiators of direct Government contracts acting in the name of the Government are not required to secure bids, but by Presidential Executive Order may negotiate purchases. ~~This, in the opinion of the District Contracting Officer, is to the best interest of the Government in time of war.~~

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Since the inspection by the Inspector General's Department of the Higgins facility in question, contractor's purchasing procedures have been reviewed by representatives of the District Contracting Officer, and as a result thereof, it is believed that proper controls in respect to contractor's purchasing procedures are now in effect.

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h. ~~Reference~~ Recommendation 21.i.: "Adequate instruction and authority be given representatives on project by higher authority to enable them to properly protect the Government interests".

~~Reply:~~ Attached are copies of ~~MPD~~ Contract Section Memorandum No. 76 dated 22 January 1943, subject, "Inspection of Contractors' Purchases under CPFF Contracts", P. O. ~~Memorandum~~ No. 40 dated 10 July 1942, and MPD Administrative Section Memorandum No. 63 ~~dated 31 July 1942~~.

The substance of ~~the attached~~ directives was discussed with Resident Contracting Officer at Higgins prior to his assignment to duty at that plant and copies of the same were furnished him prior to such assignment. Problems arising thereunder are the substance of discussion and elaboration by means of correspondence continually being carried on between the Resident Contracting Officer, Cost Analysts and the District Contract Section.

Par. 10b of the Inspector General's report states that in the opinion of the Inspecting Officers the view expressed by the Midwestern Procurement District letter dated 17 June 1943, subject, "Use of Douglas Fir B or Better in Tooling and Scaffolding", is in contradiction with War Department policies. It is the opinion of ~~the District Contracting Officer~~ that the terms of Contract W535-AC-34484 support the statements contained in said letter from the District Supervisor's office. It would appear obvious that until the Government takes over the contractor's engineering department and relieves the contractor from engineering responsibility and safeguards in connection with the contract's performance or the quality of materials and workmanship delivered under the contract, that the contractor's bona fide engineering judgment and discretion must be relied upon. Furthermore, one contracting officer and one cost analyst cannot be expected to be qualified to pass judgment on decisions reached by contractor's engineering department. The terms of the contract do not give the Resident Contracting Officer the authority to arbitrarily overrule engineering decisions made by the contractor, and it is believed that if such power were given to the Contracting Officer, chaos would result in many cases.

i. ~~Reference~~ Recommendation 21.k.: "Necessary steps be taken to insure that plant protection procedure satisfactorily controls visitors to the plant".

~~Reply:~~ The control of visitors at this plant is still under the supervision of the Defense Plant Corporation inasmuch as

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construction is not complete nor has the plant been turned over to the Army Air Forces. The Army Air Forces has instructions for the control of visitors when the plant comes under the jurisdiction of this Command for such purpose.

j. ~~Reference~~ Recommendation 21.l.: "Expense accounts of contractor officials and employees be more closely scrutinized".

~~Reply:~~ Resident Contracting Officer has been requested to comply with the above recommendation.

k. ~~Reference~~ Recommendation 21.m.: "Salary of Mr. Jouett be paid out of contractor's fee as a nonreimbursable administrative overhead cost".

~~Reply:~~ It is believed that this recommendation is contrary to the provisions of Contract W 535 ac-34484 and letter of intent dated 2 August 1943. By the terms of such contract, the Government has obligated itself to reimburse Higgins Aircraft, Inc., for reasonable compensation paid to any person for services performed and necessary in the performance of such contracts. Only that proportion of Mr. Jouett's salary that is reasonable and necessary to the performance of Contract W 535 ac-34484 should be charged to such contract and to effect this end, it is necessary to allocate such salary through the administrative overhead account.

l. ~~Reference~~ Recommendation 21.o.: "A thorough reorganization be made of the plant training program".

~~Reply:~~ Comments of the Inspector General set forth in paragraph 17 have been called to the attention of the Resident Contracting Officer with request that necessary action be taken to comply with the above recommendation.

m. ~~Reference~~ Recommendation 21.p.: "Quantities called for in bid invitations be split into separate purchase orders in those cases where net savings to the Government will result".

~~Reply:~~ The practice of splitting quantities called for in bid invitations into separate purchase orders in those cases where a net saving will result to the Government, has long been an announced policy of Midwestern Procurement District Inspection and Purchases Procedure. In many cases, the required delivery schedules and respective ability of the vendors and subcontractors to perform, have prohibited a splitting of the orders. The purchases placed by Higgins with the Dixie Mill Supply Company had been brought to the attention of the Resident and District Contracting Officers prior to the date of the Inspector General's investigation and investigation of such matter is presently being conducted.

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Irwin D. Wood
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n. ~~Reference~~ Recommendation 21.q.: "Sizeable purchases be procured directly from basic sources of supply unless services rendered by intermediate jobbers justify their included profits".

~~Reply:~~ With rare exception, a jobber's price is the same as manufacturer's price on a given item. It is the policy of cost analysts ~~in this District~~ to automatically question a purchase made from a jobber at a higher price than the item could be secured from the basic manufacturer. In some instances, the higher price can be justified but in other instances it cannot. The instances where there is a variance between the jobber's and the manufacturer's price are not numerous.

o. ~~Inference~~ Recommendation 21.r.: "Immediate steps should be taken by the contractor to obtain authorization of the Secretary of War for the employment of aliens".

~~Reply:~~ Although this is not particularly applicable to the Contract Section, attention is invited to a joint statement issued under date of 7 June 1943 by the Secretary of War, the Attorney General, the Secretary of the Navy and the Chairman of the Maritime Commission setting forth the current policy of the Government with respect to the employment of aliens by Government contractors. Par. 4 and 5 of this statement reads as follows:

"4. Contractors and subcontractors are required to obtain the written consent of the head of the Government department concerned, before employing aliens under the following conditions only:

(a) Aeronautical Contracts: Written consent is required before an alien employee may be permitted to have access to the plans or specification or the work under construction or to participate in the contract trials under contracts involving aircraft, aircraft parts, or aeronautical accessories for the United States.

(b) Classified Contracts: Written consent is required before aliens employed by a contractor in the performance of secret, confidential, or restricted Government contracts shall be permitted to have access to the plans or specifications, or the work under such contracts, or to participate in the contract trials.

"5. War and Navy Department and Maritime Commission contractors and subcontractors may employ aliens as freely as American citizens except under the specific conditions specified in paragraph 4, (a) and (b) above."

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Investigation has disclosed that the aliens mentioned by the Inspector General were not employed in either of the above two categories of work. The five (5) aliens mentioned have the following jobs: (1) Dutchman-trainee in Inspection School, (2) Cuban-receiving inspector, (3) Englishman-tool design, (4) Chinaman-material clerk, (5) Scotchman-tool and die maker.

For the District Supervisor:

INNIS D. HARRIS
Major, Air Corps
Administrative Executive

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1 October 1943

MEMORANDUM FOR - The Office Under Secretary of War,
Attn.: Colonel Warren Ege
Rm 3D 722 Pentagon Bldg.

SUBJECT - Disposal of Woodworking Facilities,
Higgins Aircraft, Inc.,
New Orleans, La.

1. Reference is made to the attached letter from the Army Air Forces, Materiel Command, concerning the disposal of woodworking facilities provided Higgins Aircraft, Inc., for the manufacture of C-76 airplanes under Planeer 1569. The contract for C-76 airplanes has been cancelled by the Army Air Forces and Higgins Aircraft, Inc., is to manufacture C-46 airplanes of all-metal construction.

2. The woodworking facilities in the amount of $2,018,000 provided in the above lease agreement, are with few exceptions physically separated from the main building of the plant and are declared to be excess to the aircraft program. Higgins Industries, Inc., is prepared to lease these facilities for use in war work being carried on by that company for the Army and Navy and it is the opinion of this office that these facilities may best be utilized in this manner.

3. It is recommended that negotiations be initiated with the Defense Plant Corporation and Higgins Industries, Inc., leading to the separation of the woodworking facilities in Planeer 1569 from the lease agreement with Higgins Aircraft, Inc., placing these facilities under a new lease agreement with Higgins Industries, Inc., on a suitable rental basis.

4. It is requested that this office be advised of the outcome of the negotiations proposed above.

For the Commanding General, Army Air Forces:

FREDERICK M. HOPKINS, JR.,
Brig. General, U. S. A.
Chief, Resources Division,
Office, Assistant Chief of
Air Staff, M.M. & D.

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Ext. 76039

WAR DEPARTMENT
HEADQUARTERS ARMY SERVICE FORCES
WASHINGTON

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6 October 1943.

MEMORANDUM FOR THE ASSISTANT CHIEF OF AIR STAFF, MATERIEL, MAINTENANCE AND DISTRIBUTION, AAF: (Attention: Brig. Gen. Frederick M. Hopkins, Chief, Resources Division).

Subject: New Orleans Veneer Plant.

1. The Army Service Forces is having extreme difficulty in obtaining veneer for wirebound wood shipping boxes. In certain instances, it has been necessary to go to less desirable methods of packaging because of this shortage.

2. This office has been informed that the Higgins plant in New Orleans, which was originally built and equipped to produce plywood for the Army Air Forces, is not in operation and is not needed for the production of that material; also, that the Army Air Forces is negotiating for the release of this facility. If these understandings are correct, it would appear that this plant could be converted advantageously to the production of container veneer.

3. It is respectfully requested that your office advise whether the Higgins plant is required by the Army Air Forces for any purpose, and if not, whether arrangements can be made for its release and conversion to the production of container veneer. This office will cooperate in any appropriate manner.

For the Commanding General:

H. C. MINTON,
Brig. Gen., G.S.C.,
Director, Production Division.

JOHN S. COOKE,
Colonel, G. S. C.,
Chief, Materials Branch.

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Memo

CONFIDENTIAL 14 October 1943

SUBJECT: [redacted]
[redacted]

TO: Headquarters, Army Service Forces
Procurement Division
Attention: Col. John F. Gaebe
Room 4D-970, Pentagon

1. Reference is made to your letter of 6 October 1943, subject, "New Gliders; Vanner Plant," requesting that the Army Service Forces be advised if the Army Air Forces intends to release the plywood facilities of Higgins Aircraft, Incorporated, which have been provided the subject company through a Defense Plant Corporation lease agreement.

2. The Higgins Aircraft, Incorporated, plywood facilities, which the Army Air Forces has sponsored through Defense Plant Corporation lease agreement, are not required for the Army Air Forces program.

3. Therefore, the Army Service Forces have the permission of this office to utilize the plywood facilities of Higgins Aircraft, Incorporated, for the production of [redacted] vessels. Any claims for the conversion of the plant for this purpose should be submitted by Higgins Aircraft, Incorporated, to the Army Air Forces Mid-Continent Procurement District in the form of an Appendix "F" for the approval of the Army Air Forces Materiel Command.

4. Negotiations are now under way with the Legal Division, Office of the Under Secretary of War, and Defense Plant Corporation relative to a type of lease agreement which will allow Higgins Aircraft, Incorporated, to produce items for the war effort [redacted] other than the Army Air Forces.

For the Commanding General, Army Air Forces:

FREDERICK H. SMITH, JR.
Brig. General, U. S. A.
Chief, Resources Division
Office, AC/AS, M. M. & D

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[redacted] INC.,

October 14, 1943.

CONFIDENTIAL

[redacted] Higgins Aircraft
[redacted] Higgins Aircraft
[redacted], D.P.C.
[redacted] Higgins Industries
[redacted] Higgins Industries
[redacted] Higgins Industries
[redacted] Higgins Industries
[redacted] Higgins Industries
[redacted]

Mr. Al. Ben[redacted], Higgins Industries
Mr. R. E. E. [redacted]
Mr. Charles E. Wilson, W.P.B.

cc - Gen. Oliver P. Echols, USAAF
cc - Gen. Hopkins [redacted] "
cc - Col. Moriarity "
cc - Col. Wm. N. Morgan, "
cc - Mr. Sam H. Husbands, D.P.C.
cc - Mr. J. Archer Turner, Turner Construction Co.
cc - Mr. Wm. V. McKendimen, Raymond Concrete Pile Co.
cc - Col. Dennis Mulligan, Prod. Div., A.A.F.

SUBJECT: DEDICATION OF HIGGINS AIRCRAFT INC.,
SUNDAY, OCTOBER 24, 1943.

I am picking Sunday, October 24th, 1943, as being the most suitable day for the dedication of Higgins Aircraft Inc., at Michoud, La., or as the Post Office people call it, Higgins, La.

The New Orleans newspapers can start building up a story on it right now, and prepare the public for the big "show".

On the occasion of the dedication of this plant, Higgins Aircraft should see to it that proper acknowledgment is made to the Defense Plant Corporation, and to the U. S. Army Air Forces for their businesslike cooperation and their grants and authority that made the plant possible.

President Roosevelt should be eulogized for demanding its creation.

War Production Board should be thanked also.

The United States Engineer Department should receive acknowledgment for their cooperation.

On this day, there should also be an acknowledgment of the accomplishments of the Turner-Raymond group (a combine of the two firms of Turner Construction Co., and the Raymond Concrete Pile Co.) as well as to Albert Kahn & Associates, the architects.

There are a number of contractors in Louisiana, and a few elsewhere, who benefitted. Organized labor we cannot attack - they ought to thank us, for we let a lot of their "rats", but also including quite a few conscientious men in the labor unions, work on that job. We did see to it, however, that there was damned little double time pay. Anyway, representatives of the American Federation of Labor should be invited even though they can't attend, i. e., William Green, and so on.

Jesse Jones, and officials of the D. P. C. should be invited.

War Production Board, [redacted] should be invited.

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...ors who contri...ted to the construct...n of the ...nt should be ...d.

A special form of invitation should be printed and mailed to all of these people - if time will permit. Maybe it will be necessary to send telegraphic invitations, or air mail letters of invitation.

We want the Higgins Military Band out for the occasion in full force.

Bulletins should be posted on all of the Higgins Industries plants inviting all employees of Higgins Industries down to the dedication of Higgins Aircraft. If it is necessary, it might be advisable that there be no Sunday work that day at the Higgins Industries plants.

The Governor of the State of Louisiana, and the Mayor of New Orleans should be invited.

The newspaper people, of course, should be there.

Maybe a radio national hook-up could be arranged.

The Turner-Raymond people should be awarded the ARMY-NAVY "E". Maybe Col. Jack Jouett, now in Washington, could get the AAF people to sponsor this award to Turner-Raymond. If Turner-Raymond receives it, the same should be awarded to Albert Kahn & Associates, the architects.

* *

The State Highway Department should detail special police for the occasion. Maybe the State Highway Department could order the grass cut alongside of the roadway on old U. S. 90 highway. The front of Higgins Aircraft's plant should be cleaned up, and the entire plant should be dolled up and policed. The painting of the saw mill should be completed. The Louisiana Historical Society should be invited and the two old sugar mill chimneys should have a wrought iron fence placed around them, and the landscaping should be accomplished in front of the Administration Building. Suitable stands should be erected for the speakers and the military band and in a place where there is room for a crowd. In either my private office, or the conference room, refreshments should be provided for prominent guests.

CONFIDENTIAL

Now, this should not be a self-glorification affair. The real purpose is to let government departments and the P U B L I C know what has been done with their money. But, importantly, behind this, to educate the people of New Orleans that here is an essential industry, vital to the war effort, which is of a permanent character to contribute to the well being and the prosperity of the South, producing a means of transportation that will tie the Western Hemisphere closer, harmoniously, and profitably together. This is to let the public in New Orleans and its environs see, and be impressed with, and proud of this Louisiana project, so that they will be inspired - those especially in the "white collar" class - many of them holding on to sinecure jobs - white collar jobs - or jobs not as essential as the building of the aeroplanes that this plant will produce - to induce them to quit those jobs and come to Higgins Aircraft, if for nothing else, during the period of the war - if not for continued employment thereafter. So far, the public has not seen the aircraft plant. Its impressiveness should inspire the more worth-while people to seek employment therein, and the occasion should not be lost to bring home to the public both locally and throughout the country, that in the building of this project the Tax Payers got a "break", the plant having been completed way ahead of anybody's estimate, as well as the schedule - a supreme and efficient basis for production comparable to the largest in the world - at a cost far below others. The only danger of such comparison would be to invite investigations as to why other plants, not so complete or efficient, should cost so much more.

...h/...P

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EXECUTIVE OFFICE WAR PLANNING SECTION

ACTION COPY

CONFIDENTIAL 381 A-1 #2.313.563 OCT 23 1943

ACAS, MAT. MAINT.,& DIST. WASHNDC OCT 2329 Z 1943 VLP

RESOURCES CONTROL SECTION

ATTENTION: LT. COL. G. H. MORIARTY

AFDRE-2-380 (MMHL,,,,,RE TELETYPE AFDRE-2-TWX-159 (MMH), DATED 16 JULY 1943, IN WHICH THIS OFFICE STATED THAT CONSTRUCTION OF HIGGINS AIRCRAFT, INC. AIRPORT SHOULD BE STOPPED AND HELD UP FOR FURTHER CONSIDERATION.

THIS OFFICE HAS CHECKED WITH THE AIRFRAME SCHEDULE AND IT APPEARS THAT THE FIRST AIRPLANE WILL NOT BE MANUFACTURED BY HIGGINS BEFORE 1 JULY 1944; IT IS REQUESTED THAT THE MID-WESTERN PROCUREMENT DISTRICTS INITIATE A REQUEST CHANNELS FOR THE REINSTATEMENT OF CONSTRUCTION OF SUBJECT AIRFIELD FROM 5 TO 6 MONTHS BEFORE IT WILL BE REQUIRED FOR HIGGINS OPERATIONS.

IT IS ALSO DESIRED THAT YOUR OFFICE ADVISE THE DISTIXXX DISTRICT TO DISREGARD ALL REQUESTS SUBMITTED BY A MR. JENKINS OF THE WAR PRODUCTION BOARD NOW SPENDING CONSIDERABLE TIME IN NEW ORLEANS, WHO ALLEGES THAT HE IS ACTING AS A REPRESENTATIVE OF THE CHIEF, RESOURCES DIVISION, OFFICE, ASSISTANT CHIEF OF AIR STAFF, MA. & D.

ARNOLD"

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CRD: Moriarty - Information & Rec. Action by 10/26

cc's Deakin, Harvel, Hunter

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RESTRICTED

Subject: Historical Record of
Higgins Facilities

1st Ind. WJT:vi

CONFIDENTIAL

District Supervisor, Midwestern Procurement District, AAF Materiel Command, P. O. Box 117, Wichita, Kansas. 25 November 1943

To: Commanding General, AAF Materiel Command, Wright Field, Dayton, Ohio.
Attention: Historical Officer.

1. Reference paragraph 3, basic communication. Enclosed are the following data in quintuplicate:

a. Thirteen (13) photographs taken 15 March 1942.
One (1) photograph taken 28 April 1942.
One (1) photograph taken 1 May 1942.
One (1) photograph taken 6 June 1942.
This site was heavily wooded and no photographs were available prior to 15 March 1942.

b. Twenty-eight (28) photographs taken 25 July 1942.

c. Twenty-one (21) photographs taken 2 August 1943.

d. Plot plans:
1. Maritime Commission Project 7 May 1942
2. Aircraft Project 2 February 1943
3. Aircraft Project revised 2 April 1943

e. Copy of item appearing in the "Eureka News Bulletin" February 1943, "Higgins Industries Gets Green Light on the Building of 1200 Cargo Planes".

f. Copy of letter dated 15 July 1943, from Army Air Forces Representative, Subject: Conference of 8 July 1943, Higgins Aircraft, Incorporated.

2. The Maritime Commission Contract was signed 13 March 1942. Construction begun for Maritime Commission facilities on 9 March 1942. Preliminary estimated cost $25,852,000. The Maritime Commission Contract was cancelled on 16 July 1942, with a five (5) day period of grace extending this date to 25 July 1942. The value of the facilities constructed up to that date aggregated approximately four (4) million dollars.

For the District Supervisor:

DONALD HOLBROOK
Major, Air Corps
District Intelligence Officer

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MDAC-1-WP-1-6-42-500M

TELETYPE MESSAGE

PRIORITY

1943 NOV 30 16:17

MATERIEL COMMAND, WRIGHT FIELD
DAYTON, OHIO
DATE: 30 November 1943

FROM [redacted]
A. R. JONES, [redacted] USA.,
CHIEF, PROCUREMENT DIVISION

ATTENTION: AC/AS, M&RD (COL VOLANDT)
ATTN: CHIEF, PROCUREMENT BRANCH
MATERIEL DIVISION

CONFIDENTIAL

PD-T-354-A REFERENCE THE FINANCIAL CONDITION OF HIGGINS AIRCRAFT, INCORPORATED,
THE FOLLOWING INFORMATION IS FURNISHED. 1. THE LATEST STATEMENT AVAILABLE ON THE
HIGGINS INDUSTRIES, INC. IS DATED 31 DECEMBER 1942. THIS STATEMENT DOES NOT REFLECT
A WELL BALANCED FINANCIAL CONDITION AS INDICATED BY THEIR WORKING CAPITAL DEFICIT
AS WELL AS THE NARROW MARGIN OF PROTECTION AFFORDED CREDITORS. CURRENT ASSETS
AMOUNT TO $20,319,000 AS AGAINST CURRENT LIABILITIES OF $22,564,200, LEAVING A NET
WORKING CAPITAL DEFICIT OF $2,245,200. THE CURRENT RATIO IS 0.90 to 1. THE COMPANY
LEANS HEAVILY ON CREDITORS FOR FINANCIAL SUPPORT AND ON 31 DECEMBER 1942, CREDITORS
WERE FINANCING 92% OF THE TOTAL RESOURCES AS AGAINST THE COMPANY'S 8%. REGARDLESS
OF THIS WEAK FINANCIAL CONDITION, THE COMPANY PAID ITS REGULAR DIVIDEND ON PREFERRED
STOCK IN THE AMOUNT OF $9,700 AND A DIVIDEND ON COMMON STOCK IN THE AMOUNT OF
$600,600. THE PAR VALUE OF THE TOTAL COMMON STOCK OUTSTANDING AMOUNTS TO $200,200
AND THE DIVIDENDS PAID ON THIS STOCK OF $600,600 IS THREE (3) TIMES THE PAR VALUE OF
COMMON STOCK. SINCE 31 DECEMBER 1942 THE COMPANY HAS RETIRED TO CALL AND REDEEM ITS
OUTSTANDING 6% CUMULATIVE CONVERTIBLE PREFERRED STOCK. THE PAR VALUE OF PREFERRED

[redacted]

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TELETYPE MESSAGE

DATE: 30 Nov 43

FROM

ATTENTION: COL VOLANDT

CONFIDENTIAL

STOCK OUTSTANDING IS $149,800. IN VIEW OF ALL THESE CIRCUMSTANCES IT IS SUGGESTED THAT THE PRESENT POLICY OF PAYING DIVIDENDS ON COMMON STOCK BE DISCONTINUED AND THEIR PRESENT PROGRAM OF RETIRING PREFERRED STOCK SHOULD NOT BE ALLOWED.

2. STATEMENT DATED 30 JUNE 1943 REFLECTING THE FINANCIAL CONDITION OF THE HIGGINS AIRCRAFT, INC. SHOWS THE FOLLOWING:

CURRENT ASSETS	$286,300
CURRENT LIABILITIES	39,700
NET WORKING CAPITAL	$246,600

IT IS EVIDENT BY THE ABOVE FIGURES THAT FUNDS WERE ADEQUATE AS OF 30 JUNE 1943. CASH ALONE AMOUNTED TO $191,200 AS AGAINST TOTAL DEBT OF $189,700, INDICATING THAT NO DIFFICULTIES SHOULD BE EXPERIENCED IN FINANCING OPERATIONS. CREDITORS FINANCING SOMEWHAT MORE THAN 50% OF THE TOTAL RESOURCES, ALTHOUGH THIS SITUATION IS NOT SERIOUS IN VIEW OF THE LARGE CASH POSITION. THE LARGER PART OF THE DEBT IS REPRESENTED BY AN AMOUNT OWING TO AFFILIATED COMPANIES OF $150,000.

3. NET WORTH AMOUNTS TO $107,600, CONSISTING OF CAPITAL STOCK $100,000 AND EARNINGS TO DATE OF $7,600. IT IS EVIDENT BY THESE FIGURES THAT OPERATIONS ARE ON A PROFITABLE BASIS.

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TELETYPE MESSAGE

DATE: 30 Nov 43

FROM

ATTENTION: COL VOLANDT

CONFIDENTIAL

4. WHILE THE FINANCIAL CONDITION OF THIS COMPANY APPEARS SOUND, IT IS NEVERTHELESS APPARENT THAT THE PENDING CONTRACT IN THE AMOUNT OF $128,584,200 IS ENTIRELY TOO LARGE TO BE COMFORTABLY SUPPORTED BY THE PRESENT NET WORKING CAPITAL. SUBJECT COMPANY IS APPLYING FOR AN ADVANCE PAYMENT IN THE AMOUNT OF $38,575,300, IF GRANTED, WILL UNDOUBTEDLY THROW THIS COMPANY INTO AN UNBALANCED AND STRAINED FINANCIAL POSITION. ADVANCE PAYMENTS SHOULD BE CONTROLLED ON WITHDRAWALS.

5. IT HAS BEEN DECIDED THAT A SOURCE MUST MANUFACTURE THE C-46 AIRPLANE. HIGGINS WAS SELECTED AND PLACED IN THE AIRCRAFT BUSINESS. THE CONTRACT WAS NEGOTIATED BY THIS OFFICE AFTER THE SELECTION HAD BEEN MADE. THE INVESTMENT SO FAR INDICATES THAT THE CONTRACT SHOULD BE APPROVED. IT WILL REQUIRE CLOSE SUPERVISION WHICH IT IS INTENDED ACCOMPLISHING. ACTION WILL BE TAKEN BY THIS OFFICE TO CONTROL SUCH ADVANCEPAYMENTS AS MAY BE APPROVED.

PROCUREMENT DIVISION

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AAFMC-434-WF-5-26-42-100M

CHANGE ORDER

Prepare in Sextuplicate
Detach no copy.
Execute in triplicate
C-16725

WAR DEPARTMENT
ARMY AIR FORCES
MATERIEL [redacted] COMMAND
WRIGHT FIELD DAYTON, OHIO

01-A
ab Class. 01-C
[redacted] Date 11-27-43
Change No. 3 to
Contract No. W 535 ac-34464
Dated 28 November 1942

TO: Higgins Aircraft, Inc., New Orleans, Louisiana
SUBJECT: Termination of Contract
AFFECTING: W 535 ac-34464, as amended
ORDER:
[redacted]

CONFIDENTIAL

1. WHEREAS, the parties hereto have heretofore entered into a cost-plus-a-fixed-fee contract No. W 535 ac-34464 for the furnishing by the Contractor of twelve hundred (1200) C-76[illegible] airplanes, spare parts, and data, at a total estimated cost of $162,720,000.00, plus a fixed fee of $4,881,600.00, or a total of $167,601,600.00, which contract, as the same may have been heretofore amended, modified, and supplemented, is hereafter sometimes referred to as the Supply Contract; and

WHEREAS, the Government has heretofore terminated the Supply Contract for its convenience pursuant to the provisions contained in Article 9 thereof; and

WHEREAS, the parties to the Supply Contract have estimated that only a portion of the funds allotted thereto will be required thereunder, and the Government desires that the balance of funds so allocated may be reallocated for the procurement of supplies;

NOW, THEREFORE, in consideration of the premises and of the mutual agreements herein contained and for other good and valuable considerations, the parties hereto agree as follows:

(a) The aggregate payments made and to be made to the Contractor by the Government under the Supply Contract, as terminated as hereinabove set forth, will not exceed the sum of $7,601,600.00.

(b) The total obligation of the Government under the Supply Contract is hereby reduced from $167,601,600.00 to $7,601,600.00, or a reduction of $160,000,000.00.

Total Credit -$160,000,000.00

REASON: To enable the Government to reallocate a portion of the funds heretofore allotted to the Supply Contract.

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[redacted] Change No. 3 to Contract W 535 ac-34484. Sheet 2.

PROCUREMENT AUTHORITIES

Credit: ACA 1942-44, 2-3005 P 110-09 A 212/40705 - - - -$132,066,400.00
ACA 1942-44, 2-3006 P 122-09 A 212/40705 - - - - 27,933,600.00

CONFIDENTIAL

Except as hereby amended, all the terms and conditions of the Contract affected shall remain unmodified and in full force and effect and shall also apply in carrying out the provisions of this Change Order.

Ordered by:
BENJAMIN O. KESSEL,
CAPTAIN, AIR CORPS.
Contracting Officer.

1st INDORSEMENT

(Place) (Date)

TO: CONTRACTING OFFICER:

1. Contractor or Vendor hereby acknowledges above Change Order and agrees to comply therewith under the terms immediately hereinafter indicated: estimated

(a) For the total consideration of $ 160,000,000.00 less than that provided in the Contract affected, and which is to be deducted in accordance with the terms of the contract affected.

(b) With an extension of the delivery date or dates set forth in Contract affected of None days, for delivery of all of the articles and spare parts affected.

(c) The estimated / guaranteed weight of the article is increased / decreased from ____ pounds to ____ pounds

(d) The estimated / guaranteed performance of the engine shall be increased / decreased to ____ H. P. at ____ R. P. M.

(e) The center of gravity of the airplane has been moved ____ inches forward / backward and ____ inches upward / downward by the above change.

(f) The estimated / guaranteed performance of the airplane is altered as follows:

(1) High speed at ____ altitude increased / decreased from ____ m. p. h. to ____ m. p. h.

(2) Rate of climb at ____ altitude increased / decreased from ____ ft. per minute to ____ ft. per min.

(3) Service ceiling increased / decreased from ____ feet, to ____ feet

(4) Absolute ceiling increased / decreased from ____ feet, to ____ feet

(5) Flying Qualities ____

NOTE: Delete words not applicable. In Sections (c), (d) and (f) the word "estimated" must be deleted when a weight and performance has been guaranteed in the original contract.

(SEAL)
(Contractor or Vendor)

AFP: 370588
T: 1006

By ____
(Signature of Official with Authority)

2nd INDORSEMENT

AKRON, Ohio (Place) DEC 4 1942 (Date)

TO: CONTRACTOR or VENDOR:

1. The terms proposed by you in the first indorsement are (not) accepted by the Government.
2. The supplies and services to be obtained by this instrument are authorized by, are for the purpose set forth in and are chargeable to Procurement Authority See Above the available balance of which is sufficient to cover cost of same.

Approved: NOT REQUIRED

BENJAMIN O. KESSEL, Contracting Officer.
[redacted] Accounting Officer

AAFMC-414-WF-8-10-42-100M sets of 2

SHEET 2.

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UNITED STATES SENATE

Special Committee Investigating the
National Defense
Program

CONFIDENTIAL

December 8, 1943

Mr. Andrew Jackson Higgins
President
Higgins Aircraft Corporation
New Orleans, La.

Dear Mr. Higgins:

The Committee would appreciate it if you would inform it as to when you expect to deliver the first C-46 plane to be manufactured by you.

The Committee would also appreciate being informed as to whether you expect to make all the parts and assemblies made by Curtiss-Wright Corporation for the C-46 airframes assembled by it, or as to whether you expect to acquire any of such parts or assemblies from Curtiss-Wright Corporation. If the former, the Committee would like to know whether Curtiss-Wright Corporation has delivered a complete set of working drawings and templets to you and, if so, when the delivery was made. If the latter, the Committee would like to know whether Curtiss-Wright Corporation has delivered all parts as required.

If the C-46 is being modified in any way from the standards prevailing at the time you received instructions to manufacture the C-46, the Committee would like to know who suggests the modifications, how they are agreed upon, and when and how, with respect to Curtiss-Wright Corporation, you are informed of the modifications and furnished drawings and templets.

The Committee would also like to know the number of employees engaged in work on the C-46, the estimated future requirements, and whether materials will be available as needed.

A copy of this letter has been sent to Curtiss-Wright Corporation.

Very truly yours,

HUGH FULTON
Chief Counsel

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WAR DEPARTMENT - ARMY AIR FORCES

Office, Asst. Chief of Air Staff, Materiel, Maintenance, and Distribution

Inter-Desk Memorandum

TO: Maj. Gen. O. P. Echols

Date 9 December 1943

SUBJECT: Lunch with Andrew J. Higgins.

CONFIDENTIAL

1. Mr. Higgins showed General Hopkins and me a copy of a letter written to him by Mr. Hugh Fulton.

2. This letter, in my opinion, was probably inspired by Higgins or his son Frank as this letter requests information which would correlate directly with complaints that Mr. Frank Higgins has made relative to the Curtiss Company. A copy of the letter, incidentally, from the Truman Committee to Mr. Higgins was forwarded to the Curtiss-Wright Corporation.

3. The letter requested Mr. Higgins to advise the Truman Committee as to whether he was satisfactorily receiving engineering releases, technical information in general pertaining to the C-46 sufficient to adequately permit their entry into production. The letter further desired detailed information as to releases on and availability of jigs, fixtures, templates, etc., that the Curtiss Company was supposed to furnish either directly or through its sub-contractors to Higgins.

4. Mr. Higgins stated that the chief complaint that he and his son had recently was that in addition to failure to get the materiel and information required was a "farcical meeting" supervised by Lt. Col. Winston.

5. Mr. Higgins stated that his answer to the Truman Committee would be a frank statement that he was unable to get into production, had already turned away several employees and expected to release still more, that his only desire was to build airplanes for the Air Force, and that detailed background would be contained in the attached copy of the minutes of the aforesaid meeting presided over by Lt. Col. Winston.

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CONFIDENTIAL

From: C. S. IRVINE, Col., A. C.

cc: Brig. Gen. F. M. Hopkins, Jr.

THIS FORM WILL NOT BE USED OUTSIDE THE AC/AS, M. M. & D.

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WASHINGTON, D. C.

CONFIDENTIAL

10 December 1943

MEMORANDUM FOR BRIG. GEN. A. R. CRAWFORD,
Chief of Staff, Materiel Command, Wright Field, Dayton, O.

1. It is understood that Mr. Andrew J. Higgins is now in Washington and is in receipt of a letter from the Truman Committee substantially as follows:

"The Truman Committee has been informed that no action is going forward in the Higgins Plant on the C-46 airplane inasmuch as the Curtiss people have been very lackadaisical and backward about supplying Mr. Higgins with the necessary engineering information, drawings, etc."

2. It is not known how Mr. Higgins intends to reply to such a letter but it behooves us to get hold of Curtiss immediately to see if there is any truth in this situation and to take necessary action to get Curtiss cooperating with Higgins on this deal.

/s/ B.W.C.

B. W. CHIDLAW, BRIG. GEN., U.S.A.,
Chief, Materiel Division,
Asst. Chief of Air Staff,
Materiel, Maintenance & Distribution.

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Subj: Hingins Aircraft, Inc.

December 17, 1943

these parts will be used to produce panels for the subcontract and will not be used for the prime contract held by Higgins Aircraft, these parts will be added to the Curtiss-Wright subcontract to Firestone and will be Curtiss furnished items to Higgins.

Respectfully yours,

CURTIS - WRIGHT CORPORATION
Airplane Division

/s/ C. . . Schubert

C. . . Schubert
Division Subcontract Manager

JF:CS:[illegible]

cc: [illegible]

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Carbon
C-46 #3
Prod Br-46-1(hpp)
Mat Div
M.M.+D.

CONFIDENTIAL

WO'D:fs

20 December 1943

Subject: Curtiss-Wright Corporation
Buffalo, New York

CONFIDENTIAL

To: Brigadier General Bennett E. Meyers
Deputy Assistant Chief of Air Staff
Materials, Maintenance and Distribution
The Pentagon
Washington, D. C.

1. The undersigned arrived in Buffalo, New York late in the evening of December 11th and early the following morning met with Lt. Colonel Walter L. Winston, Administrative Assistant C-46 Production Committee. Colonel Winston reviewed the committee's experiences in co-ordinating production of the C-46 between Curtiss-Wright Corporation, Buffalo, and Higgins Aircraft, Inc., of New Orleans. At the present time Higgins holds two contracts on the C-46; one, a prime contract, calling for production of the complete ship and the other a subcontract from Curtiss-Wright, Buffalo, for outer wing panels. It was the Colonel's opinion that the C-46 Production Committee was concerned only with the prime contract.

2. Colonel Winston was in New Orleans on December 6, 1943, at which time a conference was held with the Higgins people relative to the degree of cooperation which was being received from Curtiss. The purpose of the meeting was to establish closer relations between the two plants. A memorandum of this meeting is attached herewith.

3. After the meeting with Colonel Winston, a conference was then held at the Colonel's office with Russell F. Hardy, Higgins Aircraft Executive Committee Member, and W. E. Thompson, Superintendent of Lofting, Higgins Aircraft, Inc. Mr. Thompson is at present assigned temporarily to Buffalo to assist in co-ordinating the activities of Curtiss and Higgins on the subcontract for outer wing panels.

4. Both Mr. Hardy and Mr. Thompson were very explicit in their statements that the lack of co-operation referred to the subcontract only. They felt that the Higgins Company could handle the prime contract but that as a subcontractor, they must follow exactly Curtiss' methods and they felt they did not have enough information and necessary equipment to do this. Delivery on the outer wing panels on the subcontract is due before January 31, 1944 and the Higgins' representatives feel that without more co-operation than they have been receiving, they will be unable to meet this schedule. They are determined, however, to turn out a panel whether it meets Curtiss' specifications or not in order to live up to the requirements of the contract.

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5. After a complete review of the situation, it was decided that Higgins would prepare a list showing everything that they felt was needed from the Curtiss people in order to fulfill the subcontract on the outer wing panels and they would check off on this list those items which have already been received and indicate whether those received are in good condition. A telephone call was made to the Higgins plant at New Orleans and these arrangements were confirmed and approved.

6. On the afternoon of December 15th, a meeting was held in the office of Mr. Burdette S. Wright, at which all of the principal officials of the Curtiss-Wright Corporation were present. At the end of the conference, Mr. Hardy and Mr. Thompson of the Higgins Company were invited in and were given assurance by Mr. Guy Vaughan and Mr. Burdette Wright that everything possible would be done to see that the Higgins Company was given everything which they felt was needed to carry out their part of the contract on outer wing panels. It was evident from the attitude and remarks of the Curtiss people that they felt that the complaint of Higgins was unjustified and that everything was being done by Curtiss which could be expected. There was some indication, however, that the top officials of the company were not aware of some of the actions being taken by those in the lower echelons.

7. Curtiss has already appointed a production man to act as liaison between the two companies at New Orleans. It was further agreed by all parties that both Curtiss and Higgins would appoint representatives to be stationed at both Buffalo and New Orleans and these representatives would pass upon all equipment and information needed or received from either company. Curtiss is also preparing a list of what they feel the Higgins Company will need in the way of information and equipment to fulfill their contract on outer wing panels.

8. A meeting was arranged for Monday, December 27th, at Buffalo, New York, at which representatives of Higgins Aircraft, Inc., Curtiss-Wright Corporation, Buffalo, and the Army Air Forces would be present. At that time the list of necessary information and equipment prepared by Higgins and Curtiss will be co-ordinated. It is expected that this meeting will result in an understanding which will be satisfactory to both companies and that steps will be taken to successfully effect the execution of the Higgins contract on outer wing panels.

9. A copy of the minutes of the meeting held in Mr. Wright's office is attached herewith.

WILLIAM O'DWYER
Colonel, Air Corps

Inc: 2

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22 December 1943

CONFIDENTIAL

MEMORANDUM FOR: The Under Secretary of War
Attn: Chief Legal Division
Room 3D-722 Pentagon

SUBJECT: Defense Plant Corporation Agreement, $1,380,936
Higgins Aircraft, Inc.
New Orleans, La.

1. Reference is made to memorandum, dated November 16, 1940, for the Assistant Secretary of War, concerning the procedure approved for the expansion of facilities under the Air Forces Expansion Program. In compliance with Paragraph 6b thereof, it is recommended that negotiations be initiated leading to the consummation of an agreement between the Defense Plant Corporation and the subject company.

2. Data relative to this proposed expansion are contained in enclosures from the Army Air Forces, Materiel Command, Wright Field. The estimated cost is found to be reasonable and not excessive.

3. Attention is invited to Section II of the subject project which covers miscellaneous additions and modifications to the original approved Appendix "A" and which modifications and additions were made by Higgins Aircraft, Inc. upon the approval of local Defense Plant Corporation supervisory engineer but not previously approved by the Army Air Forces. These unauthorized additions and modifications total $1,380,936, however the Army Air Forces have approved only the portion of Section II which would have been approved had the items which made up Section II been submitted to the Army Air Forces for prior consideration.

4. It is recommended that the Office of the Under Secretary of War approve all of Section II. The attention of the Defense Plant Corporation should be called to the fact that the local Defense Plant Corporation supervisory engineer approved additions and modifications totaling $1,380,936 which were not officially approved by the Army Air Forces. Necessary action should be taken by Defense Plant Corporation to avoid the recurrence of such action in the future.

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MEMO FOR: OCSW
Higgins Aircraft, Inc.
12/22/43

CONFIDENTIAL

5. The Facilities Committee, War Production Board approved this project on 21 December 1943.

6. It is requested that the Defense Plant Corporation be advised to proceed with the construction of the airport at this project. The airport construction has been held in abeyance by the Materiel Command, pending clarification of the Higgins aircraft production schedule. The airport will be required for flyaway of C-46 airplanes in June 1944.

For the Commanding General, Army Air Forces:

FREDERICK M. HOPKINS, JR.
Brigadier General, U.S.A.
Chief, Resources Division
Office, AC/AS, M. M. & D.

Encl:
WP teletype
#16318-12/18/43
Appendix "A"

MMH:pmd
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HEADQUARTERS ARMY AIR FORCES

OUTGOING UNCLASSIFIED MESSAGE

DATE	FROM (OFFICE OF ORIGIN)
ROUTINE 27 December	OAC/AS, MM&D Resources Division
TO: Hq. AAF Material Command, Resources Control Section Wright Field, - Lt.Col. Moriarty. CONFIDENTIAL	NAME OF OFFICER PREPARING: Lt. Col. J.C. Vaughan, Jr. PHONE: 3618
	I certify that the following message constitutes official business and is necessary in the military service.
	TYPED NAME / SIGNATURE: F.H.Hopkins,Jr.
	GRADE AND TITLE: Brig.Gen.,U.S.A.

AF DRB-1 (JCV) 9197 .....PD RE TELETYPE RCS 16318 DATED 18 DECEMBER 1943 CONCERNING HIGGINS AIRCRAFT, INC., PROJECT, NEW ORLEANS, LA., IT IS NOTED THAT THE MATERIEL COMMAND RECOMMENDED THAT CONSTRUCTION OF THE AIRPORT BE COMMENCED IMMEDIATELY IN ORDER THAT IT MAY BE COMPLETED IN TIME FOR FLYAWAY OF C-46 AIRPLANES IN JUNE 1944. THIS OFFICE DOES NOT CONCUR IN THIS RECOMMENDATION AND THE DEFENSE PLANT CORPORATION HAS BEEN INSTRUCTED NOT TO COMMENCE AIRPORT CONSTRUCTION AT THIS TIME INASMUCH AS A FLIGHT STRIP FOR THE FLYAWAY OF C-46 AIRPLANES CAN BE STARTED IN THE SPRING OF 1944 IN SUFFICIENT TIME TO BE COMPLETED FOR THE FLYAWAY AND TESTING OF THE FIRST AIRPLANES THAT WILL BE COMPLETED AT THIS PLANT.

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ARMY AIR FORCES
MATERIEL CENTER
MIDWESTERN PROCUREMENT DISTRICT
OFFICE OF THE DISTRICT SUPERVISOR

Production Resources Sa
Facilities Unit
JEF [illegible]
[illegible] AIRPORT, [illegible]
P. O. [illegible]

SUBJECT: Construction of Airfield
Higgins Aircraft, Inc.
New Orleans, La.

29 December 1943

CONFIDENTIAL

TO: Commanding General
Army Air Forces
Washington 25, D. C.

Attention: Ass't Chief of Air Staff
Material, Maintenance & Distribution
Resources Division
Major Milton Hay

THROUGH: Commanding General
AAF Materiel Command
Wright Field
Dayton, Ohio

Attention: Chief, Resources Control Section

1. It is anticipated that 150 C-46 Airplanes will be sent to subject facility for modification.

2. The purpose of this modification is to obtain modified aircraft and to familiarize Higgins Aircraft personnel with this type of aircraft.

3. To accomplish this modification, it will be necessary to construct the airfield. Construction was authorized by letter dated 15 December 1943 from Materiel Command to Higgins Aircraft, Inc.

4. Inasmuch as completion of the airfield is necessary for the testing of modified aircraft, it is requested that authorization be given for the start of construction of subject airfield.

For the District Supervisor:

Ernest Sibley Jr 2nd Lieut
for WILLIAM J. BUTTS
Major, Air Corps
District Production
Resources Officer

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CONFIDENTIAL

12/30/43

Col Vaughan—
General Crawford
will check and
let me know
FTH

OV V WF NR 7

FROM

PRODUCTION DIVISION MATERIEL COMMAND WRIGHT FIELD DECEMBER 3113342 1943

TO

RESOURCES DIVISION Gen. Crawford & Gen Hopkins agree that airport should not be

PES-3696 IN CONNECTION WITH TELEPHONE CONVERSATION 28 DECEMBER '43, BETWEEN LT. COLONEL J. C. VAUGHAN AND LT. COLONEL L. V. COOK, IT IS REQUESTED THAT AT LEAST ONE (1) RUN-WAY BE CONSTRUCTED AT THE NIGGINS PLANT AT NEW ORLEANS, AS RAPIDLY AS POSSIBLE, BUT NOT SO AS TO INCUR ADDITIONAL COSTS BY OVERTIME OR OTHER MEANS. END AFAMC

14132 constructed sooner than 3 months

JPK prior to estimated flyaway of 1st Airplane

[redacted]

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CONFIDENTIAL

January 8, 1944

Under-Secretary of War
Washington, D. C.

Attn: Col. Hammond

Dear Sir:

Reference is made to the pending contract for a sub-lease to the Higgins Plastics Corporation by Higgins Aircraft Corporation of certain woodworking facilities which were originally provided by D.P.C. under Planner #1569. I have been advised by Mr. C. M. Dinkins, of our Washington office, that further information is desired with regard to the use to which the output of the Plastics Corporation will be put.

In the original conversations which were held between the representatives of Wright Field, the Defense Plant Corporation and Higgins Industries several months ago in New Orleans, and conversations held by the undersigned with officials of the D.P.C., estimates were made of the productive capacities of these woodworking facilities and probable sales which could be made. The products to be supplied by the Plastics Corporation included not only plywoods, but also veneers, sawn lumber, general woodworking products and molded plastic products which would be manufactured in the autoclaves which are a part of the facilities originally provided Higgins Aircraft Inc.

The original estimate of sure business was approximately three million dollars of plywood to be delivered to Higgins Industries by the Higgins Plastics Corporation for use in P.T. boats and other personnel boats manufactured by Higgins Industries, Inc., under contract with the Navy and some for use in larger boats being manufactured for the Transportation Corp of the Army. Under present contracts the plywood so provided Higgins Industries will be used approximately 98% for the Navy and 2% for the Army. As future contracts come along these percentages might change.

At the present time Higgins Industries is purchasing its plywood requirements from the Bakelite Corporation and Ipik Plywood Corporation in about equal quantities.

In our preliminary conversations, estimates were made of an approximate maximum possible output on full-time operation of twelve million dollars per

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year and an anticipated output of between seven and eight million a year. As stated above, the products would include other materials than straight plywood.

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At this writing it is impossible to give you a breakdown of the percentages of the seven million dollar and the twelve million dollar output which would go to the Army, the Navy, or other governmental services. For instance, we have received a bona fide request from the Great Southern Box Company of New Orleans for a million board feet per month of rough veneers for packing cases to be supplied for use in overseas shipments of military supplies. We have also received numerous requests for plywood and veneers from manufacturers and jobbers supplying our government with manufactured materials. We have been unable to accept any business as yet nor to put personnel on the job to work out future business because the Plastics Corporation has not yet received the sub-lease from D.P.C.

At the present time Higgins Industries is under contract with the Army Air Forces at Wright Field for experimental models of droppable rescue boats which will be carried by B-17's and B-25's on certain rescue missions. Models manufactured by Higgins Industries are now being tested at Eglin Field and our present information is that they are satisfactory and we anticipate an order for at least 500 of this type of craft. I am just bringing that out to show that the Army Air Corp still has an interest in our products and that some immediate use of our plastic molding equipment is in the offing.

I regret that I can not give you a better breakdown of what services will use the products of the Higgins Plastics Corporation, but it is impossible to do so until we actually get into business and our organization gets functioning. From what we can see so far, our breakdown of products under the maximum schedule of twelve million dollars would be as follows:

plywood	five million dollars
sawn lumber	three million dollars
molded products	two million dollars
general woodworking material	two million dollars

Under the average of between seven and eight million dollars the breakdown would be:

plywood	three million dollars.
sawn lumber	two million dollars
molded products	one million dollars
general woodworking material	one million dollars

Very truly yours,

John H. Jouett
Vice-President

JHJ:pv

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12 January 1944

CONFIDENTIAL

JAN 17 ENTD

MEMORANDUM OF APPROVAL - No. 1737

1. Under the provisions of the various acts appropriating funds for Expediting Production, as consolidated by the Military Appropriation Act, 1944, approved 1 July 1943, (Public No. 108, 78th Congress), the following project, deemed desirable in Expediting Production for military purposes, is hereby approved:

Additional costs and additional facilities in connection with project at New Orleans, Louisiana (Higgins Aircraft, Incorporated) for the production of C-76 Plastic Plywood Airplanes and conversion to the production of C-46 Cargo Airplanes. The estimated cost is $3,751,469, of which there is to be obligated at the present time, under the agreement between the War Department and the Defense Plant Corporation, not to exceed. . . . . $1,875,735 JAN 17 ENTD JAN 17 ENTD

2. This project has been approved by the Facilities Committee, War Production Board.

3. The construction involved in this project shall be limited in scope and type to the absolute minimum required to accomplish the purposes of the project.

By direction of the Secretary of War:

(Signed) ROBERT P. PATTERSON

ROBERT P. PATTERSON,
Acting Secretary of War.

SPUPS
JPH 6207
avf 1/12/44

MAILED

cc. Miss Vinci
Maj. Hay
Col. Hammond

cc. Comeback AC-574
Div. Mail & Records
Mail & Records
Proj. Div.
Br. Chronological

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RESTRICTED

: Higgins Aircraft, Inc. (Higgins Plastics Corp.), New Orleans, La.

CONFIDENTIAL 12 January 1944

Defense Plant Corporation
Lafayette Building
811 Vermont Avenue, N.W.
Washington, D. C.

Attention: Hans A. Klagsbrunn, Esquire

Subject: Lease agreement with Higgins Aircraft, Inc., New Orleans, Louisiana (Plastics Unit)

Gentlemen:

Reference is made to letter agreement dated 27 October 1943 between the War Department and Defense Plant Corporation, as amended, and to lease agreement dated as of 5 November 1943 between Defense Plant Corporation and Higgins Aircraft, Incorporated, as amended, relating to plastics facilities to be established by Defense Plant Corporation at New Orleans, Louisiana, and used by Higgins Aircraft, Incorporated, in the production of aircraft for the war program.

Reference is further made to proposed agreement of sublease of a portion of the facilities in question to Higgins Plastics Corporation, draft of which has been submitted by you to this office.

The War Department hereby consents to the proposed agreement of sublease to Higgins Plastics Corporation.

Very truly yours,

Signed

ROBERT P. PATTERSON
Under Secretary of War

FHL:vcgp

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Higgins-285
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AFDRD-S

19 January 1944

CONFIDENTIAL

SUBJECT: Expansion of Higgins Aircraft, Incorporated
New Orleans, Louisiana

TO: Brigadier General B. E. Meyers
Deputy Assistant Chief of Air Staff, MMAD

This is a history of negotiations relative to the expansion of Higgins Aircraft, Incorporated, in two sections. The first section deals with the C-76 program and the second section with the C-46 program.

C-76 Facilities Program

1. On November 3, 1942 the Commanding General, Materiel Command, advised the Chairman, War Production Board, that the Materiel Command was in the process of negotiating with Mr. Andrew J. Higgins of New Orleans, Louisiana for the construction of 1200 C-76 transport airplanes. The Commanding General advised the Chairman of the War Production Board that facilities in the amount of $30,000,000, as asked for by Mr. Higgins for the construction of a manufacturing plant and parts plant, involving 2,000,000 square feet of floor space was considerably more than was required for the manufacture of 100 C-76 airplanes per month. The Chairman of the War Production Board was requested to furnish his comments in regard to this project, as Mr. Higgins had informed authorities at Wright Field that a total overall project amounting to approximately $30,000,000 had been set up by the War Production Board. On November 11, 1942 the Chairman of the War Production Board, in letter signed by Mr. C. E. Wilson stated that the Aircraft Board had met and approved the request of Mr. Higgins for a parts plant and manufacturing laboratory in the light of immediate and future requirements. Mr. Wilson stated that facilities should be given Higgins Aircraft, Incorporated only for the manufacture of 1200 C-76 wooden transport planes of the Curtiss design.

2. On November 17, 1942 the Facilities Clearance Board, War Production Board, approved the construction of an aircraft plant to be operated by Higgins Aircraft, Incorporated at New Orleans, Louisiana, with capacity to manufacture 100 C-76 airplanes per month at a total estimated cost of $20,000,000. On November 19, 1942 the project was revised upward to $23,735,000 which covered land improvements and airport development. A "take-out letter" was signed by the Under Secretary of War on November 27, 1942 in the amount of $23,735,000 and forwarded to Defense Plant Corporation. On June 11, 1943 the Industrial Facilities Committee, War Production Board, was requested to approve a project covering air processing equipment for the control of temperature and humidity in the subject facility. This

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TO: Brig.Gen. Meyers
Expansion of Higgins Aircraft, Inc.
1/19/44

CONFIDENTIAL

project was in the amount of $2,313,564. This request was approved by the War Production Board on June 30, 1943 and later revoked on August 6, 1943. The War Production Board then requested that the letter of revocation be disregarded,, which was confirmed in writing by this office on August 18, 1943. On August 21, 1943 the lease agreement between Defense Plant Corporation and Higgins Aircraft, Incorporated was executed by a "take-out letter" in the amount of $2,313,564, covering the acquisition of the air conditioning system.

b. On July 12, 1943 the Chairman of the Industrial Facilities Committee informed the Office of the Assistant Chief of Air Staff, M&SD, that the Aircraft Production Board in its meeting of July 12, stated that construction of the airport facilities for the Higgins project were to be held up for consideration from 60 to 90 days. The construction of this airport is still being held in abeyance and will be started during March of 1944.

c. On October 1, 1943, the Army Air Forces recommended to the Office of the Under Secretary of War that negotiations be initiated between Defense Plant Corporation and Higgins Aircraft, Incorporated to segregate the wood-working facilities from the aircraft manufacturing portion of the project and to provide a separate lease agreement in the name of Higgins Plastics Corporation, to cover these facilities in the amount of $2,018,000. Under the lease agreement as it was originally written Higgins could not utilize its facilities for the manufacture of items other than for C-76 airplanes and since the C-76 program was cancelled, placing the wood-working facilities under a separate lease agreement on a suitable rental basis would enable Higgins to produce sawn lumber and plywood items for any other war program. However, Defense Plant Corporation proposed that the original lease agreement be amended to enable Higgins Plastics Corporation to utilize these facilities on a sub-lease, at a substantial rental for the various war programs. The Defense Plant Corporation proposal has been approved by Higgins Aircraft, Incorporated and the War Department and a sub-lease was consummated on January 14, 1944.

C-46 Facilities Program

2. On July 31, 1943, Curtiss-Wright Corporation signed a letter of intent with Higgins Aircraft, Incorporated for production by Higgins of C-46 wing panels. On about July 24, 1943, it was decided that Higgins Aircraft, Incorporated would make 50 complete C-46 airplanes per month in subject plant.

a. Higgins Aircraft, Incorporated submitted a project to the Army Air Forces, Midwestern Procurement District on November 19, 1943 to cover overruns in the original project and to provide productive capacity for the manufacture of 50 C-46 wings and 50 C-46 airplanes plus spares per month. This project was forwarded to the Materiel Command, Wright Field on December 3, 1943, in the amount of approximately $4,100,000.

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TO: Brig.Gen. Myers
Expansion of Higgins Aircraft, Inc.
1/19/44

CONFIDENTIAL

b. On December 18, 1943 the Material Command submitted this project in the revised amount of $3,751,469 to Office of the Assistant Chief of Air Staff, M&D. This project was in three sections as follows:

Section I in the amount of $299,936 covers the cost of certain modification in the use of construction materials differing from the original design as set forth in the original expansion.

Section II in the amount of $1,380,926 covers miscellaneous additions and modifications in the design drawings to service the production requirements of the original production program (C-76) which were not envisioned or included in the original Appendix "A". These items were added by Higgins Aircraft and approved by local Defense Plant Corporation supervising engineer but not previously approved by Army Air Forces.

Section III in the amount of $2,025,607 covers changes and additions in the existing facilities made necessary by the conversion of the production of the C-46 airplane instead of the C-76 airplane.

On December 20, 1943 the project was submitted to the Facilities Committee, War Production Board and the War Production Board approved it on December 24, 1943 in the full amount.

c. Negotiations were then begun by the Army Air Forces with the Office of the Under Secretary of War and Defense Plant Corporation leading toward the consummation of an amendatory lease agreement between Defense Plant Corporation and Higgins Aircraft, Incorporated in the amount of $3,751,469. Negotiations between Defense Plant Corporation and the Office of the Under Secretary of War were delayed because a sizable portion of this project, (Section II as outlined in paragraph 2b) in the amount of $1,380,926 had been added by Higgins Aircraft, Incorporated and approved by local Defense Plant Corporation supervising engineer but not previously approved by the Army Air Forces or Defense Plant Corporation, Washington office. Defense Plant Corporation had to make a very thorough investigation to determine whether or not their Board of Directors should approve these items as the local Defense Plant Corporation supervising engineer had exceeded his authority and at the time of this investigation was no longer employed by the Defense Plant Corporation but was an employee of Higgins Industries.

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TO: Brig.Gen Wayers
Expansion of Higgins Aircraft, Inc.
1/19/44

d. Higgins Aircraft, Incorporated has been given authority by Defense Plant Corporation to buy all standard items of machinery and equipment covered in Section III outlined in paragraph 2b above. The Office of the Under Secretary of War has written a "take-out letter" on this project, dated January 19, 1944, in the amount of $3,751,469.

For the Commanding General, Army Air Forces:

FREDERICK M. HOPKINS, JR.
Brigadier General, U.S.A.
Chief, Resources Division
Office, AC/AS, M. M. & D.

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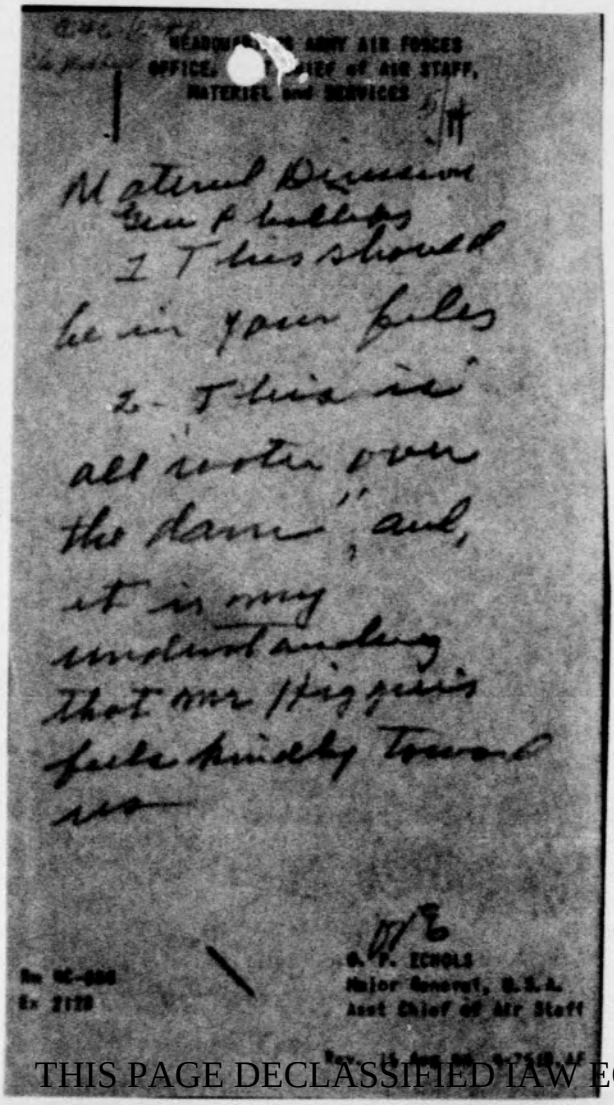

HEADQUARTERS ARMY AIR FORCES
OFFICE, ASSISTANT CHIEF of AIR STAFF,
MATERIEL and SERVICES

Material Division
Wright Field

1 This should be in your files

2. This is all water over the dam", and, it is my understanding that Mr Higgins feels kindly toward us

O. P. ECHOLS
Major General, U.S.A.
Asst Chief of Air Staff

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20 January 1944

MEMORANDUM FOR GENERALS ECHOLS and MEYERS

SUBJECT: Higgins Aircraft Company

1. Visited Andrew J. and Frank Higgins at the office of the Higgins' Industries in New Orleans on 18 January 1944 at 12:00 noon.

2. Present at the interview was a Major, E.T. Cuddeback, a Lt. Colonel Hatcher and a Captain, both from Wright Field, and a civilian who introduced himself to me as Mr. Cole.

3. The above named were in Mr. Higgins' office when the undersigned entered with Major Cuddeback and remained throughout the interview.

4. Mr. A. J. Higgins talked at length on the history of the Higgins' operations emphasizing his points from time to time by indicating the ships and boats from the window.

5. Mr. Andrew Higgins was interrupted by a telephone call which he said was from a Colonel in Washington. It was a long conversation, following which Mr. Higgins asked us, generally, if we had listened to it. He then explained to us that it concerned the advancement of $10,000,000 on his ships and boats contract and his demands for an increase in the contract price. Standing behind his desk with his fist clenched, he said that he had intended to shut down his plant at 4:00 o'clock that afternoon on this contract, thereby "killing two birds with one stone" and explained that he meant both the Army and the Labor people, ending up by regretting that the Colonel talked him out of this program and that he postponed the shutdown for two weeks to give the Army an opportunity of meeting his demands. He indicated clearly that at the end of that time, if his demands were not met, he would shut down his program knowing that he had the upper hand since the other contractors for the same ships and boats were not in a position to make adequate deliveries.

6. Directing his remarks to the undersigned, he stated that "if Wilson doesn't come through with the runways, there will be plenty of trouble."

7. At this point, the undersigned reminded Mr. Higgins of our conversation at the Wardman Park Hotel in Washington, about the middle of December, concerning his complaints of failure of cooperation by Curtiss-Wright Company of Buffalo, New York, in connection with the outer-wing subcontract for the C-46. Mr. Higgins said that he recalled making some general complaints. The undersigned asked Mr. Higgins how matters stood between the two companies now, regarding the subcontract. Mr. Frank Higgins replied that since 15 December 1943, the Curtiss-Wright Company had gone a long way towards full cooperation. Curtiss-Wright had assigned several competent men to the New Orleans Plant to help with the blueprints templates, structure, ending up by a recent visit for several days of Mr. Peter Jeremy, vice president of that company. In January 1944 - there was nothing left undone by the Curtiss-Wright Company that he could think of. I suggested to both the Andrew and Frank that I would like a statement in writing for this office to that effect. Mr. Higgins Senior

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developed considerable excitement and said he would put nothing on record to give the Curtiss-Wright Company "any chance."

8. Either at this point or later, he said that he had a C-46 contract in spite of the aircraft industry, including Curtiss-Wright and also, in spite of high officers in the Army. He said that he knew what he was talking about; that the Higgins Industries hold a sound products company, the best in the country; that he knew bellhops in hotels that could use a twenty-dollar bill and, directing his remarks to the undersigned, stated that he had some recordings of conversations of high army officers by which he could prove that he had a C-46 contract in spite of high army officers. "Do you want to hear these recordings?" he asked, to which the undersigned answered "Yes" but Mr. Higgins passed on to another subject without making good his offer.

9. About this time, Colonel Ege called from Washington to tell the undersigned that the O.L.S. was in receipt of a communication from Mr. Hugh Fulton, Counsel to Truman Committee, in which he asked 6 questions about the C-46, one of the questions included the Curtiss-Wright - Higgins Company relationships. Returning to the room, the undersigned informed Mr. Higgins that there were many questions he would now be required to answer in view of Mr. Fulton's letter. Mr. Higgins immediately picked up the telephone and directed that Mr. Hugh Fulton be contacted, I believe in South Carolina. Speaking to Mr. Hugh Fulton as "Hugh", he pretended that the undersigned was outside going through the plant, without mentioning any name. He stated to Mr. Fulton that someone was here to ask questions for the purpose of answering Fulton's letter to the War Department. He told Mr. Fulton that his letter was premature and came at a bad time and it would have been better coming a few weeks from now; that the Curtiss-Wright Company were doing alright at the moment.

10. He suggested to Mr. Fulton that he would tell the undersigned later that the information would be sent by Higgins to the Truman Committee direct and not through the Army. When the conversation was finished, Mr. Higgins then said to the undersigned, "You won't have to bother with that, Fulton will withdraw that letter."

11. Either then or later, he said that he had saved Fulton's life, that Fulton was suffering from a very serious physical condition and that he had recently had him down in New Orleans taking the cure. The undersigned explained that he was under orders from the War Department to get the answer from the Higgins Company for the War Department and persisted in getting a statement in writing. Frank Higgins said that it was easy to give such a statement because, as of that day, 18 January 1944, the Curtiss-Wright Company had fully performed. Of course, he had doubts that they would continue but he had to say that as of 18 January 1944, Curtiss-Wright had fully performed.

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Memo for Generals Echols and Meyers

Subject: Higgins Aircraft Company

20 January 1944

CONFIDENTIAL

The undersigned asked for that statement in writing, upon which Mr. A. J. Higgins turned to Frank Higgins and said he would not permit Frank to put it in writing and after a good deal of conversation on the subject between Frank and Mr. Higgins, Mr. Higgins outlined the type of letter that he would permit Frank to prepare. Frank Higgins then left the room and dictated the letter to his stenographer in another building, over the phone. There followed several hours, chiefly devoted to looking over the ships and boats and there was no apparent interest by Frank Higgins in showing the activities of either the sub or prime contract for the C-46.

12. About 5:00 o'clock, we returned to Frank Higgins' office where the attached letter, reflecting the existing conditions between Higgins' and Curtiss-Wright on the C-46 subcontract, was already prepared. Frank Higgins signed it and turned it over to the undersigned.

13. The Higgins Aircraft Company is in charge of Mr. Frank Higgins. Mr. Jack Jewett is on the Staff. It was learned that Mr. Higgins lacks the experience of Mr. Jewett and many of the key men are likewise inexperienced and are close personal friends of Frank Higgins. There is said to be an internal feud in the making between Frank Higgins and Jack Jewett, which in time is likely to reach serious proportions. As of 18 January 1944, it appeared possible that the C-46 Program at the Higgins Plant may not be successful.

14. While it was agreed by both A. J. and Frank Higgins that on 18 January 1944, Curtiss Wright Company had fully performed, it was difficult to get the Higgins people to say so in writing. The conversation between A.J.Higgins and Hugh Fulton sounded like an agreement between them to lay in wait for the Curtiss-Wright Company to make some serious mistake. Mr. Higgins' reliance on his ability to use high political influence to gain his point was belligerently stated by him without any attempt to conceal his antagonism toward the aircraft industry as a whole and "high officers of the Army." Should there be deficiencies in the output of the C-46, it is believed he will use all available methods to sidestep his responsibility and place it, if possible, on someone else. The undersigned inclines to the belief that Mr. Higgins at this time, is preparing a defense record in case of failure to deliver. Lt. Colonel Winston, Administrative Assistant, C-46 Production Committee, has been informed of the facts and the necessity of giving his personal attention to every detail of this program including all follow-up communications and the maintenance of a complete file.

15. The undersigned was instructed to remain in New Orleans for a few days to establish closer personal relationship with the officers of the Higgins Company. However, a few hours with Mr. A. J. Higgins was enough to

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Memo for Generals Echols and Meyers

Subject: Higgins Aircraft Company 20 January 1944

CONFIDENTIAL

demonstrate the futility of this purpose. His outspoken sense of power through politics expressed at times in unquotable language; his unconcealed dis-respect for "high officers of the Army"; his boastful admission of bribery of hotel help to install recording devices in rooms of unsuspecting guests; and his generally belligerent attitude made it advisable to return to Washington which was done without further delay.

WILLIAM O'DWYER,
Colonel, Air Corps.

Incl:
Ltr fr Mr.Higgins
to Gen.Echols- 18 Jan.

/tpw

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POST OFFICE BOX 52

Higgins AIRCRAFT INC.

CONFIDENTIAL

FOH:pd
18 January 1944

SUBJECT: Subcontract #2107 Covering Manufacture of 400 Sets of C-46 Outer Panels for Curtiss-Wright Corporation.

TO: Major General Oliver P. Echols
Assistant Chief of Staff
Headquarters, Army Air Forces
Washington, D. C.

1. We are pleased to inform you that as of this date (18 January 1944), the obstacles which we had encountered in the performance of our subcontract #2107 for the manufacture of 400 sets of C-46 Outer Panels for Curtiss-Wright Corporation, under their Prime Contract No. W535 ac24581, which difficulties were mainly due to failure of Curtiss-Wright to supply necessary engineering information, templates, tooling, etc., are rapidly being overcome.

2. We attribute this favorable development in our relations with Curtiss-Wright Corporation to the efforts of Colonel William O'Dwyer and Lt. Colonel Walter L. Winston of the C-46 Production Committee; to the results of a meeting held in the office of Curtiss-Wright Corporation on 30 December 1943 attended by top side of their organization and of Higgins Aircraft, Inc.; and to the visit to New Orleans last week of Mr. P. N. Jansen, General Manager, Airplane Division, Curtiss-Wright Corporation, accompanied by Colonel William M. Morgan of Wright Field.

3. As a direct outcome of the earnest and helpful activities of these men, and the frank discussions that took place, Curtiss-Wright Corporation has agreed to station at Higgins, personnel from their Engineering Department, Lofting Department, Tooling Department, and any other type of technical men that we may later require to assist our personnel in corresponding departments on current or future problems by interpreting and coordinating Curtiss-Wright information and material, as well as immediately recognizing and rectifying any shortages. Some of these men are already here and others are due to arrive within a few days.

4. We deeply appreciate your influence and the efforts of everyone responsible toward the realization of this much needed understanding and spirit of cooperation between the Curtiss-Wright Corporation and Higgins Aircraft, Inc. organizations and we are confident that the close collaboration that should follow, will be reflected in our economical, efficient, and scheduled performance of the subcontract involved.

Frank O. Higgins,
Vice-President.

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HEADQUARTERS ARMY AIR FORCES

ROUTING AND RECORD SHEET

TALLY NO.

FILE NO.

SUBJECT: Status of C-46 Production.

TO: Assistant Chief of the Air Staff, Materiel, Maintenance and Distribution.

FROM: Chief, Legislative Services.

DATE 22 Jan 1944

COMMENT NO. 1

HQR:jrp 74489

CONFIDENTIAL

1. Annexed is copy of memorandum addressed to the Chief, Legislative Services, Army Air Forces from Julius H. Amberg, Esq., Special Assistant to the Secretary of War, subject as above, dated 15 January 1944 inclosing copy of a letter from Hugh Fulton, Esq., Chief Counsel, Special Committee investigating the National Defense Program, dated 14 January 1944.

2. Attention is directed to six specific questions asked by Mr. Fulton. Report is requested, in form as complete as possible, responding fully to each of the six questions, by not later than 1 February 1944 so that adequate reply may be made to the committee.

Warren S. Ege

WARREN S. EGE
Colonel, Air Corps
Chief, Legislative Services

1 Incl.-
Memo fr Julius H. Amberg
dated 15 Jan 44 with ltr
fr Mr. Fulton attached.

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AAF Central Files 5 (2-44)

CONFIDENTIAL

15 January 1944

MEMORANDUM FOR CHIEF, LEGISLATIVE SERVICES, ARMY AIR FORCES
Attention Colonel Warren S. Ege

Subject: Senate Investigation -- Status of C-46 Production

There is annexed copy of letter of January 14, addressed to me by Mr. Fulton, Chief Counsel of the Truman Committee, in which he asks a number of questions relative to the production of the above-mentioned plane and coordination between Curtiss plants and Higgins Aircraft, Inc.

For your information, I have reason to believe that Mr. Higgins keeps in quite close touch with the Truman Committee on various matters. I do not know, however, that the present inquiry results from anything he may have stated to the Committee.

A memorandum in reply is requested.

JULIUS H. AMBERG
Special Assistant to the
Secretary of War

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UNITED STATES SENATE
Special Committee Investigating
The National Defense Program

January 14, 1944

CONFIDENTIAL

Mr. Julius H. Amberg
Special Assistant to the
Secretary of War
Rm. 3-E-739, Pentagon Building
Washington, D. C.

Dear Mr. Amberg:

The Committee will appreciate being advised as to the present status of the program for the production of the C-46 "Commando" transport airplane. In particular, we would like to know the following:

1. Has production between the several Curtiss plants and Higgins Aircraft, Inc., been satisfactorily coordinated?
2. Has there been any difficulty encountered as a result of the failure of the Buffalo plant of Curtiss-Wright to furnish the other plants with drawings, templates and engineering information promptly?
3. Have engineering changes had any considerable affect in slowing production of the air lane?
4. Has the number of such engineering changes been more than average?
5. Were the changes which have been made instituted by the Army or the company?
6. Have such changes as have been necessary been made as a result of changed requirements by the Air Forces or because of difficulties in design of the airplane?

Your cooperation in furnishing this material will be appreciated by the Committee.

Very truly yours,

Hugh Fulton
Chief Counsel

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Original Higgins - 285 RD 146 M-In-D

WAR DEPARTMENT ARMY AIR FORCES
Office Chief of Air Staff, Materiel, Maintenance, and Distribution

285

Inter-Desk Memorandum

TO: Maj. Gen. O. P. Echols

Date 15 Feb 1944

SUBJECT: Higgins Airport, New Orleans, La.

1. The Aircraft Production Board at their last meeting approved the construction of the airport at the Higgins Aircraft plant, New Orleans, La. The airport project had been held in abeyance since July 1943 by the Aircraft Production Board and the Facilities Bureau, War Production Board.

CONFIDENTIAL

2. This office, based on the action taken by the Aircraft Production Board has authorized the Defense Plant Corporation to proceed immediately with the construction of one runway and to plan for the construction of a second runway. The construction of only one runway at the present time will save a considerable sum of money by enabling the airport engineers to work out the difficult drainage problem involved due to the swampy nature of the terrain.

Frederick M. Hopkins Jr.
FREDERICK M. HOPKINS, JR.,
Brig.General, U.S.A.

Prep

THIS FORM WILL NOT BE USED OUTSIDE THE AC/AS, M. M. & D.

W.D.-111

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27 Feb 1944

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CONFIDENTIAL

MEMORANDUM FOR JULIUS H. AMBERG, Esq., Special Assistant to The Secretary of War

SUBJECT: Senate Investigation - Status of C-46 Airplane Production.

1. This memorandum is submitted in reply to your memorandum of 15 January 1944, addressed to the Chief, Legislative Services, Army Air Forces, on the above subject. Set forth below are the questions contained in Mr. Fulton's letter, together with the answers thereto requested by the Truman Committee:

a. Has production between the several Curtiss plants and Higgins Aircraft, Inc., been satisfactorily coordinated?

Yes. The administration of the C-46 joint project is radically different from that of the C-76 joint project in which the Curtiss-Wright Corporation and Higgins Aircraft, Inc. were originally engaged. Patterned after the B-24 Committee, which for nearly three years past has successfully coordinated production of B-17 Flying Fortresses, the B-29 Production Committee and other such committees under the sponsorship of the AAF Materiel Command, the C-46 Production Committee was established shortly after the C-46 joint production project was initiated. At the outset, the committee device was not enthusiastically accepted but after Curtiss-Wright representatives studied first hand the organization and practices of the B-24 and the B-29 Production Committees in Seattle, Curtiss-Wright became a convert to the committee idea. The C-46 Production Committee consists of an Executive, or policy making committee, the members of which, including the Chairman, who is Chief of the Production Division, AAF Materiel Command, include a representative from each of the three Curtiss-Wright plants, namely, Buffalo, Louisville and St. Louis and from the Higgins Company. Serving the Executive Committee and performing administrative functions are several subcommittees dealing with engineering, tooling and procurement or purchasing. Completing the organization are working groups who do the spade work at Committee Headquarters and at the several plants. Adding the Committee in the resolution of its problems peculiar to this form of joint production and serving as the point of contact between the group and the Materiel Command is a Lt. Colonel, A.C., in residence at the Committee's main office.

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Memo to Julius H. Amberg, Esq.,
Subject: Senate Investigation - Status of C-46 Airplane Production.

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In the early stages of this effort, the situation was complicated by the difficulty of the Higgins Company in obtaining an adequate supply of trained aircraft personnel. This personnel problem is the most serious problem faced by any manufacturer commencing the operation of a new airplane production activity, particularly at this time, because of the fact that so many competent administrative and supervisory aircraft personnel are already employed by the greatly expanded aircraft manufacturing companies.

b. Has there been any difficulty encountered as a result of the failure of the Buffalo plant of Curtiss-Wright to furnish the other plants with drawings, templates and engineering information promptly?

Difficulty has been encountered in these respects. Experience in other such projects has shown that such difficulty was to be expected because the design prime contractor at the outset does not have such data and media in usable condition for immediate transmission to other participating plants who are unfamiliar with the procedures and usages of the designer's plant. As described in answer to the previous question, it is necessary that such data and media be revised or translated before distribution to other plants. In numerous instances, changes in design of tooling and revision of drawings and other data are necessary in order that the AAF interchangeability requirements of the parts of the airplane produced by the participating contractors with those produced by the design prime contractors can be complied with. These difficulties are inherent to a cooperative venture of this kind.

A precise difficulty in this particular venture is found in the problem of engineering coordination. The airplane was first designed and one was built in the Curtiss-Wright-St. Louis plant. Later volume production of the type was begun in the Curtiss-Wright-Buffalo plant. This circumstance has given rise to two sets of drawings. The Higgins Company has received certain drawings from both sets. The Materiel Command has directed that with all practicable expedition one official set of drawings shall be provided for obvious reasons. This is being attended to with the aid of the Committee.

Further, the Materiel Command has given instruction that a set of master gauges be prepared to control interchangeability of major components in all C-46 assembly plants. Satisfactory master gauges are now in the process of preparation but a period of some months will be required before all of them are available. In the meantime, the prime contractors have been authorized to begin production without the control of their tooling by such master gauges, but to incorporate such gauges as soon as they are made available. This factor may produce some dislocation later in the program but is considered essential if the interchangeability

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Memo to Julius H. Amberg, Esq.,
Subject: Senate Investigation - Status of C-46 Airplane Production.

requirements under the new Army and Navy aeronautical specifications are to be complied with and the spare parts program is to be effectively accomplished.

c. Have engineering changes had any considerable affect in slowing production of the airplane?

Yes. Engineering changes required by operational experience in certain theaters of service have slowed down preliminary production, particularly in the instance of the fuel system change which is very substantial in nature and extent. This general condition, in this respect, is not considered abnormal.

d. Has the number of such engineering changes been more than average?

No. This airplane did not have the benefit of an adequate service test before being placed in production. It was found necessary to place this airplane in production as quickly as possible without completing its accelerated service test program and effort has been made to incorporate changes found necessary during tactical operation of the plane. Although structural integrity was proven for procurement by static tests, the hydraulic, electric and fuel systems and other installed equipment have been continuously undergoing tests in actual service. Changes have been required to improve tactical suitability such as have developed in the operation of this type on the Indo-China run. In spite of these considerations, it is not considered that the number of engineering changes has been above average for this class of airplane.

e. Were the changes which have been made instituted by the Army or the company?

Both. Those instituted by the Curtiss-Wright Company have been such as are normally required in putting the prototype airplane into production. Those initiated by the Army Air Forces have been made to improve the airplane's tactical suitability, as noted in answer to the preceding question.

f. Have such changes as have been necessary been made as a result of changed requirements by the Air Forces or because of difficulties in design of the airplane?

Both. Some changes have been found necessary because of changing Army Air Forces requirements to improve the airplane's tactical suitability as indicated. Some have been found necessary due to the usual and ordinary difficulties of taking an airplane from the drawing board and putting it into mass production. Other changes have arisen and probably will continue to arise in resolving

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CONFIDENTIAL

Memo to Julius H. Amberg, Esq.:
Subject: Senate Investigation - Status of C-46 Airplane Production.

the problem inherent to quantity production of aircraft in four different plants and for the additional sound reason founded on the effort to insure the degree and extent of interchangeability of components and parts that the Government requires.

For the Commanding General, Army Air Forces:

/s/
WILLIAM E. HALL,
Brig. Gen., U.S.A.
Deputy Chief of Air Staff.

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F. in Bowling Green Office

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CONFIDENTIAL 1a

28 February 1944

SUBJECT: Higgins Aircraft, Inc.
New Orleans, Louisiana

TO: Commanding General
Army Air Forces
Washington 25, D. C.

Attention: Assistant C/AS, MSD
Resources Division
Lt. Col. John C. Vaughan

1. Reference is made to your letter dated 5 February 1944 in reference to the subject corporation and forwarding copies of an Appendix "A" outlining facilities in connection with Higgins Plastics Corporation.

2. In reference to section 1 of the above noted Appendix "A", the items as set forth in that section have been checked with Appendices "A" covering BCS Projects 361 A and 361 A-2 for the subject corporation and have been found to be items approved under these two projects.

3. In regard to section 2 of the Appendix "A" forwarded with your above noted letter, the Material Command does not require the output of Higgins Plastics Corporation and consequently is not in a position to substantiate the necessity for the additional $[illegible],822.10 requested and itemized in the Appendix "A" section 2.

4. In telephone conversation with Mr. George Skelly, representative, Higgins Plastics Corporation, Resources Control Section was advised that 95% of Higgins Plastics Corporation output is for Navy Bureau of Ships and 5% for Army Transportation. A check on output was made through Midwestern Procurement District and in turn through the AAFSK at Higgins Aircraft, Inc. The report from these sources indicates that the total output of Higgins Plastics Corporation is acquired by Higgins Industries, Inc., and that the output of Higgins Industries is 70% for Navy Bureau of Ships and 30% for landing craft for the Army. The Material Command is unable to give the reason for

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Com. Gen., AAF. .en. Div.
Subj: Higgins Aircraft, Inc.
28 February 1944

this discrepancy; however, it appears certain that the predominant interest in the output of Higgins Plastics rests in the Navy Bureau of Ships. Consequently it is recommended that the additional facilities be referred to that agency for sponsorship. The eight copies of the Appendix "A" are accordingly being returned herewith.

For the Commanding General:

W. R. HEAD
Colonel, Air Corps
Acting Chief, Resources
Control Section

1 Incl.:
Appen. "A" (8 cys)

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19.

AAF Materiel Command
Wright Field, Dayton, Ohio
Capt. C. W. Barnett
ms/30-I-1-1 E-C127
7 March 1944 4:30 p.m.

CONFIDENTIAL

RADIO PRIORITY

W. R. HEAD
Colonel, Air Corps

DEFENSE PLANT CORPORATION
LAFAYETTE BUILDING
811 VERMONT AVENUE, N.W.
WASHINGTON 25, D. C.
ATTENTION: MR. HENRY CROCK

WDC 16137 CHB ..... THE MATERIEL COMMAND IS IN RECEIPT OF TELETYPE FROM HIGGINS AIRCRAFT, INC., NEW ORLEANS, LOUISIANA, RES PROJECTS 381 A, A-1, and A-2, FLANOR 1969, WHICH IS QUOTED AS FOLLOWS:

"CONFIRMING OUR CONVERSATION THIS DATE THERE IS NOW AVAILABLE $1,607,090 FOR AIRPORT CONSTRUCTION THIS PROJECT. THESE FUNDS ARE AVAILABLE IN THE FOLLOWING SCHEDULES: II - $224,082; III - $1,308,793; IV - $228,390; TOTAL $1,761,265 LESS OVEREXPENDED IN SCHEDULE I $154,115, LEAVING $1,607,909. IT IS ACCORDINGLY REQUESTED THAT $1,154,678 BE TRANSFERRED FROM SCHEDULE III TO SCHEDULE II $154,115 FROM SCHEDULE III TO SCHEDULE I AND $228,390 FROM

- 1 - (SEE PAGE 2)

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7 March 1944

DEFENSE PLANT CORPORATION
WASHINGTON, D. C.
ATTENT ON: MR. HENRY KAISER

POS 16137 (Contract)

SCHEDULE IV TO AUTHORITY TO PURCHASE DATED ____, FROM DEFENSE PLANT CORP., FRANK O. HIGGINS, VICE PRESIDENT."

THE DEPARTMENT CONCURS IN THE ABOVE TRANSFER OF FUNDS AS FOLLOWS: $1,152,678 FROM SCHEDULE III TO SCHEDULE II; $154,115 FROM SCHEDULE III TO SCHEDULE I; AND $228,390 FROM SCHEDULE IV TO SCHEDULE II. IT IS REQUESTED THAT DEFENSE PLANT CORPORATION FREEZE IN SCHEDULE II $1,607,000 TO BE RELEASED ONLY FOR USE ON AIRPORT CONSTRUCTION AS NOW WILLY AUTHORIZED OR MAY IN THE FUTURE BE AUTHORIZED BY ARMY AIR FORCES, WITH THE UNDERSTANDING THAT THE AIRPORT FACILITIES, AS NOW APPROVED, WILL BE COMPLETED WITHIN THIS AMOUNT OF $1,607,000. IT IS FURTHER UNDERSTOOD THAT THE ENTIRE HIGGINS PROJECT WILL BE COMPLETED WITHIN THE OVERALL FUNDS NOW APPROVED AND THAT FUNDS WILL NOT BE TRANSFERRED AMONG SCHEDULES

- 2 - (See Page 3)

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7 March 1944

DEFENSE PLANT CORPORATION
WASHINGTON, D. C.
ATTENTION: MR. HENRY GREEN

NCS 16137 GHD (CONT'D)

WITHOUT PRIOR APPROVAL OF THE ARMY AIR FORCES, MATERIEL COMMAND.

IT IS FURTHER REQUESTED THAT THE $2,070,607 APPROVED BY ARMY AIR FORCES AS SECTION 3, NCS PROJECT 502 A-2, BE EARMARKED AND UTILIZED ONLY FOR FACILITIES NECESSARY IN CONNECTION WITH C-46 AIRPLANE MODIFICATION. (GHD) AFSAM.

MATERIEL COMMAND, WRIGHT FIELD

Copy to:
Lt. Col. J. C. Vaughan, Sec. DEV.
Mr. Frank O. Higgins, Higgins Aircraft, Inc.
Major W. J. Butts, Midwest Proc. Dist.

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G. B. Chapman
[illegible] Tel. 8-1837

3810

8 April 1944
3:30 p.m.
Resources Control Section

B. w/1 enc
OPD
4/8/44

CONFIDENTIAL

R. W. HARLINGS
Colonel, Air Corps

RESOURCE DIVISION
ATTN: MAJOR M. H. HAY

RCS 16977 OPD ..... REURTEL AFDRD-2 503 MGH IN REGARD TO HIGGINS AIRCRAFT PROJECT IN THE AMOUNT OF $1,485,000, INVESTIGATION DISCLOSES THAT THERE (3) PLYWOOD AIR RESCUE BOATS WERE PURCHASED FROM HIGGINS FOR STRICTLY EXPERIMENTAL PURPOSES. THERE IS NO CERTAINTY THAT FURTHER BOATS WILL BE PURCHASED OR, IF THEY SHOULD BE, THAT HIGGINS WOULD BE THE CONTRACTOR. NO CONTRACTS ARE UNDER NEGOTIATION AT THIS TIME. THIS CONSULTED DOES NOT RECOMMEND APPROVAL OF SUBJECT APPLICATION. RMD AFAMC.

RESOURCES CONTROL SECTION

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Army Air Forces
HEADQUARTERS OF THE [illegible]

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Subject: C-46 Subcontract Program

8278

To: Commanding General, Army Air Forces
Assistant Chief of Air Staff
Materiel, Maintenance and Distribution
Washington 25, D. C.

Attention: Brig. General B. W. Chidlaw, U.S.A.
Chief, Materiel Division

Reference: a. Ltr., AFDMA-1, dated 4 April 1944, from Asst. C/AS, M. M. & D,
b. Ltr., dated 30 March 1944, from Chief Counsel, Truman Committee, to Special Asst. to Secretary of War
c. Ltr., dated 15 February 1944, from AAF Matl. Command, re ltr. dated 14 January 1944 from Chief Counsel, Truman Committee

1. Reference is made to communication dated 4 April 1944, from Office, Assistant Chief, Air Staff, Materiel, Maintenance and Distribution, transmitting copy of letter dated 30 March 1944, from Chief Counsel, Truman Committee, to Special Assistant to the Secretary of War, regarding the C-46 Joint Production Program, more particularly its subcontracting phase. For the purpose of this reply, pending any clarification of the question that may be necessary, it is presumed that the point in issue is the subcontract of Higgins Aircraft, Inc., to furnish C-46 outer wings to the Buffalo Plant of the Curtiss-Wright Corporation.

2. It has been recognized by the C-46 Production Committee from its establishment and initial investigation of the subject matter, that the C-46 engineering data was in poor condition. This condition previously has been conveyed to higher authority, notably in Materiel Command letter dated 15 February 1944, commenting upon certain questions submitted in letter dated 14 January 1944, from the Chief Counsel of the Truman Committee. The Curtiss-Wright Corporation, through its Buffalo plant, the design prime contractor of the C-46 joint production program, is now making substantial effort to revise all C-46 engineering data and to revise that part of it found to be incorrect

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F,AAF-44(6/1944)

Subj.: C-46 Subcontract Program
Ref: AC/AS, WMAC, Washington
Date: 12 April 1944

CONFIDENTIAL

3. Contained in letter dated 30 March 1944 from the Chief Counsel of the Truman Committee is the following statement:

"The Weld Loft data was calculated incorrectly and hundreds of figures were wrong but only to a minor degree that would affect interchangeability, dies, jigs, fixtures, etc., but not the structural characteristics of the parts themselves. Therefore, the logical fact would have been to change the data sheet to conform to the templates but instead the decision was made by the department head to revise all the templates which are scattered literally all over the U. S. This single decision alone has no doubt delayed this whole project three to four months and even when completed will prove incomplete and result in poorly fitting parts and delay in assembly. This work is going on right now and is throwing the sub-contractors into an uproar."

Why the templates were changed to conform to the loft data rather than following the reverse of this procedure, as charged, is not clear. The Administrative Assistant to the C-46 Production Committee has been informed that copy of basic letter has been furnished to Curtiss-Wright Corporation, Airplane Division, by Colonel William O'Dwyer, Office of the Assistant Chief, Air Staff, Materiel, Maintenance and Distribution, and that Curtiss-Wright is now preparing an answer thereto.

4. The allegation made is explained to some extent by these circumstances. The C-46 airplane was first designed by the Curtiss-Wright, St. Louis plant for the purpose of making a commercial transport airplane. Thereafter a contract was given to Curtiss-Wright to produce a large number of this type as military transport airplanes to be fabricated and assembled at the Buffalo plant. One effect of this shift is the existence of two sets of C-46 drawings and differences in other data. It is understood that in some measure the data supplied to Higgins is a combination of these two sets. A feature of the C-46 Production Committee program, begun some months ago, is to obtain a master set of C-46 drawings from the prime design contractor. Delivery of this set is now scheduled for completion by 22 May 1944. Because of the circumstances described, some trouble was originally encountered at Firestone, also a C-46 wing subcontractor to the Buffalo plant, but Firestone is now producing in volume satisfactory C-46 outer wings. Further, while the subject complaint may have been well founded during the latter part of 1943, since then much work has been done by Higgins Aircraft, Inc., with active aid from Curtiss-Wright since last December, to correct the

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Subj.: C-46 Subcontract Program
To: AC/AS, MMD, Washington
Date: 12 April 1944

CONFIDENTIAL

template situation. By this time the templates should be sufficiently usable to enable Higgins to get into production. The last progress report from Higgins Aircraft, Inc., dated 1 April 1944, dealing with the wing subcontract, shows 3808 templates available. Of this number 3660 have been inspected and accepted by Higgins.

5. It is recommended that whatever correspondence is forwarded to the Truman Committee by Headquarters, Army Air Forces on this subject be coordinated with Colonel William O'Dwyer prior to its transmittal.

CHAS. E. BRANSHAW,
Major General, U.S.A.,
Commanding.

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RESOURCE CONTROL

ORIGINAL

WRIGHT FIELD
Executive Office

WF V OV NR 23

FROM ARNOLD WASHINGTON DC APR [illegible] PM 1:40

APR 14 1944

TO HQS MATERIEL COMMAND RESOURCES CONTROL SECTION WRIGHT FIELD DAYTON OHIO ATTN LT COL G H MORIARTY

CONFIDENTIAL

GR137

AFDRE-2 3591 MMH PD CONSOLIDATED VULTEE AIRCRAFT CORPORATION HAS REQUESTED ADDITIONAL FACILITIES OF THE BUREAU OF AERONAUTICS FOR THEIR NEW ORLEANS PLANT ONE OF THE REASONS FOR THE CONSTRUCTION OF ADDITIONAL FLOOR SPACE FOR CONSOLIDATED VULTEE AT NEW ORLEANS IS THE FACT THAT CONSOLIDATED VULTEE IS NOW USING APPROXIMATELY 98,000 SQ FT OF FLOOR SPACE IN THE HIGGINS AIRCRAFT INCORPORATED PLANT FINANCED BY DEFENSE PLANT CORPORATION AND WHICH CONSOLIDATED VULTEE STATES THEY MUST VACATE AS HIGGINS AIRCRAFT WILL REQUIRE IT IN THEIR PRODUCTION PROGRAM

THIS OFFICE IS OF THE OPINION THAT HIGGINS AIRCRAFT INCOORPORATED SHOULD BE ABLE TO ALLOW CONSOLIDATED VULTEE TO USE 98,000 SQ FT OF FLOOR SPACE FOR STORAGE INASMUCH AS IT WILL BE SOMETIME BEFORE HIGGINS WILL BE IN A POSITION TO UTILIZE FLOOR SPACE PROVIDED THEM BY THE DEFENSE PLANT CORPORATION END

ORIG: Moriarty - Info. & Rec. Action
cc's Bowling Backus

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CONFIDENTIAL

Mr. Frank G. Higgins, Vice President
Higgins Aircraft, Incorporated
New Orleans, Louisiana

Dear Mr. Higgins:

Your letter of January 24, 1951 to [illegible] relative to a request of the National Plant Corporation, relative to the proposed [illegible] additional machinery and equipment in the amount of [illegible] Higgins Aircraft, Incorporated for the use of Higgins Plastics [illegible] was referred to this Headquarters, for comment from the Army Air Forces and subsequent thereto [illegible] Army Air Forces has expressed serious doubt [illegible] ment, Planner 1951. Prior to consideration of this [illegible] was indicated that the proposed Defense Plant Corporation subsidiary lease agreement was to be in the amount of $[illegible] instead of $[illegible]. Representatives of Higgins Aircraft, Incorporated advised this Headquarters that the proposed agreement would have to be amended upward in the greatly amount to cover the construction of the wood-working facilities as set forth in the [illegible] tion.

Since 75% of the output from the proposed wood-working facilities was to be for the Navy Department, the application was referred to the Bureau of Ships, Navy Department for a recommendation from the Bureau of Ships and the War Production Board as to the essentiality of the project to the Navy's production program. The Headquarters, Army Air Forces informed the Navy Department that if the project was found essential to their program that the Army Air Forces would sponsor the necessary amendment to the Defense Plant Corporation lease agreement with the Department Navy.

The Bureau of Ships has advised this Office that on the basis of the presently projected program, the existing capacity for the construction of wooden boats is greatly in excess of requirements. Consequently, the Bureau of Ships could not support the proposal of Higgins Aircraft, Incorporated for additional wood-working facilities for Higgins Plastics Corporation.

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Doc. Encl. 1 to ltr

Ltr to Mr. Frank O. Higgins
Higgins Aircraft, Inc.
New Orleans, La.
Page 2

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In view of the statement of the Bureau of Ships, Navy Department, that sufficient wood-working capacity is available to meet the Navy's production program, the Headquarters, Army Air Forces is taking no further action in regard to subject request. Returned herewith are four copies of Appendix "A".

Very truly yours,

FREDERICK H. HOPKINS, JR.
Brigadier General, U.S.A.
Chief, Resources Division
Office, AC/AS, M. M. & D.

Encl:
Appendix "A"

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Higgins
Tab dated 2-8/44

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1 May 1944

MEMORANDUM FOR GENERAL MEYERS

SUBJECT: Visit from Mr. Higgins

1. Mr. Higgins stated that he was having some difficulty in getting labor; that he had been refused permission to recruit in certain areas, particularly Fort Worth, Texas, even though labor was available there; the reason being that the War Manpower Commission did not think we were particularly interested in his project. He states that Consolidated released some 8,000 men recently, and informed Higgins' representative that they saw no reason, as far as they were concerned, as to why he should not be allowed to recruit these men. Mr. Higgins requests that we notify Mr. Appley's office that we are interested in his project. He states that he believes this will be sufficient to enable him to get the personnel he needs. Request that you or General Hopkins take this matter up with Mr. Appley's office and inform them that we are interested in having Mr. Higgins get the necessary personnel for his project.

2. Mr. Higgins informed me that the funds had not yet been made available for his landing strip. It was my understanding that this was definitely approved a number of months ago. He states that he cannot persuade himself or anyone else that we really believe he is going to build airplanes if we won't give him a landing field. While it may not be true, he insists that the first airplane will be ready to fly within a couple of months, and it will not be able to get out of the hangar as there will be no runway from which to fly. I am afraid that we will be open to a tremendous amount of criticism, and all the blame for his failures will certainly be placed on our shoulders if some action is not taken in regard to this matter.

O. P. ECHOLS
Maj. General, U. S. A.
Asst. Chief of Air Staff
Materiel, Maintenance & Distribution

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HEADQUARTERS ARMY AIR FORCES
WASHINGTON

3 May 1944

MEMORANDUM FOR: The Under Secretary of War
Attn: Brig. Gen. H. C. Greenbaum
Room 3E-724 Pentagon Bldg.

SUBJECT: Additional Funds
Higgins Aircraft, Inc.
New Orleans, Louisiana

1. Reference is made to Defense Plant Corporation lease agreement with subject company in the amount of $29,800,033.

2. It has been determined that additional funds in the amount of $200,000 will be required to construct one runway at subject plant. The amount presently frozen for the airport is $1,607,000, and the estimated cost in accordance with the lowest construction bid is $1,807,000.

3. The approval of the Facilities Committee, War Production Board is not required for this project as it is for overruns.

4. It is recommended that the increased cost of this project be approved, enabling this office to consummate an supplementary Defense Plant Corporation lease agreement with the subject company in the amount of $200,000, which will make the total amount of the lease agreement $30,000,033, and that the War Department enter into an agreement to reimburse the Defense Plant Corporation for 1/2 of the existing deficiency, but not in excess of $100,000. It is, also, requested that an authorization be made from Expediting Production Funds, which will enable this office to transmit to Wright Field procurement authority for $100,000.

5. It is hereby certified that the items of expenditure herein referred to are essential to enable this facility to attain the productive capacity required of it in order to meet the peak requirements of the currently authorized aircraft program.

For the Commanding General, Army Air Forces:

FREDERICK M. HOPKINS, JR.
Brigadier General, U.S.A.
Chief, Resources Division
Office, AC/AS, M. M. & T.

KLH:pmd
AFDRE-2

Engr.
A.C. ltr-

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6 May 1946

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MODIFICATION OF APPROVAL - No. 2021

1. Under the provisions of the various acts appropriating funds for Expediting Production, as consolidated by the Military Appropriation Act, 1946, approved 1 July 1945, (Public No. 108, 79th Congress), the following project, deemed desirable in Expediting Production for military purposes, is hereby approved:

> Increase in cost of project for Higgins Aircraft, Incorporated at New Orleans, Louisiana, for the construction of a runway. The increased cost is $300,000, of which there is to be obligated at the present time, under the agreement between the War Department and the Defense Plant Corporation, not to exceed. . . $200,000

2. This increase does not require the approval of the Munitions Committee, War Production Board or the Production Division, Headquarters, Army Service Forces. The necessity for the above increase has been certified by the Chief, Procurement Division, Office, Assistant Chief of Air Staff, Material, Maintenance and Distribution, Headquarters, Army Air Forces.

By direction of the Secretary of War:

ROBERT P. PATTERSON,
Under Secretary of War.

cc. Comeback 40-474
Div. Mail & Records
Mail & Records, OPNS
Prod. Division
Br. Chronological

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TdWrvfn:90-1-1-2
S. O. #115, Para. 21
Sec. Trav. Ord. dated
11 May 1944

XX.XXXXX COMMAND

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25 May 1944

Addendum "B"-RCS Project 361A
Higgins Aircraft, Inc.
New Orleans, Louisiana
Resources Control

ISB-F-604

1. Pursuant to authority conferred by above orders, Major Travis G. Walsh and Mr. Charles B. Chapman, Facilities Unit, Industrial Service Branch proceeded by rail to New Orleans, Louisiana, 14 May 1944 on temporary duty for conferences and project inspection in connection with additional costs of facilities at subject plant.

2. Necessity. Subject corporation is requesting financial aid from the United States Government, relative to additional costs to presently planned facilities in connection with production requirements of C-46 Cargo airplanes.

3. On 16 May 1944 this officer and Mr. Chapman reported to the office of the Army Air Forces Representative, Higgins Aircraft, Inc., Gentilly Highway, New Orleans, Louisiana.

4. Personnel attending Conferences.

Major Mills M. Hay, Ass't Chief of Air Staff, M&D, Resources Division, Washington D. C.
Major Travis G. Walsh, Chief, Structures Control, Resources Control Section, Wright Field.
Major William J. Butts, Chief, Resources Control Section, MCD, Wichita, Kansas.
Mr. Charles B. Chapman, Facilities Unit, Ind.Ser.Br., RCS, Wright Field.
Mr. C. C. VanVechten, Senior Engineer, Defense Plant Corporation Office, Resources Control Section, Wright Field.
Mr. John Klorer, Senior Engineer, Defense Plant Corporation Office, Higgins Aircraft, Inc.
Mr. R. L. Atkinson, Jr., Director of Plant Engineering, Higgins Aircraft, Inc.
Mr. H. B. Pinkerton, Ass't. Director of Plant Engineering, Higgins Aircraft, Inc.
Mr. Michael Machcea, Ass't. Secretary-Treasurer, Higgins Aircraft, Inc.
Mr. A. M. Daniel, Comptroller, Higgins Aircraft, Inc.,
Mr. Robert A. Linton, Albert Kahn, Associate Architects & Engineers, Inc., Detroit, Michigan.

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5. Plant Inspection. Following coordination with the office of Army Air Forces Representative, this officer, assisted by the foregoing individuals, accomplished a general inspection of plant facilities. Inspection included Administrative and Engineering Sections, the Main Manufacturing Building, Flight Hangar, Airfield Site, Hammer Shop (the latter under construction), Boiler House, Log Pond, Veneer and Saw Mills.

Special attention was given the Site and Sub-surface conditions of the contemplated East-West Runway in view of questions relative to subsoil characteristics. Visual inspection indicated a fine sandy hydraulic fill, which the local officials reported as typical except for limited pockets of peat and clay deposits.

The Hammer Shop is presently under construction and alterations pertaining to the C-46 program have been partially accomplished in the Main Manufacturing Building. Two autoclaves are being completed adjoining the east wall of the latter building and the breeching for the two which have been omitted is being bricked up at the same approximate location. Two bays adjoining the latter wall of the Manufacturing Building have been leased to the Higgins Plastics Division and the approximate equivalent of one bay on the north side (retaining a center aisle for through circulation) has been leased to Consolidated for temporary warehousing.

The Veneer and Saw Mills, together with Log Pond and 75,000 gallon elevated sprinkler tank appear to be complete, with the exception of actual sprinkler installation for Saw Mill, presently requested. Construction of the entire project is over 90% accomplished.

6. Conferences. On 17 May 1944 a meeting was held in the offices of the Army Air Force Representative, Higgins Aircraft, Inc. attended by the aforementioned individuals. These conferences pertained to Schedule II of the presently considered Addendum "B" with recorded action as follows:

SCHEDULE IIa

a. Waterproof canvas deck and curbs. $9200.

This item appears necessary to prevent leakage on the manufacturing area below. The cost is based upon building contractors' bid.

Approval recommended.

b. Metal lining of wooden tanks. $7000.

Item appears necessary to provide water tight conditions to the wooden tanks, the latter made mandatory by WPB. The leakage affects the production areas below and involves 43 penthouses on the roof of Manufacturing Building.

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Approval recommended.

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c. Bricking in blast wall openings. $5000.

Item includes walling up the breeching in brick wall left by the omission of 2 Autoclaves; filling and paving over pits. This appears necessary to complete the structure. A credit should appear in connection with omission of the two Autoclaves.

Approval recommended.

SCHEDULE II b.

d. Additional work in Laboratory areas. $8271.

Changes in Air Processing System for Physical and Chemical Laboratory areas, due to redesigning for revised production from plywood to metal planes. Work includes fire doors and automatic louvers in brick walls separating laboratories from Factory building. Cost based on contract bid.

Approval recommended.

e. Welding, Plating, and Anodyzing. $25,000.

The additional cost is due to underestimating the extent of equipment furnished by the Curtiss-Wright Corporation. This work appears to be very complex and cost is based on partial bids plus estimates prepared by subject Corporation who report that final costs should not exceed the estimate.

Approval recommended.

f. Dust Collecting Systems. $1500.

This system appears essential to the efficiency of precision work. Cost based on contract bid.

Approval recommended.

g. Foundation Pit. $2500.

A foundation pit and compressed air piping connections is necessary for sand blast equipment, due to changes in plant layout. Cost based on subject corporation's estimate.

Approval recommended.

h. Sprinklers for Spray Booths. $15,000.

This represents an additional item recommended by the District

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as a Plant Protection item. The estimate is reported as excessive by the Internal Security Branch, Wright Field; this office recommends that the cost be reduced, not to exceed $5000.

Approval recommended, subject to foregoing revision.

i. Bench Lighting $6000

Supplemental electric bench lighting for close detail work in specific areas where precision requirements are factors.

Approval recommended.

j. Electrical Corrections. $13,775

This item appears as due to repairs and corrections necessitated by restrictions imposed by WPB at the time of original overhead wiring installations in Main Manufacturing Plant.

Approval recommended.

k. Rectifier for Underground Cable. $3750

Fifteen rectifier units are proposed at $250 each, to prevent decomposition of lead sheathed underground primary and low voltage electric cables. Electrolitic action has accounted for several failures and investigations by an expert retained locally by Defense Plant Corporation indicate that the proposed corrections should prove adequate.

Approval recommended.

l. Two Autoclaves (Four Autoclaves originally planned) $15000

Credit should appear in connection with two Autoclaves omitted. Representatives of subject Corporation were advised that this item concerned the activities of the Higgins Plastics Division. It is recommended that the cost of Autoclaves be contained in a separate Appendix, said document to cover any items which do not pertain to the production of the C-46.

Approval not recommended.

m. Saw Mill Sprinkler System $27,000

This item relates to the activities of the Higgins Plastics Division. Reference is made to recommendations in sub-paragraph "A".

Approval not recommended.

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n. Miscellaneous Plant Protection.

Recent inspections by Internal Security involved additional recommendations not contained in the presently considered Addendum "B", as follows:

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(1) Sprinklerheads above ducts over 48" or larger. $28,500.
Internal Security Branch, Wright Field recommended that this protection be waived, with the exception of an area, 100' x 200' wherein plywood production takes place. This item concerns the Higgins Plastics Division. It is recommended that the revised cost be included in a separate Appendix.

Approval not recommended.

(2) All Sprinkler lines disconnected due to installation of humidifying ducts, should be re-connected in a standard approved manner. (Approximately 2300 heads involved)

Approval recommended. $9095.

(3) Sprinkler heads in [illegible] humidification ducts above roof.

Approval not recommended. $18,000.

(4) Provide automatic control on gasoline powered Fire Pump with electric wiring connections and control from Flight Hangar to Fire Pump Room. (Internal Security Branch, Wright Field, reports that 3 Fire Pumps exist, two of which are automatically controlled, stating that this protection, plus the 200,000 gal. elevated tank, is adequate.)

Approval not recommended. $4000.

(5) Provide Automatic Sprinklers under combustible ceilings, etc.

Approval recommended. Estimate Pending.

(6) Elimination of hazards in connection with Cyainde tanks.

Approval recommended. Estimate Pending.

o. Loudspeaker System. $49,000.

Subject Corporation reports that a loudspeaker system had been verbally recommended by Lt. General Knudsen during a recent plant inspection; the proposed system to be so arranged as to permit Mr. A. J. Higgins, Sr., to broadcast to the entire personnel at periodic intervals, consonant with his present policies at Higgins Industries plants. Lt. Colonel Moriarty has coordinated this item with Brig. General Orval R. Cook, Chief, Production Division, resulting in favorable consideration based upon the stipulation that the cost of referenced system shall not exceed $49,000.

Approval recommended, conditioned upon the foregoing.

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7. Conferences (Cont'd). On 18th May 1944 the meetings were resumed in the offices of the Army Air Force Representative, Higgins Aircraft, Inc., to consider factors pertaining to Schedule II(c), Schedules III and IV of the presently considered Addendum "B". Items relating to the Airfield construction (Schedule II(c), were discussed pro and con. Based upon the previously mentioned fine sandy hydraulic fill, a modified scheme of construction has been adopted, eliminating sub-drainage entirely, with the necessary amount of surface drainage included. It was stated that Mr. Orleff Henry, C. E., New Orleans was retained by the Architects and Engineers and Mr. George Shelley, formerly DPC Supervising Engineer for the project, also consulted expert opinion; both concurring in the adopted construction.

Mr. John Klorer, the present DPC Senior Engineer for the project, described a possible alternate system of drainage, based upon the Municipal Airport on Lake Ponchartrain. While it was agreed that such a system had definite merits from the point of view of local drainage conditions, there would be no assurance against serious additional cost, elevations would have to be raised and it was finally determined that the time element would preclude such revisions at this late date.

In rejoinder to the question raised by this officer, Mr. Robert A. Linton stated that the Architect and Engineers preferred the adopted scheme as more properly recognizing the existing local conditions.

Consideration was limited to Alternate "A", representing an East-West Flight Test Strip, 5400' in length, designed for a wheel load of 80,000 lbs, Taxiway to Flight Hangar, with Aprons around the latter structure and at west end of Manufacturing Building. Discussion and analysis developed recommended action as follows: -

SCHEDULE II(c)

a. Telephone Service to Outlying Buildings. $6500.

The basic charge reflects a deduction from the Southern Bell Telephone Company's proposal of $9050, indicating an allowance of $2550. for the cost of work relating to the Saw and Veneer Mills, the latter representing facilities which concern activities of the Higgins Plastics Division. (Reference is made to previous recommendations, in the same connection.)

Approval recommended in an amount of $6500.

b. Airfield Site Clearance. $5000.

Temporary service lines remaining on Site, representing a holdover from Maritime Commission occupancy. Visual inspection of these

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conditions indicate the necessity for their removal.

Approval recommended.

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c. Removal of Clay and Peat Deposits. $75000.

This proposed cost is based upon analyses of expert opinion both local and otherwise. It apparently represents an outside cost and the best estimate obtainable, in view of the intangible conditions involved. It is requested that this fund be limited to the purposes described.

Approval recommended.

d. Corrosion Protection $7500.

The necessity for asphaltic coating for drainage piping is based upon the report of an expert retained by Defense Plant Corporation. (Mr. Kuhn)

Approval recommended.

e. Electrolysis Protection. $20,000.

This item represents the cost of electric bonding of underground drainage piping for electrolysis protection. The necessity is also based upon expert opinion, retained by D.P.C. The cost represents building contractor's bid.

Approval recommended.

f. Performance Bond. $8000.

This protection is customary with D.P.C., who state that such safeguard will be required.

Approval recommended.

g. Sales and Use Taxes. $15,000.

The principal of these costs has been challenged by subject corporation who report that such taxes will be invoked as a mandatory requirement.

Approval recommended.

h. Electrolysis Resistant Cables. $5000.

This item is required to prevent electro-chemical action of the soil; the necessity is based upon local experience, endorsed by expert opinion. The cost represents building contractor's bid.

Approval recommended.

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i. Total Cost of Airfield. $1,759,161.

Runway Lighting is included in foregoing total at a cost of $24,118.88. Inasmuch as electric Lighting systems for Flight Test Strips are not included at plants where similar production conditions are involved, it was agreed that same should be eliminated. A recapitulation of the foregoing costs indicate the following basic factors:

(1) $1,362,612. Represents unexpended funds available for application against construction of Airfield as described in the Addendum "B".

(2) $1,607,000. Represents DPC recorded balance for Airfield construction.

(3) $1,759,161. Represents final estimate of total Airfield cost.

(4) $ 152,161. Represents differential between DPC recorded balance and final estimates, due to under-estimation.

(5) $128,042.12. Represents net deficit after deleting the cost of runway lighting at $24,118.88.

Resources Division, WPB, has anticipated the above conditions, releasing an additional $200,000 for Airfield construction. It is therefore requested that the surplus balance between $128,042 and $200,000 be "frozen" by DPC, until the revised Addendum "B" is processed and then applied against the total amount approved.

Approval recommended, conditioned upon foregoing revisions.

SCHEDULE III (d)

j. Furniture and Fixtures. $286,766.03

This item is questioned and subject Corporation has been requested to submit to the Midwestern Procurement District, a complete itemization of Furniture and Fixtures viz.,- in stock, requested, and total, so that necessity can be properly determined.

Recommendation withheld, pending compliance with foregoing request.

SCHEDULE IV (a)

k. Portable Tools. $220,429.12

It was recommended that this item be completely eliminated,

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since a check of Portable Tools previously approved against the production schedule, revealed that sufficient Portable Tools are on hand to accomodate production requirements up to May 1945.

Approval not recommended.

8. Conferences with Mr. A. J. Higgins, President, Higgins Aircraft, Inc.

Mr. Higgins requested a meeting with the representatives of the Army Air Forces and the Defense Plant Corporation, together with several officials of subject Corporation present at the Higgins Aircraft Plant on Wednesday, 17 May 1944. The meeting was called at 2 pm and adjourned at approximately 4 pm in Mr. A. J. Higgin's Office. Mr. Higgins dealt in broad generalities which mainly concerned the war record of Higgins Industries, Inc. He traced the history of the Higgins Aircraft, Inc., program from the period related to Maritime Commission activities, through the proposed C-76 program to the presently contemplated production of the C-46; sharply taking issue with any possible "blocks" which might cause a production delay. It was explained to him that present considerations related to the Addendum "B" which had recently been submitted and involved a reconciliation of additional costs with those approved in an earlier Appendix. He was further advised that such considerations were apparently objective and aimed to provide those facilities which were necessary to the production of the C-46.

An examination of Addendum "B" items was resumed in the Army Air Forces offices, but was again adjourned at the request of Mr. A. J. Higgins who met with the aforementioned individuals in the office of Mr. Frank O. Higgins. Discussion extended until approximately 6 pm which with certain variations, was a recapitulation of the previous meeting and appeared to be irrelevant to subject considerations.

9. Recommendations. Conferences stressed the necessity of revisions to the Addendum "B" taking into account all facilities required for the production of C-46 Cargo airplanes, thus (excepting Continuing Capital Expenditures) - representing a final accounting of funds for this production. Basic recommendations are as follows:

a. Schedule II(b). Estimated cost of Sprinklers for Spray Booths to be reduced to $5,000. Deduct $10,000.

b. Schedule II(b). The two (2) Autoclaves to be contained in a separate Appendix pertaining to Higgins Plastics Division. Deduct $15,000.

c. Schedule II(b) The Saw Mill Sprinkler System to be similarly contained in a separate Appendix. Deduct $27,000.

d. Schedule II(c) Runway Lighting for Flight Test Strip, to be deleted. Deduct $24,119.

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e. Schedule II(d) An Itemization of Furniture and Fixtures in stock should provide substantial reductions. Revision Pending.

f. Schedule IV(a) Portable Tools to be deleted. Deduct $220,429.

The following items represent additional costs which are recommended but were not included in presently considered Addendum "B". The first three items relate to Plant Protection and have been recommended by Internal Security Branch, Wright Field.

(1) Schedule II(b). Sprinkler Lines, Reconnected. Add $9095.

(2) Schedule II(b). Sprinklers under combustible ceilings etc. Estimate Pending.

(3) Schedule II(b). Eliminate hazards at Cyanide Tanks. Estimate Pending.

(4) Schedule II(b). Loudspeaker System. Add $49,000.

h. The total amount of Service Costs, Schedule II(d), to reflect the foregoing revisions but not to exceed the prescribed limitations as contained in the Guide Form for the Appendix "A", based upon the combined total cost of the project.

i. The revised Addenium "B", to contain a Summary Sheet indicating in proper schedule form the progressive stages of the project, including the final total cost, and to further include a Schedule of Areas indicating the square foot quantities of the various buildings involved.

10. Coordination. The basic recommendations contained in the foregoing report have been coordinated by Major Mills M. Hay, Resources Division, Washington D. C., Major William J. Butts, Midwestern Procurement District, Wichita, Kansas, Mr. Charles B. Chapman, Facilities Unit, ISB, RCS, Wright Field, and Mr. C. C. VanVechten, Senior Engineer, D.P.C. Office, Wright Field.

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Higgins Aircraft, Inc.
25 May 1944

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Prepared by Travis S. Walsh, Major A. C.
Chief, Structures Control

Assisted by Charles H. Chapman,
Facilities Unit

Approved by J. L. Bowling, Lt. Col., A. C.
Chief, Facilities Unit

Approved by C. H. Moriarty, Lt. Col., A. C.
Chief, Industrial Service Branch

Approved by L. W. Rawlings, Colonel, A. C.
Chief, Resources Control Section

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Resources Division, Washington (2)
Brig. General Orval R. Cook, Chief, Prod.Div., Wright Field
Colonel W. M. Morgan, Ass't. Chief, Prod.Div., Wright Field
Midwestern District Supervisor
AAF Rep., Higgins Aircraft, Inc., New Orleans, La.
Ass't Chief Eng., DPC, Washington
DPC Engineer, Higgins Aircraft, Inc., New Orleans, La.
Mr. C. C. VanVechten, DPC, Resources Control Section
ACS Executive (2)
Section Files (2)
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MEMORANDUM FOR: Brigadier General F. H. Hopkins, Jr.
Chief, Resources Division
Office, Assistant Chief of Air Staff
Material, Maintenance and Distribution

SUBJECT: Higgins Aircraft, Incorporated
New Orleans, Louisiana
Additional B-45 Facilities

A. Purpose of Visit

1. Pursuant to instructions contained in Special Orders dated 13 May 1944, Major M. H. May proceeded to visit the Defense Plant Corporation-owned plant located at New Orleans, La., sponsored by the Army Air Forces and operated by Higgins Aircraft, Incorporated, to attend a conference regarding the necessity and evaluation of various items contained in supplemental request for additional funds. The total cost of the submitted projects is $1,286,984.41.

B. Factual Data

1. On 16 May 1944, Major May arrived at the Higgins Aircraft, Incorporated plant, in company with the following officers and civilians from the Material Command, Wright Field and Defense Plant Corporation.

Mr. C. Van Vechten	Defense Plant Corporation Engineer
Mr. C. B. Chapman	Material Command, Wright Field
Major Travis Walsh	Material Command, Wright Field
Major William Butts	Material Command, Midwestern Procurement District, Wichita, Kansas

Officials of the company were informed that no attempt would be made to go over the detailed Appendix "A" on Tuesday, 16 May 1944, until the visitors had made a visual inspection of the plant and the site of the proposed airport. Of particular interest was the filled-in site of the proposed airport, which is only five feet above the water table which indicates that it will be exceedingly difficult to successfully drain, and will probably result in an over-run in cost due to the nature of the terrain.

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Higgins
Fac Inst - 2 Ltr/Rpt

Brig. Gen. F. M. Hopkins, Jr.
Subject : Higgins Aircraft, Incorporated
22 May 1944

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2. On 17 May 1944, a meeting was held with the Higgins Plant Engineer, Mr. Robert Atkinson, the Higgins Controller, Mr. McChesney, and the Defense Plant Corporation Resident Engineer, Mr. John Klerrer, for the purpose of reviewing the request for additional funds and also to briefly review expenditure of funds which had previously been approved by all Washington agencies to convert the Higgins plant from the production of C-76 airplanes to C-46 airplanes. Higgins officials were asked to explain the discrepancy between their report of 11 March 1944, which indicates that only $1,362,613 of the total allotted funds were still available and the report of the Defense Plant Corporation Resident Engineer, whose report of the same date indicated that $3,169,976 was available. Higgins Aircraft officials stated that the difference arose from different methods of classifying commitments. Higgins had classified airport funds in the amount of $1,607,000, which were freeze by the Army Air Forces and Defense Plant Corporation for that specific purpose, as being committed and funds in the amount of $200,363 to cover sales taxes and claims by contractors not yet recorded by Defense Plant Corporation. Higgins officials were then informed that we were visiting their plant in an effort to see that everything needed to complete the plant once and for all was included in the proposed application as well as to eliminate any non-essential items which might be found. Representatives of the Army Air Forces insisted that the application should contain no machinery and equipment which would be used in connection with the operation of Higgins Plastics Corporation (a wood-working plant) as War Production Board has insisted that there is sufficient wood-working capacity in the United States to meet all war requirements. It was explained to Higgins officials that if any wood-working facilities were to be included in subject request that it would undoubtedly interfere in obtaining War Production Board approval of any facilities for the C-46 production program. Higgins officials agreed to this procedure. In the afternoon of 17 May 1944, Mr. Higgins, Sr., President of Higgins Industries, Incorporated, called the conferees to his office. It was apparent that he was not favorably disposed toward the visitors. It seems that he had been informed, erroneously, that the Army Air Forces and Defense Plant Corporation visitors were to investigate his plant and make recommendations to the Headquarters, Army Air Forces as to the feasibility of continuing to utilize Higgins in the C-46 airplane program. After much explaining and arguing it was finally put across to Mr. Higgins that the visitors were in New Orleans to help in preparing a final Appendix "A" which would result in obtaining any necessary additional facilities to complete the subject plant for production of C-46 airplanes, since Higgins Aircraft had insisted that additional facilities were required. 2,228,000 square feet of floor space has been provided. As of 30 April 1944, Defense Plant Corporation has committed $27,248,419 in connection with subject plant.

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Memo For: Brig. Gen. F. M. Hopkins, Jr.
Subject : Higgins Aircraft, Incorporated
22 May 1944

CONFIDENTIAL

3. From an examination of all data available at Higgins Aircraft, Incorporated it appears that a considerable amount of money must be spent before the plant will be finally completed. Following is a breakdown of the cost based on the Higgins estimate and the estimate of Albert Kahn, Incorporated, architect engineers:

a) To complete for C-46 production:

1) Funds available to cover authorized purposes. Not yet committed as of 30 April 1944.	$ 924,614	
2) Funds available to cover construction of one runway. (No construction yet started).	1,607,000	
3) Additional funds required for above runway. (Not yet available from OUSW)	152,161	
4) Additional funds required for C-46 program. (As recently submitted to WD by Higgins).	1,286,985	
Sub-Total		$3,970,760

b) In addition to minimum costs attributable to C-46 production there are additional items which may be authorized since Higgins is seriously contemplating an additional request.

1) Wood-working machinery for Higgins Plastics Corporation. (Part of C-76 project facilities)	$ 448,000	
2) Construction of a second runway. (Albert Kahn estimate).	750,000	
Sub-Total		1,198,000
TOTAL		[redacted]

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Higgins
Jac Dept-3
(4/4pp)

: For: Brig. Gen. F. M. Hopkins, Jr.
ubject : Higgins Aircraft, Incorporated
22 May 1944

From the above it appears that the total cost of the completed plant may reach $32,437,179. Mr. George Shelley, Assistant to Mr. Higgins, made the statement that in view of the air-rescue boat order with the Army Air Forces that he was going to place orders for the additional wood-working machinery, Paragraph 3b(1) above, immediately and present a bill to the Army Air Forces later to bail-out Higgins through Defense Plant Corporation and if not successful in obtaining Defense Plant Corporation reimbursement, to charge the cost of the facilities off against the Army Air Forces Supply Contract. Mr. Shelley was told that the Army Air Forces could not authorize acquisition of additional wood-working facilities in view of the position of the War Production Board that there are existing wood-working plants not now being utilized and that therefore it would be impossible to secure reimbursement through Defense Plant Corporation for any unauthorized expenditures made by Higgins Plastics Corporation.

4. In addition to the costs outlined in the above paragraph, which can be attributed direct to the Higgins Aircraft, Incorporated plant, another large amount of money must be spent to provide NHA housing for the Higgins Aircraft employees and the necessary utilities for this housing. No work has been started on the housing projects, although Mr. Higgins stated that he had finally obtained nearly all of the required authorizations. Listed below is a breakdown of cost of Higgins Aircraft, Incorporated housing projects which have been authorized by NHA or other government agencies.

	Units	Cost
a) Housing		
1) Metairie	150	$ 315,000
2) FHA (Public Housing)	500	1,350,000
3) FHA (Private financing, insured by U. S. Government).	1000	5,100,000
Sub-Total		$6,765,000
b) Utilities (Breakdown by financing) Higgins estimate.		
1) FHA (Off-site water & sewerage utilities)		$ 716,000
2) City of New Orleans (On-site water & sewerage utilities)		210,000
3) Contractor (Housing) (On-site utilities)		130,000
Sub-Total		1,056,000

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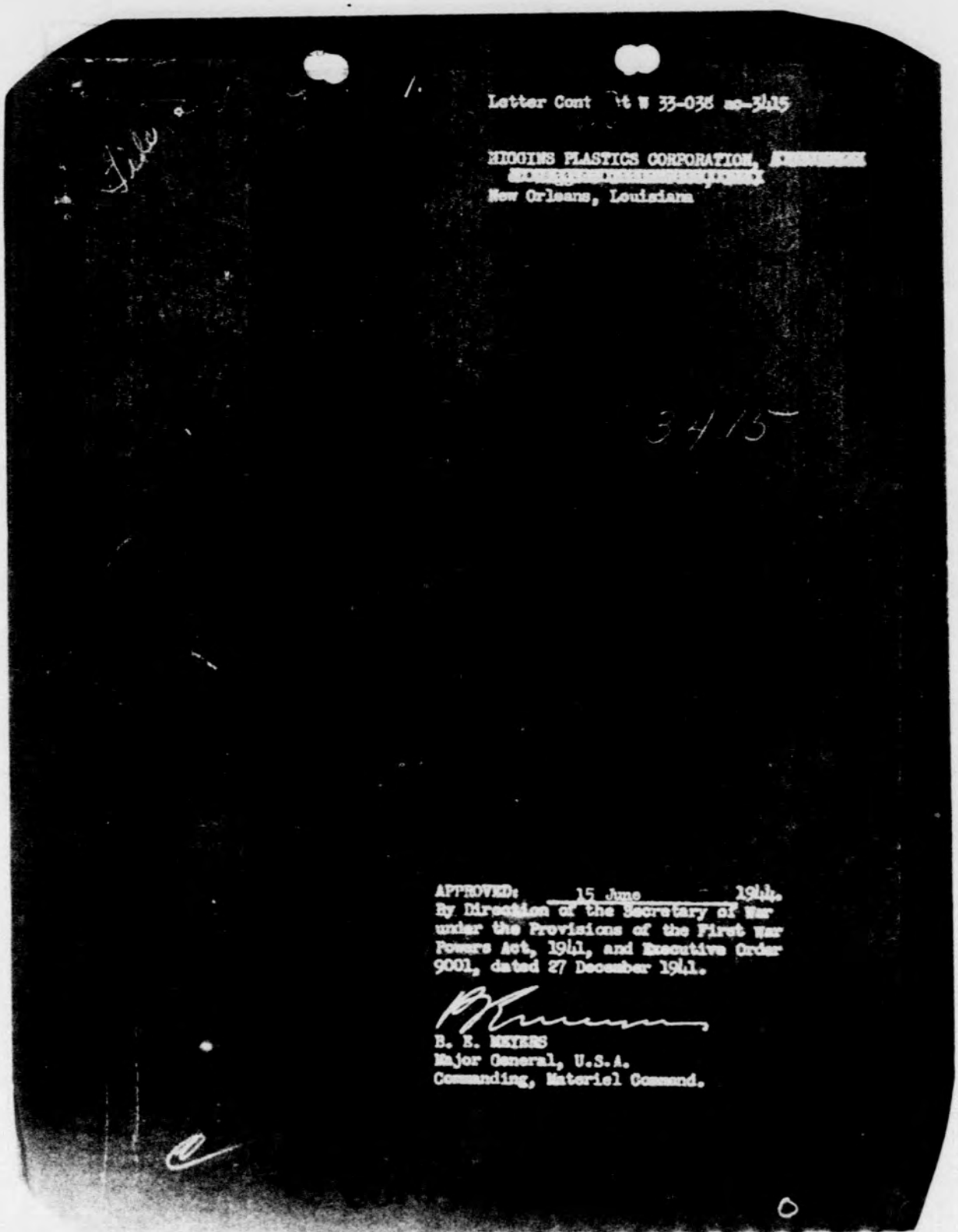

Letter Cont [illegible] W 33-038 ac-3415

HIGGINS PLASTICS CORPORATION, [illegible]
New Orleans, Louisiana

3415

APPROVED: 15 June 1944.
By Direction of the Secretary of War under the Provisions of the First War Powers Act, 1941, and Executive Order 9001, dated 27 December 1941.

B. E. MEYERS
Major General, U.S.A.
Commanding, Materiel Command.

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2.

Air Material Command
Letter Contract

ARMY AIR FORCES
MATERIEL COMMAND

LAM:rvl:s:87-44

OFFICE OF THE COMMANDING GENERAL

Contract No. W 33-038 ac-9435 (18566)

Wright Field, Dayton, Ohio

27 May 1944

NAME: Higgins Plastics Corporation, A Division of Higgins Industries, Inc.

ADDRESS: New Orleans, Louisiana

By authority of the War Production Board the preference ratings indicated are assigned to this delivery on the purchase order or contract.

Dear Sirs:

1. An order is hereby placed with you for the furnishing to the Government of the following supplies or services:

Item 1 - Six Hundred (600) Airborne LAFs Route AAF Type A-1 conforming to AAF Specification No. 40743 dated 26 May 1944.

At a total estimated price of $1,600,000.00.

Price to be agreed upon in Formal Contract may be more or less than the estimated price herein stated.

2. Except as otherwise expressly provided to the contrary herein, you are directed, upon your acceptance of this order (or upon its approval if required by paragraph 9) to proceed immediately to procure the necessary materials, and to commence the manufacture of the supplies or performance of the services called for in paragraph 1, and to pursue such work with all diligence to the end that the supplies may be delivered or services performed at the earliest practicable date.

3. All applicable articles (other than the article "Termination at the option of the Government") now required by Federal Law, Executive Order, or War Department Procurement Regulations to be included in contracts for supplies or services of the kind herein described are incorporated herein by reference.

4. By your acceptance hereof, you undertake without delay to enter into negotiations with the War Department looking to the execution of a definitive contract which will include all applicable articles then required by Federal Law, Executive Order and War Department Procurement Regulations to be included in contracts for supplies or services of the kind herein described. The definitive contract will also contain a detailed delivery schedule and prices, terms and conditions as agreed to by the parties, which may or may not be at variance with the provisions of this order. It is expected that such definitive contract will be placed with you prior to 29 July 1944.

5. You are not authorized to expend or obligate, in furtherance of your performance hereunder, more than $ 1,600,000.00 in the aggregate. Pending the execution of a defin-

Letter Contract (1-a)

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...r not later than ... June 3 ..., 194... h acceptance will constitute ... order a contract on the ...rms set forth herein, subject to the w...en approval of the Secretary ... War or such individual as said Secretary may designate.

10. This instrument is authorized by and has been negotiated under the First War Powers Act, 1941, and Executive Order No. 9001.

11. See Paragraph 11 below.

UNITED STATES OF AMERICA

By _____

C. CARL [illegible], Major, Air Corps

Contracting Officer

ACCEPTED June 2 19 44

[illegible] PLASTICS CORP., A DIVISION OF [illegible] INDUSTRIES, INC.,

(Contractor)

By _____

(Name) (Official Title)

Morris Gottesman, Secretary-Treasurer

The Finance Officer, U.S.Army, Poland and Dauphine Sts., New Orleans, La. is designated as the officer to make payments in accordance with this contract.

The sums to be expended by the Government hereunder are chargeable to the following allotments, the available balances of which are sufficient to cover the same:

AGA [illegible], 9-1006 P [illegible]-09 A [illegible]

11. There is also incorporated herein by reference the Article prescribed by Paragraph [illegible] of War Department Procurement Regulations in effect on the date of this Letter Contract.

F. O. B. Point New Orleans, La.
Type Contract Contemplated [illegible]
Authority for Purchase No. [illegible]
Priority Rating [illegible]
Equipment Class [illegible]
Classification [illegible]
Program [illegible]

W 33-038 ac-3425

Letter Contract (3-a) 3 WP-4-1-44-5M 0

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CONFIDENTIAL 23 June 1944

381a

MEMORANDUM FOR: Office, Under Secretary of War
Attn: Chief, Legal Division
3D-722, Pentagon Building

SUBJECT: Higgins Aircraft, Incorporated
New Orleans, Louisiana

1. Reference is made to letter from this office dated 14 June 1944, requesting an amendment to Defense Plant Corporation lease agreement in the amount of $1,100,000 for the subject company.

2. On 6 May 1944, the Office of The Under Secretary of War approved the release of $100,000 to cover certain overruns in connection with the Higgins Aircraft, Incorporated plant at New Orleans, Louisiana, which are in the amount of $800,00.

3. Therefore it is requested that the Office of The Under Secretary of War initiate negotiations with Defense Plant Corporation looking toward the amendment of Higgins Aircraft, Incorporated lease agreement upward in the amount of $1,900,000, which will include the $800,000 overruns mentioned in paragraph 2 above.

For the Commanding General, ARMY AIR FORCES:

FREDERICK H. HOPKINS, JR.
Brigadier General, U.S.A.
Chief, Resources Division
Office, AC/AS, M. M. & S.

MHH:mfh
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27 June 1944

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Subject: Extension of Airfield - No. 4151

1. Under the provisions of the various acts appropriating funds for expediting Production, as consolidated by the Military Appropriation Act, 1944, approved 1 July 1943, (Public No. 108, 78th Congress), the following project, deemed desirable in expediting production for military purposes, is hereby approved.

Additional funds and additional facilities for Higgins Aircraft, Incorporated at New Orleans, Louisiana, necessary to complete the airport and roads now under C-46 aircraft production. The estimated cost is $1,100,000, of which there is to be obligated at the present time, under the agreement between the War Department and the Defense Plant Corporation, not to exceed. $500,000

2. These facilities have been approved by the Facilities Committee, War Production Board.

By direction of the Secretary of War:

Signed
JOHN J. McCLOY,
Assistant Secretary of War.

for
ROBERT P. PATTERSON,
Under Secretary of War.

FACILITIES SECTION

cc. Miss Simonsberg
Mr. Lang
Mr. Gaffney
BRANCH.

cc. Coumbest 40-374
Div. Mail & Records
Mail & Records, OUSW
Prod. Division
Mr. Chronological

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AIRCRAFT PRODUCTION BOARD
RESOURCES CONTROL OFFICE

PENTAGON BUILDING
WASHINGTON, D.C.

June 27, 1944

CONFIDENTIAL

IN REPLY REFER TO:
W:D:D:-6-193

MEMORANDUM FOR: FILES

SUBJECT: Report of Visit of Dr. A. E. Lombard to the Higgins and Consolidated Factories in New Orleans

The following report was made by telephone by Dr. A. E. Lombard subsequent to his visit to the above noted factories for adinterim report to the Aircraft Production Board.

HIGGINS: Dr. Lombard stated that this firm is apparently doing a good job on boats and have a very aggressive management with a fine plant, beautifully tooled. The housekeeping is good and with sufficient know-how they should be able to do a good job on their airplane work.

The outer panels for C-46's were started substantially ahead of their prime contract for this type of plane and they are now in moderate production. The workmanship appeared good, although they have no time studies as yet worked up for this job.

On the C-46 airplanes the two sets of parts had been delivered to them by Curtiss and they are now working on the assembly of these items. Their estimate of completion is one in August and one in September. Dr. Lombard's estimate is one in September and one in November.

The third airplane, which will be the first all Higgins ship, is only barely getting started. Very little in fact is in evidence in the shop on work for the production of ships. Higgins is to build the fuselage and panels and has estimated that there will be a need of 27,000 jigs, fixtures, and miscellaneous tooling necessary for completion to produce this ship. So far only 2000 of these items have been completed.

The Higgins schedule calls for 12 production ships to be completed in 1944. It is Dr. Lombard's opinion that none will be so produced and that in fact it is unlikely whether or not the first plane is ready for March.

It is claimed that the tooling is held up by inability to complete the templates and to get the services of tooling personnel in general. One engineering service company has been hired to help out on this work but, all in all, it is progressing very slowly.

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Higgins suggest that five additional sets of components be shipped to them from Curtiss to carry out their initial setup of the assembly line. Mr. Lombard feels that provided it is felt essential to proceed at all on the job, in view of the small number of ships it is probable they will produce in 1945, then this suggestion of five sets of components should be increased to 25 sets. However, it must be realized that sending these parts to Higgins from Curtiss will for the short period undoubtedly reduce the number of completed airplanes coming out of Curtiss. However, on this basis it is probable that towards the end of 1945 Higgins will do a good job on the C-46. It is possible that during the year 1945 they will be able to produce from 150 to 200 completed airplanes, although without this help and at the rate they are now going it is doubtful whether they turn out more than 50 in 1945.

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There was some question as to the desirability of converting the contract from a cost-plus-fixed-fee which now maintains to a fixed-price contract. Mr. Lombard feels that this would be very beneficial from the standpoint of competition between the various producers of the C-46 and, if the program is to go ahead intensively, he urges consideration of this switch-over.

To sum up, the management is alert and aggressive and has it in them to do a good job and the plant is admirable for the purpose. However, they do not have the know-how and it is going to take a long time to break them in on the production of complete airplanes.

One additional plane has been flown down from Curtiss and was broken down at the other airport and trucked into the plant where it is now being inspected and used as a mockup.

Mr. Lombard called Mr. Murphy of the Central Procurement District, Army Air Forces, suggesting that that organization make an independent survey and report to Wright Field their findings on the probable completions, as estimated by Mr. Lombard and as given above.

CONSOLIDATED-VULTEE, NEW ORLEANS FACTORY BUILDING PBY5A AIRPLANES: Mr. Lombard reported that this plant looked good that work was flowing satisfactorily and that the stock bins were well filled up. They should get out five planes this month. Their big problem is manpower. Mr. Lombard felt that the local management was not pressing the manpower matter strongly enough insofar as local recruiting is concerned and stated that he intended to discuss this with Mr. Harry Woodhead who should "build a fire" under the local management to try to push their own acquisition of help.

It is true that some additional housing is necessary, particularly for supervisors. Some 100 to 200 houses of a better quality, if set up at once, would help greatly in getting and retaining supervisory help. Mr. Lombard understood that WPB and/or the housing agencies were blocking the establishment of housing projects for units of over $6000.00. He felt that raising this limit somewhat for this small number of housing should be done, as Captain Nelson, the manager at the plant, felt that the better type of houses would be necessary to hold the supervisory personnel or in fact to get them in the first place.

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The plant will need about 3000 productive workers during the next year. Dr. Lombard recommends that the Bureau of Aeronautics send an officer to New Orleans to help expedite the acquisition of labor along the lines that were done in Kansas City and Los Angeles.

If the personnel can be acquired to the extent of about 300 per month from this point on it is felt that the company can approximately meet its M-10 Schedule. They are at present about 200 persons behind the number that they could effectively use. Their peak arrived at next April is 4900.

T. P. Wright, Director
Aircraft Resources Control Office

CC - Mr. C. E. Wilson
Maj. General C. P. Nichols
Rear Admiral E. M. Pace
Rear Admiral D. C. Ramsey
Lt. General Wm. S. Knudsen
Dr. A. E. Lombard, Jr.

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Carbon
C-46 Higgins
Plan & Sched
Prod. Rev, Mtls. Work.
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Ca ai '. L. Rowe/cs/71230

3 JUL 1944

CONFIDENTIAL

MEMORANDUM FOR: Recorder, Joint Aircraft Committee

SUBJECT: Revision of C-46 Production Schedule at Higgins, New Orleans

1. Higgins Industries at New Orleans are experiencing difficulties in getting started in production of the C-46 airplane and the following proposed schedule is presented as being more accurate in view of those difficulties.

	1944 Aug	Sep	Oct	Nov	Dec	Total
M-10	1	1	2	4	6	14
Proposed			1	-	1	2
Difference (Mo.)	-1	-1	-1	-4	-5	-12
(Cum.)	-1	-2	-3	-7	-12	-12

	1945 Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
M-10	10	15	20	25	30	35	40	44	47	50	50	50	416
Proposed	-	1	1	2	4	6	7	15	20	25	30	35	146
Diff. (Mo.)	-10	-14	-19	-23	-26	-29	-33	-29	-27	-25	-20	-15	-270
(Cum.)	-22	-36	-55	-78	-104	-133	-166	-195	-222	-247	-267	-282	-282

2. This proposal is concurred in by the manufacturer and by the Materiel Command.

3. Approval of the Joint Aircraft Committee is requested.

For the Commanding General, Army Air Forces:

/s/ [illegible]

O. P. ECHOLS
Maj. General, U. S. A.
Asst. Chief of Air Staff
Materiel, Maintenance & Distribution

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Lt. O.W. Barnett
John 2nd. 2-6127

90-2-1-1

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14 July 1944

381a

SUBJECT: Blocking Aircraft Incorporated
New Orleans, Louisiana
ROS Project 381 A-3

TO: Commanding General
Army Air Forces
Washington 25, D. C.

Attention: Assistant C/AS, MMSB
Resources Division
Major Mills E. Day

1. Reference is made to teletype RSS 16561 OSR dated 23 May 1944 processing the subject project in the amount of $1,100,000.00 and to teletype AFDSS-S-1639 MMH dated 5 July 1944 advising that the subject project was being increased to $1,500,000.00.

2. Attached herewith are three copies of the Appendix "A" in the amount of $1,498,889.41 which have been revised downward from the amount of $1,501,776.88, upon recommendation of the Supervisor, Midwestern Procurement District and in which recommendation this office concurs.

3. It is therefore recommended that the cumulative lease agreement be drawn in the amount of $1,498,889.41 or if the lease agreement has already been drawn in the amount of $1,500,000.00 that the balance of $10,710.59 be frozen so that commitments cannot be made without prior proper Army Air Forces approval.

For the Commanding General:

C. E. [illegible]
Colonel, Air Corps
Acting Chief,
Resources Control Section

1 Incl.
App. "A" (3 cys.)

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24 July 1944

MEMORANDUM FOR BRIG. GEN. FREDERICK M. HOPKINS, JR.

SUBJECT: Visit of General Rose (AAF) to Higgins Aircraft Co.

CONFIDENTIAL

1. General Rose visited the subject facility in accordance with arrangements made by this office on the order of General Echols. Congressman Abare of Louisiana also visited the plant accompanied by General Rose after clearance with the Air Provost Marshal.

2. General Rose reported to this office by telephone that he was impressed with the Higgins organization and felt that they are doing a fairly good job of setting up an aircraft facility although they are greatly handicapped by lack of sufficiently trained supervisory personnel. They have 5800 workers at the present time, of which 1300 are productive. There are several hundred productive employees not assigned to any particular jobs, but Higgins is holding these men in view of the investment he has in their training. This being a cost-plus-a-fixed-fee contract the investment, of course, is not Higgins', but the Army Air Forces. Congressman Abare was prepared to make a case of this point, citing that the Government's money is being wasted. General Rose feels that after explaining the situation to him, the Congressman quieted down and it is not believed that he will cause any trouble. Major Caddeback, AAF Resident Representative, has submitted a report to the Material Command through channels recommending that more wing assembly work be allocated to this plant in order to utilize the several hundred trained people who are not now assigned to productive duties. General Rose suggested that Major Caddeback's recommendations be favorably acted upon rather quickly in order that the Army Air Forces may avoid criticism. Mr. Higgins stated to General Rose that he wanted more assembly work to keep his people busy until such time as the remainder of the plant is tooled up and can make the detailed parts for the assembly lines. Mr. Higgins also indicated that he did not yet have all the specifications necessary to build the completed airplane.

3. General Rose stated that the 4,000 unit F.H.A. housing project had been cancelled due to the reduced labor requirements for this plant on the basis that sufficient housing already existed in the vicinity of New Orleans. After visiting the plant he felt, however, that the housing project should be reinstated because of the isolated location of the plant and its distance from the center of New Orleans. The WMC is prepared to recommend this reinstatement to the F.H.A. It is understood that Congressman Abare will also work for the reinstatement of this project and it is believed that Col. Jouette will shortly be in Washington to stimulate progress.

4. General Rose also feels that the Army Air Forces should hold down the hiring of additional labor at Higgins until such time as they actually need more people. He also suggested that the Army Air Forces encourage the transfer of trained supervisory personnel from other plants to Higgins. He specifically mentioned the North American plant at Dallas as being a likely place from which to draw supervisory personnel for Higgins.

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5. In view of General Echols' interest in this matter, it is suggested that you give him General Rose's comments at the next Staff Meeting.

JOHN C. VAUGHAN, JR.,
Colonel, Air Corps

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Plans
Plans - Sched Sect 22 [illegible]
Aero Proj Br, M&S

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SECRET

AFREQ
Gen. Gross:ctp/3020
wrtn. 1 Aug 44

CONFIDENTIAL

MEMORANDUM FOR CHIEF OF THE AIR STAFF:

Subject: July 31 Meeting of Aircraft Requirements Board.

1. The Aircraft Requirements Board met on 31 July 1944, the following members present:

Major General Echols	Brig. General Gross
Major General Craig	Col. Loutzenheiser (representing Gen. Kuter)
Brig. General Wilson	
Brig. General Jamison	Col. Ryan (representing Gen. Harper)
Brig. General Timberlake	Dr. Learned

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2. The work-sheets prepared by Dr. Learned of the Office of the AC/AS, OCR, and showing estimated deliveries against quantity requirements, was examined and used by the Board in reaching the recommendations listed below and submitted herewith for approval. Some of the recommendations below refer directly to figures contained in the attached work-sheets which, therefore, form a part of this memorandum.

RECOMMENDATIONS:

a. B-24 airplanes - Produce only 5,761 B-24 airplanes during the period July 1, 1944 to June 30, 1945.

Production now scheduled		8,123
AAF requirements	5,221	
USSR requirements	540	
Reduced production		-5,761
		2,362

Note: Implementation of this recommendation will result in the early elimination of the North American Dallas plant and the accelerated reduction in the Ford Willow Run plant.

b. B-25 airplanes - Because there exists an approved RAF requirement, (on which an allocation has not heretofore been possible) which will absorb the 362 surplus B-25's, recommend no change in production.

c. P-47 airplanes - Reduce P-47 production from W-11 schedule of 600 per month to actual total requirements shown on attached work-sheet.

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Plan attached last 22 Sept

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B-11 through 1945 and first six months of 1946	10,800
Total requirements	-3,741
Resulting reduced production	7,059

Note: Implementation of this recommendation will eliminate the Evansville plant. The USW, Mr. Patterson, previously disapproved this reduction with the statement that he would reconsider it after "D" Day. It is suggested that Mr. Patterson be made aware of this action prior to any release for publication.

d. P-40 airplanes - Reduce P-40 production by 300 airplanes (eliminate last 300 scheduled).

e. UC-45 airplanes - (1) Reduce production so as to equal total requirements indicated on attached work-sheet from now until December 31, 1945. (2) Stop production by December 31, 1945.

f. UC-61 airplanes - Reduce production by 33 during remainder of 1944 in order to just meet total requirements for Land Lease.

g. L-4 and L-5 airplanes - Due to increased performance characteristics demanded by Army Ground Forces which may result in increased requirements for L-5 airplanes, and until action now being taken to determine airplane which will best meet Ground Force requirements, recommend no change in production.

h. R-6 helicopter - Level off production at 50 per month until actual requirements are met for unit equipment and attrition (this will result in an approximate reduced production of 720 R-6's by June 30, 1946).

i. R-5 helicopter - Level off production at 30 per month to meet total requirements for unit equipment and attrition (approximate reduced production of 230 between July 1, 1945 and June 30, 1946).

j. PB-1W airplanes - Reduce production to 30 per month (based on (1) possible pilot program reduction, and (2) minimum production to keep facility available).

k. AM-6 airplanes - Reduce production by 100 per month beginning January 1, 1945 (reason: Navy is reducing its requirement by 100 per month beginning January 1, 1945).

l. AT-7 airplanes - Eliminate all production beginning January 1, 1945.

m. AT-21 airplanes - Stop all production as soon as possible.

Note: Implementation will result in elimination of the Bellanca, Fairchild - Burlington, N. Carolina, and McDonald - Memphis productions.

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AT-21
Plan + Sched Lab ... (1944)

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n. C-46 airplanes - Reduce production to 200 per month beginning with March 1945 and reduce further after July 1945 to meet total requirements indicated on attached work-sheet.

CONFIDENTIAL

Note: Implementation of this reduction will result in eliminating Higgins - New Orleans, and reducing Curtis - St. Louis production.

o. C-47 airplanes - Level off production at 230 per month beginning as early in 1944 as practicable.

p. C-54 airplanes - The apparent surplus during the latter part of 1945 and early 1946 is needed to convert five (5) heavy bombardment groups to long-range transport groups. Recommend no change in production.

KENNETH K. CROSS
Brig. General, U. S. A.
Chief, Requirements Division
Office of Asst. Chief of Air Staff
Operations, Commitments & Requirements

Incl: Work-sheet as stated.

1 August 1944

APPROVED:

/s/ 8/3

[redacted]
Brig. General, U. S. A.
Acting Chief of the Air Staff

8/4/44

Approved except for C-47 reductions. A restudy will be made of C-47 requirements.

H. H. Arnold

To be approved by General Arnold before implementation

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Additional Assembly Work for Higgins Aircraft, Inc.

AC/AS, Materiel & Services, Materiel Division 5 Aug. 1944
Attn.: Colonel S. R. Brentnall, Asst.Chief
AC/AS, Materiel & Services, Resources Division 1
JCV:MH 3618

CONFIDENTIAL

1. Reference is made to the attached correspondence concerning manpower utilization at the Higgins Aircraft plant, New Orleans, La. General Rose of the War Manpower Commission was advised that the Materiel Command had looked into this matter and reported no unusual idleness in the plant and that Mr. Higgins had 99% of the specifications necessary for the C-46 production. He was also told that supervisory personnel would not be available for transfer to Higgins from North American at Dallas.

2. General Rose referred to the attached letter from Major Cuddeback, AAF Resident Representative at the subject plant to the District Supervisor, Midwestern Procurement District recommending that additional assembly work be scheduled at the Higgins plant in order to utilize the services of the 6500 people now employed at that plant. General Rose requested that we write him a memorandum outlining the steps that will be taken by the Materiel Command to efficiently utilize the personnel now employed by Higgins and to prevent the hiring of additional personnel prior to such time as they may be needed. It is requested that this matter be discussed further with General Cook in order that a suitable reply may be made to General Rose.

FREDERICK H. HOPKINS, JR.,
Brig. General, U. S. A.

Incl.
Memo 7-24-44 to Gen. Hopkins fm Col. Vaughan
Memo 7-24-44 to Gen. Echols fm Gen. Hopkins
Memo 7-28-44 to Gen. Powers fm Col. Brentnall
Ltr 7-17-44 to Midwestern Pro. Dist. fm Maj. Cuddeback

HQ AAF
AUG 6-1944
MESSENGER SECTION

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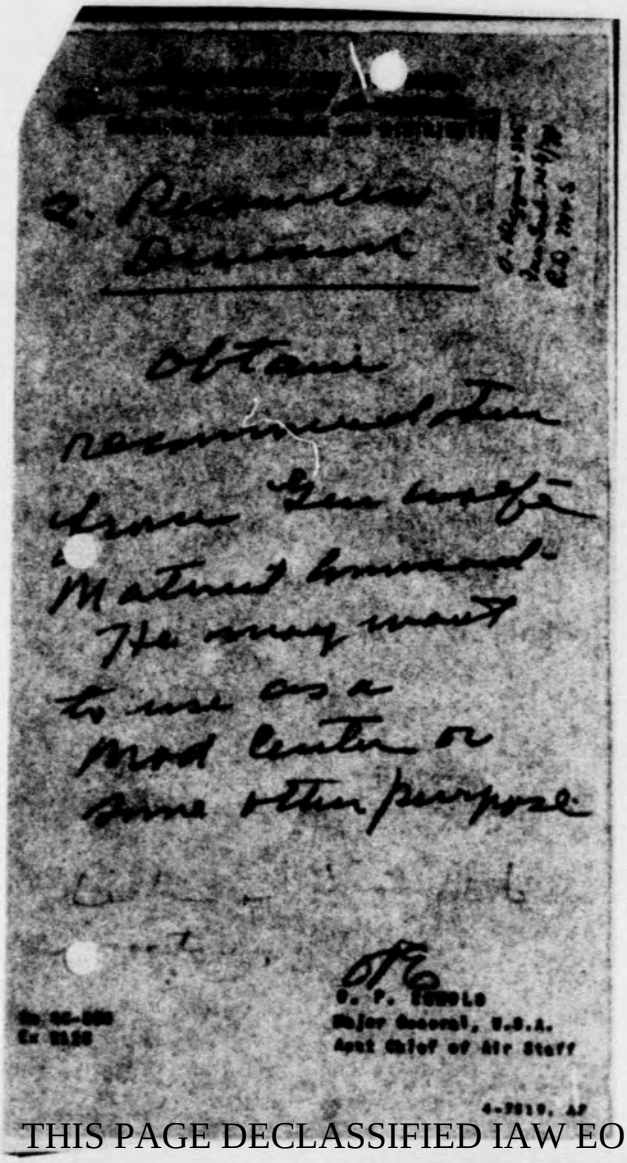

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11 August 1944

MEMORANDUM FOR MAJOR GENERAL C. P. ECHOLS

CONFIDENTIAL

SUBJECT: Higgins Aircraft, Incorporated
New Orleans, Louisiana

1. Since Higgins Aircraft, Incorporated at New Orleans, Louisiana has been cut back entirely for the production of C-46 airplanes, should the Resources Division, AC/AS, M&S issue instructions to Defense Plant Corporation that construction of runway at Higgins Airport and the acquisition of machinery and equipment be stopped immediately?

2. The Higgins runway project which is estimated to cost $1,600,000 is approximately 30% complete. The breakdown of work which has been completed is as follows:

Grading	50%
Drainage	25%

One full strip, the entire length of one runway, 20 feet wide, has been laid. The runway is 5000' x 150' wide.

FREDERICK M. HOPKINS, JR.
Brigadier General, U.S.A.
Chief, Resources Division
AC/AS, Materiel & Services

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Telephone conversation between Mr. C. D. Cline, Higgins, New Orleans, La., and Brig. General Orval R. Cook, Materiel Command, Wright Field, Dayton, Ohio.

CONFIDENTIAL

14 August 1944
2:30 P.M.

SUBJECT: 1. Contract cancellation
2. Employees laid off. 3. Securing of additional work.

DIST: cc: Lt. Col. Bowling / Higgins File
Maj. McCormick
Mr. Donnelly
Cutbacks & terminations

Mr. C: We've spent a lot of time going over/things down here if,— confern to get some clearance. The overall situation here is, as you know, that the plane contract has been cancelled except for planes 1 and 2.

Gen. C: That's right.

Mr. C: No official notice, but we've let about 1200 people go Saturday.

Gen. C: Yes.

Mr.C: Now on plane 1 we're going to have that ready for mptor test next Monday and plane 2 will be ready the 25th of September, and I am fairly sure that these dates will be met. We worked up some detail-charts and we're posting daily and we know where we are and what we have to do.

Gen. C: All right. Now, what progress is being made on the Curtiss wing contract?

Mr. C: All right. Here's the whole story. Templates, 100% fabricated; tools, we have temporary or permanent tools that cover the entire panel, that's 2200. Of these 2200 we've got about 500 temporary and we're going to have the permanent completed within 2 weeks. Operation peak, full practical completion, 1700 required and about 1700 finished. Today there are about 3000 parts in the wing. Higgins to fabricate 2500 and buy 500. We've made one of each of everything. Now I've worked out a new schedule today and have gone over it with Frank and we are [illegible] the schedule that we gave Curtiss about 60 days ago.

Gen. C: Good.

Mr. C: Now the main reason for calling you, at the present time all that's in this great big monument is the planes 1 and 2 and the outer panels.

Gen. C: Yes.

Mr. C: Today Curtiss-Wright is holding a meeting at Buffalo to size up the

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Telephone conversation between Mr. C. D. Cline, Higgins, New Orleans, La., and Brig. Gen. O. R. Cook, Materiel Command, Wright Field, Dayton, Ohio.

CONFIDENTIAL

14 August 1944
2:30 PM

outer pannelling, I'm told, that means cancel or cut-back. It seems to me that, Frank told me to talk frankly, it seems to me that we will have to do something in this plant.

Gen. C: Well, I talked to Curtiss briefly last week and told them it was entirely up to Mr. Higgins; if Mr. Higgins wanted to retain that wing sub-contract, why it was perfectly agreeable to us. Now, another thing I think must be investigated and you people should know the story on very quickly is, sub-contract items and vendor furnished items that you have on contract or which have been partially delivered, that Curtiss may need to bring their spares up to concurrency. Now it think something could be done on that, some of you subs and some of you vendors might readily be continued on by transfer to Curtiss, do you see? or some of the parts that are being built in the Higgins plant down there they might be used on Curtiss airplanes, to bring their spares up to concurrency.

Mr. C: In this meeting at Buffalo I was just a little thankful that they might decide to take some drastic action, unless they had some instructions to the contrary. I'm in a position now to give you a pretty good firm delivery schedule that Higgins can submit and which Frank will bring to Wright Field some day this week.

Gen. C: All right. What is it?

Mr. C: We'll deliver - we delivered one in May, 3 in June, 3 in July, we will deliver 4 in August, 12 in September, 28 in October, 43 in November, 60 in December, 80 in January, 90 in February and 76 in March to complete the 400.

Gen. C: Yes.

Mr. C: I just thought you might like to get this information so that if it seemed timely to discuss with Mr. Vaughn, I'm convinced that they can and will deliver outer panels to an overflow. Curtiss-Wright cuts-back at Buffalo and Louisville, and I thought that possibly in the light of that, and in the light of the fact that Higgins hasn't been a very good performer to date, they might do something drastic in their little group today, people under Vaughn, if they were left free to size up and act on the situation.

Gen. C: Well now, they are not relieved, that is we want as many as we can get out of them, both Louisville and Buffalo up thru the remainder of this year and the first 2 months of next year. All we can get. So their schedule really doesn't commence to be cut down until the end of the first quarter of next year, and after that it is cut down, but --

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Telephone conversation between Mr. C. E. Kline, Higgins, New Orleans, La., and Brig. Gen. O. P. Cook, Material Command, Wright Field, Dayton, Ohio.

CONFIDENTIAL

14 August 1944
2:30 PM

Mr. C: Well it would seem logical since there is a pretty high critical situation at Akron, that if there is any sub-backs that Akron might be considered, --

Gen. C: Well that's what I told them. Now, I can get further information to them today. Have you already given this schedule to Curtiss?

Mr. C: No, we haven't passed it on to anyone. I worked it up over the week end and Frank and I have discussed it and I've had our production man go over it very carefully. We've got a new man here, Tex Burnett, and we cleaned house last week, we got rid of the works manager and the general superintendent and Tex Burnett is now on top of the heap. The spirit is very good down here. There is no animosity about the cancellation at all. Mr. Higgins feels it would be a waste of tax payers money to go ahead and get maybe 4 or 5 delivered per month by April, if you didn't need anymore after that.

Gen. C: That's right. It's - tell him it is not because of their non-performance but because for the convenience of the Government, because we wont need the airplanes that they might otherwise produce after April of next year and there is just no need putting the money into it, and he realizes that.

Mr. C: Sure. A very good feeling, I just thought you might like to know what the attitude is.

Gen. C: Yes. Now we're trying to get these termination notices out in such a way, you know what pit-falls we fell into before,--

Mr. C: Oh yes. I've told them it takes a little time.

Gen. C: Yes, in such a way that we don't stop the wheels all at once. What we want to do is to make it a gradual thing, but at the same time as fast as we possibly can. We don't want them to permit their sub-contractors and vendors to unload on them. Their sub-contractors and vendors can ship in according to the schedule that they have set up, but they are not/accept any more and then after, --

Mr. C: Suggesting specials on the part of subs and vendors to be accepted in part, --

Gen. C: Yes, up to the time they clear the thing up, that is we'll get out a notice that will give you quite a bit of lee-way, we hope, and then might some you've got to get to work and find out what the position of your subs and vendors are and cut these out that can afford it, as quickly as possible, do you see? Now, what, another thing we want

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Telephone conversation between Mr. [illegible]. Cline, Higgins, New Orleans, La., and Brig. Gen. O. P. Cook, Materiel Command, Wright Field, Dayton, Ohio.

CONFIDENTIAL 14 August 1941
2:50 PM

to do and the crowd is working on here, is to find out those subs and vendors where you and Curtiss are both in them, and some of those things may be turned over to Curtiss without missing a stroke.

Mr. C: Mutual sources.

Gen. C: That's right. And then there are other sources that you have for parts on which delivery may be just now commencing that Curtiss may need badly, do you see? And we dont want to stop those people and then have them start up again.

Mr. C: Oh sure. It would seem very logical to proceed that way. Some of these vendors we have might still do a good job for Curtiss, since they've been working -

Gen. C: That's right.

Mr. C: Well now, I've told them that probably in another day or two before we said anything official.

Gen. C: That's right. It will probably be tomorrow morning, sometime, that you get an official termination notice.

Mr. C: Yes. Well now, in the meantime we've let a lot of people go and we're concentrating on outer panels and planes 1 and 2, and as I said earlier plane 1 will certainly be ready for the motor test by next Monday and now there is a lot of this will appear in modification work and some of the people here have evidently had some feelers with some of your people and they think there is a pretty good chance of getting some C-46 work.

Gen. C: Well now, there was a pretty good chance, but the last word I had on that was that that particular project had been cancelled. That was the litter project.

Mr. C: And the other one calling for 500 to follow this 150.

Gen. C: What's that?

Mr. C: There were 650 planes involved, the first batch 150 and 500 to follow that.

Gen. C: Yes. Well that involved a new floor in the plane.

Mr. C: Yes. Which one was been cancelled?

Gen. C: Both of them, I believe.

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Telephone conversation between Mr. C. D. Cline, Higgins, New Orleans, La., and Brig. Gen. O. R. Cook, Materiel Command, Wright Field, Dayton, Ohio.

14 August 1944
2:30 PM

Mr. C: I see.

Gen. C: That was the last word I had. They've been cancelled out, but we've got to move some stuff out of the West coast, we've got to move some stuff out of Akron, I think there is no question about that. There's to be a meeting held up there Wednesday to determine what may be moved out, and I think that there will be a certain amount of sub-contracting work to be done, but how much of it can be put into Higgins, I don't know. I know that there wont be any where enough to fill that factory up.

Mr. C: Oh no, that's hopeless.

Gen. C: But as far as I know now, there should be some. Now, Consolidated is a good bet, over at Ft. Worth on the B-32.

Mr. C: Well, we talked some about the B-32 wing.

Gen. C: That's a good bet.

Mr. C: We have some people here who had actual experience on that wing, it's an easier wing, I'm told, to make than the C-46.

Gen. C: Yes, and then I dont know but what there may be some B-29 work. I don't know how the rail connections are between your place and Atlanta, but I think they are pretty good.

Mr. C: They are good, yes.

Gen. C: So that there might be some B-29 work from Bell.

Mr. C: How about the B-29 Modification work? Is that stepped up? Will Birmingham be able to handle most of it.

Gen. C: yes, they'll be able to handle most of it. The difficulty there is your flying field.

Mr. C: Well, the runway will be finished in September, a 4000 ft. strip.

Gen. C: Well you see that's not big enough to handle the B-29. That will handle a C-46 all right, but not the 29.

Mr. C: I didn't know just what that was.

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Telephone conversation between Mr. C. D. Cline, Higgins, New Orleans, La., and Brig. Gen. O. R. Cook, Materiel Command, Wright Field, Dayton, Ohio.

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14 August 1944
2:30 PM

Gen. C: Yes, they ought to have at least 5500 ft., for the -29.

Mr. C: Well, is there anything that I can do for you down here to help utilize this factory to any greater extent? That is, any preliminary information that you would like to have furnished?

Gen. C: Yes, I think probably the district will ask you for the information, but what I would like to know is how many people you started out with at the time this termination came up, how many you've laid off and at what rate they are being laid off, what your plans are for laying off and whether or not, mainly, the main thing I am interested in is the position of sub-contractors and venders. Are any of them in such position that stoppage, that is termination will stop their entire plant at once, see?

Mr. C: Yes, I see that part. In other words, that would create a serious labor situation if it does.

Gen. C: That's right. We would like to give the employees a chance to find other employment in these cases where companies are solely sub-contractor for Higgins and has no other work and give them a little chance to find other work.

Mr. C: Well now, I can answer some of your questions. The first, we have about 6500 people here as of Friday. We let 1200 go as of Saturday noon, that leaves 5300. Now, that followed some instructions based on meetings Frank and I held Friday and Saturday. Now, today we are to ascertain how many more can be let go, if we get no further work than that which we have, planes 1 and 2 and the sub-contract, and I would guess that we can let a substantial number go, possibly 2 or 3000 at least, but we've sort of given instructions not to cut much further until you people had indicated just what might be forthcoming, so that we wont have to let them go and then hire them back.

Gen. C: Yes. Well, it'll be some time. There are two ways this can be done, one way is, we can direct business end of the plant down there where the facilities are required and the other way is that you people can get out and do a little scouting around yourselves, do you see?

Mr. C: Well, I think it would suit you better if Frank went out and tried to get some business.

Gen. C: I think it would because he

Mr. C: You don't have time to do that for him

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Telephone conversation between Mr. C. W. Cline, Higgins, New Orleans, La., and Brig. Gen. D. M. Cook, Materiel Command, Wright Field, Dayton, Ohio.

14 August 1944
2:30 PM

Gen. C: No we don't have time to do it for him and we aren't set up to do it that way as you know. It's only what comes in here, that comes to our attention that we are able to direct to facilities.

Mr. C: Well, that's what I think they themselves should do, just become very active and search for other business. Contact these other companies, aircraft companies, and endeavor to make full practical usage of whatever facilities they can here.

Gen. C: Now, I'll tell you what we are doing. We are starting to put on pressure now to move work out of Akron, a certain amount of work out of Akron, particularly, Goodyear and out of the West coast areas. You know I talked that over with you several times, the reason for it and we're starting a campaign, or really starting to activate the campaign to get work out of the West coast areas, because their man power situation out there is really becoming bad.

Mr. C: Well wouldn't Goodyear be one, - some of their people there supplying these sources to contact them?

Gen. C: Well, you see they are mainly engaged on B-29, P-38 and P-61, and of course P-38 might be the logical, however, that's a pretty tough job, and it will have to be handled very carefully.

Mr. C: Yes. Well, is there any procedure that you would suggest in endeavoring to get any of that work which will be moved out of those two points?

Gen. C: Well there's one way, that I think you could start and that is to get in touch with Mr. - the Goodyear Aircraft Vice President, Harry, I don't recall his name right now,

Mr. C: I'll look it up, Harry somebody --

Gen. C: Yes, I've forgotten his name for the moment, but he is the man to get in touch with and you might use as a basis, thatis not to approach him from a standpoint of saying that, well you saw the news-release about moving stuff out of Akron? That's a good basis to start on.

Mr. C: Very good. We'll use that.

CONFIDENTIAL

Gen. C: Harry Blythe, B-l-y-t-h-e. He's the Vice President in charge of the Goodyear Aviation. He's already talked to me about the thing. I think that probably a contact made there would hurt nothing right now even though nothing came of it, do you see? It would be a sort of an [illegible] over cate

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Telephone conversation between Mr. C.D. Cline, Higgins, New Orleans, La., and Brig. Gen. O. R. Cook, Material Command, Wright Field, Dayton, Ohio.

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14 August 1944
2:30 PM

Mr. C: Right, and then some of the people out on the West coast, likewise a contact.

Gen. C: Yes, particularly, well Lockheed, they might get in touch with Vultee, Nashville, also. Vultee, Nashville —

Mr. C: And Lockheed, east coast.

Gen. C: Yes, and, Curtiss of course at Buffalo and St. Louis, as you people are tooled up for some of that stuff, it's possible they might want you to take on some more work. I don't know.

Mr. C: It's very possible, yes.

Gen. C: Especially with your changed personnel situation, with some people in there who know aircraft. I know, Tex knows aircraft.

Mr. C: Yes. Right. I think Frank will be up there, in a few days, if he can get away. He might even leave tonight, I don't know, but he is very much interested in trying to get something in the plant and wants to do anything he can to help you, —

Gen. C: Yes. Well, now. How is the labor market down at New Orleans? Is it pretty easy?

Mr. C: The size we had, 63 or 6500 people was not difficult to get, but to go up to 15,000 it was almost impossible. So the market is fair at the present time — but —

Gen. C: You could stand enough work to keep 5 to 6000 occupied?

Mr. C: Oh yes, we could possibly keep 7000 busy without in anyway becoming a critical Area No. 1. We aren't in any doubt, we had 6500 and we could have gotten another couple thousand within a 60 day period, but to go beyond that with Consolidated here would have stretched things here very tight. But somethings are clearing up around here, so both yards have been letting people go. Frank will probably be up, and I was just wondering if there was anything in particular that you would like to have to bring along. I am going to supply him with some charts that you might be interested in. Since I have been down here, we have made about a hundred-seventy odd charts, that we are going to photostat, so if you would choose a position we're in at the time of cancellation. Cross-specs of the different activities.

Gen. C: All right. Thanks very much.

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Mr. C: You've been nice to [illegible] because I

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Telephone conversation between Mr. C. D. Cline, Higgins, New Orleans, La., and Brig. Gen. O. R. Cook, Materiel Command, Wright Field, Dayton, Ohio.

CONFIDENTIAL

14 August 1944
2:30 PM

haven't had much to brag about down here.

Gen. C: I thought you would have though before long.

Mr. C: There's been a lot of sweat go into this thing and working long hours, but not having a lot to show for it. We've had the plans but there's been a little laxity on the part of some.

Gen. C: All right.

Mr. C: Good bye.

ORVAL R. COOK
Brig. General, U.S.A.
Chief, Production Division.

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/Sgt. R. W. Akerd
[illegible]-I-1-1 Tel. P-6127

15 August 1944
9:45 AM
Resources Control Section

C. E. MORIARTY
Colonel, Air Corps

CONFIDENTIAL

[illegible] PLANT CORPORATION
811 VERMONT AVENUE, N. W.
WASHINGTON 25, D. C.
ATTENTION: MR. T. S. JONES, VICE PRESIDENT

RCS 1627A [illegible].....IT IS DESIRED THAT ALL AVAILABLE DATA WITHIN HIGGINS AIRCRAFT CORPORATION, NEW ORLEANS, LOUISIANA, PLANTS 1562, RCS PROJECTS 361 A, 361 A-1, 361 A-2, AND 361 A-3 BE FURNISHED AT O. THIS DATE. THIS DUAL PURPOSE REPORT WILL FOLLOW AS A MATTER OF CONFIRMATION. (HOT) AFAMC.

[illegible] MATERIEL COMMAND

Received 15 Aug 44

Funds Required for Lindsey - Parsley

Lindsey

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ARMY AIR FORCES
HEADQUARTERS OF THE MATERIEL COMMAND
WRIGHT FIELD, DAYTON, OHIO

Lt. L. A. Jacobson
1b:HQF 2-0106

CONFIDENTIAL

17 August 1944

Subject: Comments of Mr. Higgins of Higgins Industries on AAF Contracts.

To: Commanding General
AAF Materiel Command
Wright Field, Dayton, Ohio

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I. AUTHORITY.

1. This investigation was conducted from 19 July to 29 July 1944 by Major Charles D. Bourcier, A.C., and from 10 August to 14 August 1944 by 2nd Lt. Leslie A. Jacobson, A.C., at Wright Field, Dayton, Ohio pursuant to the request dated 11 July 1944 of The Assistant Chief, Procurement Division, AC/AS, M&D, to the Commanding General, Materiel Command, and the request, dated 14 July 1944 of the Chief, Procurement Division, Materiel Command to the Air Inspector, Materiel Command. (Exhibit "A")

II. MATTERS INVESTIGATED.

2. The matters investigated were statements made by Mr. Andrew Higgins at a meeting on 20 June 1944 among representatives of the Transportation Corps and the Readjustment Division, Army Service Forces, and representatives of Higgins Industries. A report of this meeting by Lt. Colonel Stockham, Readjustment Division, Army Service Forces, to Colonel W. H. Draper, Jr., Chief, Termination Section, Readjustment Division, Army Service Forces, contains the following statements made by Mr. Andrew Higgins. (Exhibit "A")

a. That the plant (aircraft plant built for Higgins Aircraft, Inc.) was "well worth the investment to the Government — if no plane was ever produced. The reason was that the taxpayers had been saved three quarters of a billion dollars by forcing the Army Air Forces to renegotiate downward the prices of other plane manufacturers, plus the fact that the fee proposed by Higgins was 3% of the cost of each plane produced."

b. That the "Army Air Forces ... insisted the fee be raised to 1% to save embarrassing other plane manufacturers and the War Department" due to the fact that "the fees of some were as high as 7%."

c. That "Mr. Higgins, his son Frank, and Gottesman drew no salary for the construction and operation of the plant."

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"Comments of Mr. Higgins of Higgins Industries on AAF Contracts"
To: CG, MC
17 August 1944

CONFIDENTIAL

d. That "the plant was so designed as to make it entirely flexible contrary to the Willow Run establishment which ... could be used for only one plane - the B-24."

e. That "the plant was built within the cost estimated of $27,000,000., contrasted with the $300,000,000. cost of the Ford plant, and included therein was the cost of air conditioning which ... was not included in the original estimate."

f. That "the 'smart boys' were quoted as saying that the plant could not be completed in less than twenty-one months, but was built within five months."

g. That "AAF had approved the runways only two weeks previously and approximately forty planes would be completed before the runways could be ready."

3. The report also advised that "appropriate authority in the AAF" be advised of "the absolute necessity for complete review of all possible phases surrounding the Higgins C-46A contract in case a termination is contemplated. It would appear that a careful marshalling of facts, plus a well thought out veteran employment plan, plus the general political pattern could possibly be utilized by the contractor to his advantage in the event of a termination, unless each claim could be definitely and adequately answered."

III. FACTS AND DISCUSSION.

(Note: Figures in parenthesis at the end of each paragraph, unless otherwise indicated, refer to supporting evidence, a list of which follows the last page of this report.)

A. That the plant (aircraft plant built for Higgins Aircraft, Inc.) was "well worth the investment to the Government ... if no planes was ever produced. The reason was that the taxpayers had been saved three quarters of a million dollars by forcing the Army Air Forces to renegotiate downward the prices of other plane manufacturers plus the fact that the fee proposed by Higgins was 3% of the cost of each plane produced."

FACTS.

1. On 11 September 1942, at a meeting held in the office of the Under Secretary of War, the percentage of estimated cost to be allowed as a fixed fee on a CPFF contract was reviewed. Reduction of the rate of fixed fee from that previously allowed was recognized as feasible and desirable. The policy was adopted of confining the fee to 4% in cases where the contractor had a large backlog of current orders. On the same day, Contract W-[illegible] 28405 with Douglas Aircraft Company, which provided for a 3% fee, was approved and returned by Air Force Procurement Liaison Branch, Purchase Division, with instructions to proceed in accordance with the announced policy of restricting the fixed fee to 4%. (1)

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"Comments of Mr. Higgins of Higgins Industries on AAF Contracts"
To: CG, MC
17 Aug 44

2. The Technical Instruction (TI - 1270) which embodied the foregoing policy was issued to the Materiel Center, Wright Field, on 21 September 1942. It clarified the policy in indicating that, (a) the money value of the contract submitted was to be included in computing the size of the backlog and (b) the sum of $500,000,000.00 was in general a "large backlog." (2)

3. The policy was further implemented on 1 October 1942, in a memorandum from the Chief, Contract Section, Materiel Center, to the Assistant Chief of Staff, Office, Chief, Materiel Division, Washington, D. C. This memorandum enlarged the definition of a "large backlog" to include a total backlog four times the invested capital of the contractor, as well as a backlog of $500,000,00.00. (3)

4. The policy was instantly put into effect and with isolated exceptions, contracts executed after 21 September 1942 carried the lower rate of fixed fee of 4%. The date of TI - 1270 - that is 21 September 1942 - was fixed as the point of cleavage between 5% and 4% fixed-fees and CPFF contracts not signed by the contractor and the Government by that date were being consummated under the new policy, whatever the fee discussed in negotiations conducted prior thereto. (4)

5. The trend to a lower rate of fixed fee on CPFF contracts was foreshadowed by a contract (No. W-535 AC-29318) with Bell Aircraft Corporation, Buffalo, New York., approved 6 July 1942, for P-39E airplanes and spare parts at an estimated cost of $92,216,800.00, including a fixed fee of 4%. (5)

6. The letter contract with Higgins Aircraft, Inc., for 1200 C-76 airplanes and spare parts was dated 2 November 1942. The formal contract (No. W-535 AC-34484) was dated 17 November 1942 and approved 17 December 1942. It provided for a fixed fee of 3%. (6)

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[redacted] to the approval of the Higgins C-76 contract, and indeed, prior [redacted] a settled policy of [redacted] basis had been estab- [redacted] to 1%, which if not unqualified, [redacted] and correlated to the subsequent [redacted] with a 3% fixed fee. What effect [redacted] to the rate of fixed fees on subsequent [redacted] It was an imponderable which con- [redacted] the general rate of fixed [redacted] Bell Aircraft accepted [redacted] that the policy of reducing [redacted] that all major airplane [redacted] at the rate of 1% fee, and [redacted] insisted on a 1% in [redacted] the contribution of Higgins in lowering [redacted] fixed fees on CPFF contracts appears negligible.

[redacted] Air Forces insisted the fee be raised to 1% to save em- [redacted] and the War Department due to the fact that [redacted] as high as 7%.

[redacted]

8. Contract W-[redacted] with Higgins Aircraft, Inc. covering 1200 C-76 airplanes was terminated for convenience of the Government on 3 August [redacted]. At that time the fixed fee provided for in the contract - 3% - remained [redacted]. (7)

9. During the negotiation of the letter contract with Higgins Aircraft, Inc., dated 7 August 1943, covering 500 C-46A airplanes and spare parts, Mr. Higgins was urged to undertake the construction of the C-46A airplane at the same rate of fixed fee - 3% - as he had previously accepted for the C-76 airplane. The Higgins proposal requested a 4% fee and Mr. Frank Higgins stated his company was unwilling to accept a 3% fee, and insisted upon a 4% fee because

a. The 4% had become generally established throughout the aircraft industry and he felt that his company should receive the same treatment accorded other companies.

b. The total value of the C-46A contract was smaller than the total value of the terminated C-76 contract.

c. Higgins Aircraft, Inc. had experienced certain suspensions and disallowances under the C-76 contract - a factor which had not been taken into consideration in their acceptance of a 3% fee on that contract, but which necessitated a 4% fee for the C-46A contract to provide against similar occurrences thereunder. (8)

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"Comments of Mr. Higgins of Higgins Industries on AAF Contracts"
to: CG, MC
17 Aug 44

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10. The letter contract, dated 2 August 1943, covering 500 C-46A airplanes provided for a fee not to exceed 4%. At the time of the negotiation of the formal contract, the rate of the fixed fee was again reviewed and Higgins Aircraft Inc!s position with respect to the 4% fee was re-affirmed. The formal contract (No. W535-ac-298), dated 7 September 1943 and approved 2 December 1943, provided for a fixed fee at the rate of 4%. Further consideration inducing the Army Air Forces to accept the proposed fee of 4% was the fact that Higgins had had previous experience in wood working, which would have been helpful in the construction of the C-76 airplanes, but had no experience in light metal work required for the C-46 airplane. (9)

11. By the time that the letter contract for the C-76 airplanes was awarded to Higgins Aircraft, Inc. in November 1942, the Army Air Forces had already adopted its policy to limit the rate of fixed fees on CPFF contracts to 4%. CPFF contracts then outstanding with fixed fees as high as 7% were few in number and were among the first CPFF contracts awarded. (10)

C. That "Mr. Higgins, his son Frank, and Gottesman drew no salary for the construction and operation of the plant".

FACTS:

12. The Contracting Officer at the Higgins Aircraft facilities reports that neither Mr. Andrew Higgins, Mr. Frank Higgins, nor Mr. Morris Gottesman, the Treasurer of the company, have ever been paid any compensation from Government funds during the construction or operation of the plant. (11)

D. That the "plant was so designed as to make it entirely flexible contrary to the Willow Run establishment which could be used for only one plane - the B-24".

FACTS:

13. On 27 November 1942, the Under Secretary of War signed a telecon letter approving funds in the amount of $23,735,000 to provide facilities, including an airport, for the manufacture by Higgins Aircraft Inc. of C-76 airplanes and instructing Defense Plant Corporation to execute a lease agreement with Higgins Aircraft Inc. in that amount. (12)

14. On 19 January 1944, the Under Secretary of War signed a telecon letter approving $3,792,469 additional funds for facilities at Higgins Aircraft Inc. Of this amount, $2,070,607 was to cover the additional facilities to change from the C-76 to the C-46 production. (13)

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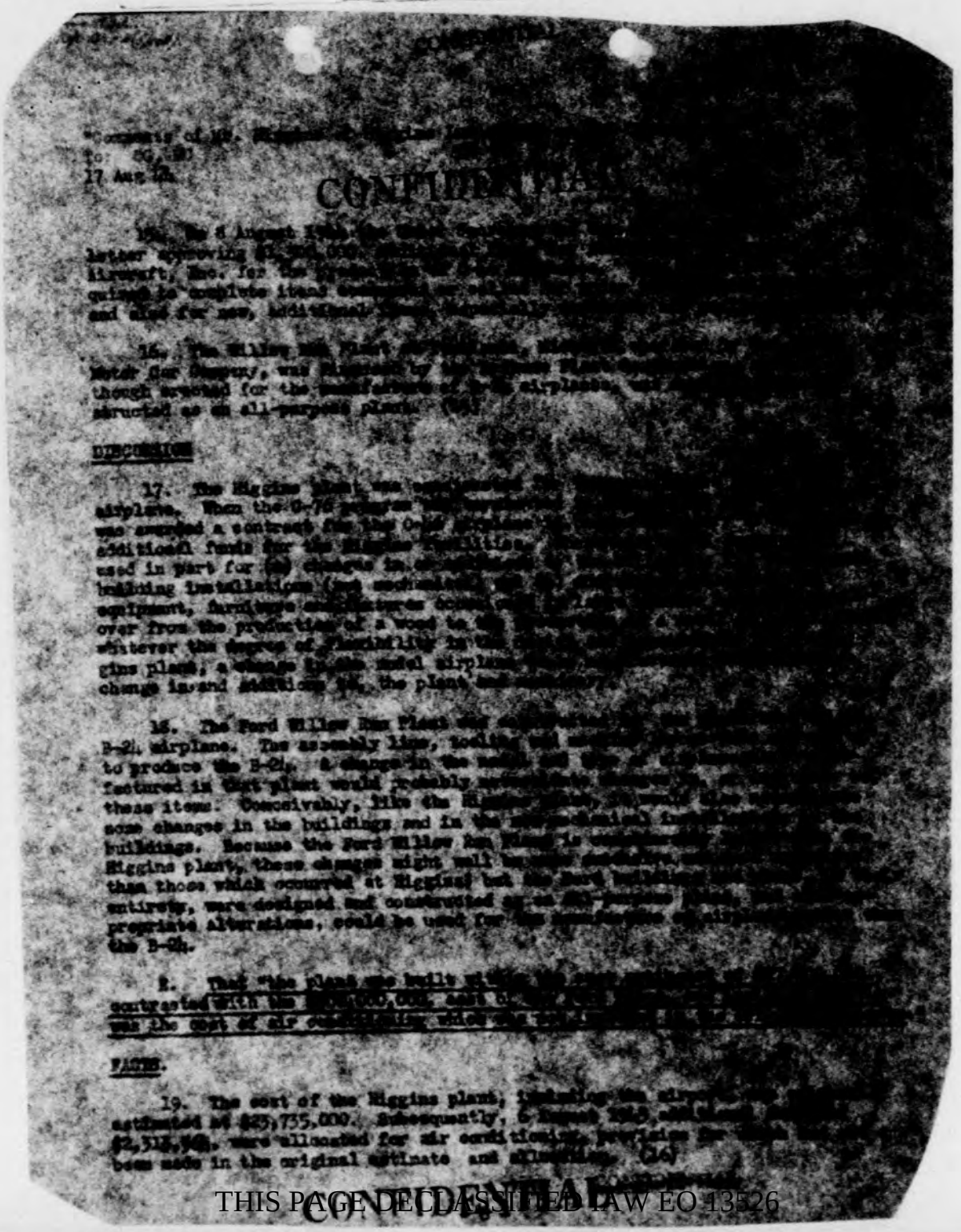

to: SG, AF
17 Aug 42

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16. The 8 August [illegible] letter approving [illegible] Aircraft, Inc. for the [illegible] quired to complete itself [illegible] and also for new, additional [illegible]

16. The Willow Run Plant [illegible] Motor Car Company, was designed by [illegible] though intended for the manufacture of B-24 airplanes, was constructed as an all-purpose plant. (S)

DISCUSSION

17. The Higgins plant was [illegible] airplane. When the C-76 program was awarded a contract for the Ordnance additional funds for the Higgins facilities used in part for the changes in [illegible] building installations (not mechanical equipment, furniture and fixtures [illegible] over from the production of a wood to [illegible] whatever the degree of flammability in the Higgins plant, a change in the model airplane change involved additional [illegible] the plant and [illegible]

18. The Ford Willow Run Plant was [illegible] B-24 airplane. The assembly line, tooling and [illegible] to produce the B-24. A change in the model and type of [illegible] factured in that plant would probably [illegible] these items. Conceivably, like the Higgins plant, [illegible] some changes in the buildings and in the [illegible] buildings. Because the Ford Willow Run Plant is [illegible] Higgins plant, these changes might well be [illegible] than those which occurred at Higgins; but the Ford buildings, in their entirety, were designed and constructed as an [illegible] propriate alterations, could be used for the manufacture of airplanes other than the B-24.

[illegible] That the plant was built at [illegible] contrasted with the [illegible],000,000 cost to [illegible] was the cost of air conditioning, which [illegible]

FACTS.

19. The cost of the Higgins plant, including the airplane [illegible] estimated at $29,735,000. Subsequently, [illegible] $2,316,[illegible], were allocated for air conditioning, provision for [illegible] been made in the original estimate and allocation. (S)

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"Comments of Mr. Biggins of Higgins Industries on AAF Contracts"
To: OB, ME
17 August 1944

CONFIDENTIAL

20. The original estimate proved to be inadequate. Additional funds to complete the project were required on two occasions. On 19 January 1944, $3,751,469 and on 2 August 1944, $1,300,000 were provided. The total amount of the Defense Plant Corporation lease agreement (Planner 1569) is presently $31,100,033, allocated as follows: (17)

	Dollar Value
Land (1075.22 acres owned by Maritime Commission and leased to Defense Plant Corporation at $1.00 per year)	None
Land Improvements	$ 1,161,115
Buildings (2,393,600) square feet	21,794,612
Service Costs	1,107,000
Machinery and Equipment	6,096,397
Portable Tools and Automotive Equipment	693,209
Amount not allotted by "Appendix A"	247,700
	$31,100,033

21. Of the $3,751,469 authorized on 19 January 1944, $1,680,862 was (a) to cover additional items required for the C-76 program without prior approval, that is items not specified in the original Appendix A, and (b) to complete previously approved C-76 items, that is items for which the appropriation in the original Appendix A had proved inadequate (18)

22. Of the $1,300,000 authorized on 2 August 1944, a substantial portion was allocated to items for which prior estimates had proved inadequate. (19)

23. The Higgins facility, as originally planned and as ultimately constructed, contains 2,393,600 square feet of floor area and comprises 1075.22 acres. (20)

24. Initial funds for the Ford Willow Run Bomber Plant at Ypsilanti, Michigan were authorized on 24 June 1941 in the amount of $47,620,171. At this stage the plant was designed for a capacity of 65 airplanes per month. During construction, plant capacity was successively increased to 100 per month, 205 per month and finally 405 per month, each increase in planned plant capacity calling for redesigning and increased cost in excess of normal costs. Presently, the Willow Run plant is producing substantially in excess of 405 airplanes per month. (21)

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"Comments of Mr. Higgins of Higgins Industries on AAF Contracts"
To: CG, MC
17 Aug 44

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25. Funds authorized to date for the Willow Run Bomber Plant project aggregate $96,487,067., of which approximately $10,000,000. have been used to construct or acquire facilities at locations other than Willow Run, such facilities producing parts for the B-24. Aggregate funds are broken down as follows: (22)

Land and Land Improvements	$ 5,220,756.
Buildings, Installations, Leasehold improvements and service costs	58,693,687.
Machinery and equipment	28,761,605.
Portable tools and automotive equipment.	3,811,019.
	$ 96,487,067.

26. The Willow Run Bomber Plant was originally estimated to have 3,882,000 square feet of floor space. As constructed, the plant contains 3,859,000 square feet of floor space and covers 1600 acres, including the flying field. (23)

F. The "the 'smart boys' were quoted as saying that the plant could not be completed in less than 21 months, but it was built within five months."

FACTS.

27. Construction of the Higgins plant was commenced on 13 January 1943. Original estimates of the Defense Plant Corporation called for completion of construction on 1 August 1943, seven and one-half months after construction had started, and for completion of installation of machinery by 1 September 1943. (24)

28. Defense Plant Corp. Status Reports (now DPC form DP-4) indicate the following percentage of completion of construction and of machinery installation. (25)

Date	Interval since Commencement	% Completion Construction	% Completion Machinery
15 June 1943	5 months	55%	11%
30 June 1943	5-1/2 months	65%	16%
15 July 1943	6 months	72%	21%
31 July 1943	6-1/2 months	80%	25%
15 Aug. 1943	7 months	85%	29%
Sept. 1943	8 months	92%	36%
June 1944		93.6%	63.5%

29. The identity of the "smart boys" is not known.

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G. That "AAF had approved the runways only two weeks previously and approximately 60 planes would be completed before the runways could be ready."

30. On 9 February 1944, Resources Division, Washington, D. C., having previously deferred construction of the airport - requested Defense Plant Corporation to proceed with the first of two runways not in excess of 5500 feet long, 150 feet wide and designed for 75,000 pounds gross load. (26)

31. Construction of one runway was thereupon started and it has been estimated that with good weather conditions, the runway would be ready for use on or about 1 November 1944. (27)

32. The latest Joint Aircraft Committee Working Schedule (M-11, dated 13 July 1944) for C - 76 A airplanes to be manufactured by Higgins Aircraft, Inc., reads as follows:

Month	Planes	Month	Planes	Month	Planes
October 1944	- 1 x	February 1945	- 1 xx	June 1945	- 6
November 1944	- 0	March 1945	- 1	July 1945	- 10
December 1944	- 1 x	April 1945	- 2	Aug. 1945	- 15
January 1945	- 0	May 1945	- 4	Sept. 1945	- 20

x - First and second airplane - Curtiss-Wright fabricated parts.
xx - First airplane assembled from Higgins fabricated parts.

33. In the report of the most recent inspection of Higgins Aircraft, Inc. by the District Air Inspector - made on 13 July 1944, - the opinion was expressed that completion of the first airplane (Curtiss-Wright fabricated parts) could not be expected until the latter part of October, of the second airplane until the latter part of December, and that the first Higgins fabricated plane could not be produced earlier than 9 to 12 months behind the original schedule of June 1944. (28)

IV. CONCLUSIONS

34. The construction of the plant for Higgins Aircraft, Inc., and the acceptance by Higgins of a CPFF contract for the C-76 airplane at a fixed fee of 3%, did not force the Army Air Forces to renegotiate downward the fees of other airplane manufacturers or contribute in any appreciable measure to the general reduction in fixed fees resulting from the policy of the War Department adopted in September 1942.

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"Comments of Mr. Higgins of Higgins Industries on AAF Contracts"
To: CG, MC
17 Aug 44

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35. The Army Air Forces did not insist that Higgins Aircraft, Inc. raise its fixed fee to 4%, but on the contrary urged - unsuccessfully - Higgins to accept the C-46 contract at the 3% rate which it had accepted in its then terminated C-76 contract.

36. Neither Mr. Andrew Higgins, his son Frank Higgins, nor Mr. Morris Gottesman have drawn compensation from Government funds during the construction of the plant at Higgins Aircraft, Inc. or during the administration of any airplane contract at such plant.

37. The plant and facilities at Higgins Aircraft, Inc. required considerable alteration when production was changed from the C-76 airplane to the C-46 airplane and do not appear to be substantially more flexible in design than the Willow Run Bomber Plant, which is a Defense Plant Corporation all-purpose plant.

38. The plant at Higgins Aircraft, Inc. was not built within the originally estimated cost of $23,735,000., but required before completion (in addition to $2,313,564. for air conditioning not included in the original estimate) substantial additional funds. The total cost of the Willow Run Bomber Plant to date has been $96,487,067., approximately $10,000,000. of which has been used to expand facilities at locations other than Willow Run.

39. The plant at Higgins Aircraft, Inc. was not completed within five months. Estimated to be completed within eight months, the plant at five months was 55% complete as to construction and 11% as to machinery, and at eight months was 92% complete as to construction and 36% as to machinery.

40. The runway under construction at the airport at Higgins Aircraft - the only runway heretofore authorized - was estimated to be ready for use about 1 November 1944, precisely in time for the first, not the fortieth airplane which, according to current estimates, Higgins Aircraft, Inc. could have produced.

41. Production Executive Committee Form D, authorizing termination of the C-46 contract with Higgins Aircraft, Inc., has been received by Materiel Command. In conducting the termination proceedings, Materiel Command will be guided by the principles of Procurement Regulation 15 and other pertinent directives.

for Sa Berger-Lt Col

M. D. BURNSIDE
Colonel, I.G.D.
Air Inspector
AAF Materiel Command

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CPFF - PARTIAL
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ARMY AIR FORCES
Headquarters Of The Materiel Command

In reply refer to:
101TER-1B:JAMc:ms
Docket No. 7389

CONFIDENTIAL

Wright Field, Dayton, Ohio
19 August 1944

Subject: Notice of Termination
Contract No. W 33-038 ac-298

Class: 01-A and 01-C

To: Higgins Aircraft, Inc.
Post Office Box 793
New Orleans 2, Louisiana

1. This letter confirms telegram REAJ-4797 dated 16 August 1944, from Glenn V. Walls, Captain, Air Corps, Contracting Officer, and addressed to your company.

2. Pursuant to Article 9 of Contract No. W 33-038 ac-298 entitled "Termination of Contract by Government", you are directed, effective at 11:59 o'clock P.M. on 18 August 1944, to omit work covered by the contract as follows: Cancel 498 units C-46 Airplanes from Item one and all Spare Parts under Item two. Accordingly, you are hereby instructed immediately (1) to discontinue all work which may have been begun under that part of the contract directed to be omitted, and the placing of orders for material, facilities, supplies and services to be used or employed in connection with work directed to be omitted, and (2) to cancel wholly or in part, all subcontracts or orders which are chargeable against the work directed to be omitted, to the extent that such subcontracts or orders are not necessary for the completion of the work remaining to be done under your contract. A form of termination notice to subcontractors, marked "Exhibit I" is inclosed for use in this connection. To the instructions contained in (1) and (2) there are the following exceptions: None

3. Attention is directed to instructions on the reverse of this page. A conference with you will be arranged by and all future inquiries by you will be directed to: District Supervisor, Midwestern Procurement District, AAF Materiel Command, Municipal Airport, P.O. Box 117, Wichita 1, Kansas, Attention: Termination Section.

Glenn V. Walls

GLENN V. WALLS
Captain, Air Corps
Contracting Officer

Incls: 1- Copy Exhibit 1
2- Copy Instructions to Contractors

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MDAC-8-WF-3-5-42-500M

37. Brig Shrvl R. Cook:70

TELETYPE MESSAGE

DATE: 21 August 1942. 3810

FROM Production Division

ATTENTION: ARMY CHIEF OF AIR STAFF, M. & S. 3810 GENERAL H. H. ARNOLD
Brig. General, U.S.A.

REFERENCE IS MADE TO THE 29 AUGUST WE HAVE BEEN INFORMED BY THE CONTRACTOR OF THE [illegible] THAT AS OF THIS DATE 60% OF THE ENTIRE PROJECT HAS BEEN COMPLETED. 66% OF THE BUILDINGS HAS BEEN COMPLETED; PUMPING STATION IS COMPLETED; THE CASTING OF [illegible] HAS COMMENCED, STEEL SUB-BASE FOR BUNKER 70% COMPLETED; CONCRETE APRONS AND TAXI WAYS 80% COMPLETED AND BUNKER BUNKER 85% COMPLETED. UNDER THESE CIRCUMSTANCES, IT IS OUR RECOMMENDATION THAT NO ACTION BE TAKEN TO SHUT DOWN ON THE PROJECT UNTIL DEFINITE CONCLUSIONS CAN BE REACHED AS TO FUTURE PLANS FOR THIS PLANT. HOPKINS HAS INDICATED THAT THEY ARE INTERESTED IN LEASING THE PLANT FROM WPB IF THE FACILITIES NOW UNDER WAY ARE COMPLETED AND THE AIR FORCE DO NOT REQUIRE THE FACILITIES FOR AIRCRAFT PRODUCTION AND WILL APPROVE THE LEASING OF THE FACILITIES TO HOPKINS FOR WHATEVER PURPOSE THEY MAY BE ABLE TO USE THEM. IT IS ESTIMATED THAT WE CAN GIVE YOU AN ANSWER ON FUTURE AIR FORCES PLANS FOR USE OF THESE FACILITIES BY THE END OF THIS WEEK. SEND AGAIN

WDPE, MATERIEL COMMAND

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Higgins-NK
Sect. 14-1/17
N. M+S

Higgins
INDUSTRIES, INCORPORATED
NEW ORLEANS 19, LA.

File 205

CONFIDENTIAL

533 Shoreham Building
Washington - 5, D. C.
August 22, 1944

Defense Plant Corporation
Washington - 25, D. C.

Gentlemen:

Under date of December 4, 1943, an agreement of lease was entered into between the Defense Plant Corporation and Higgins Aircraft, Inc. for the construction and equipment of an aircraft factory, located at Michaud, New Orleans, Louisiana. The land and facilities were leased to Higgins Aircraft, Inc. for $1.00 per year until December 31, 1946. The purpose of the lease was to enable Higgins Aircraft, Inc. to manufacture airplanes for the Army Air Forces.

In August 1943, the original contract with the Army Air Forces for the manufacture of C-76 cargo airplanes was cancelled and another contract for the manufacture of C-46 cargo airplanes was entered into. The C-76 airplane was to have been constructed of wood, and the facilities provided by you included complete woodworking facilities, including a saw mill and a veneer plant. As the C-46 cargo airplane is an all-metal airplane, the complete woodworking facilities of the factory became surplus with respect to the new contract. Subsequent to this change in contract, on December 14, 1943, the woodworking portions of the factory were sublet to Higgins Plastics Corporation for the purpose of the manufacture of plywoods and sawn lumber to be used in the manufacture of articles for the use of the Government in the war effort. The arrangement agreed upon in this sublease required that Higgins Plastics would pay to the Defense Plant Corporation a rental of three per cent of the sales price of materials manufactured and sold by Higgins Plastics Corporation.

On August 10, 1944, the contract between the Army Air Forces and Higgins Aircraft, Inc. for the manufacture of C-46 cargo airplanes was cancelled. This left Higgins Aircraft, Inc. with but one manufacturing program, namely, a subcontract with the Curtiss-Wright Corporation for the manufacture of outer wing panels for the C-46. Higgins Aircraft, Inc. is producing and delivering these wings in accordance with the approved schedule.

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Higgins Industries, Inc., of which Higgins Aircraft, Inc. is a wholly owned subsidiary, is desirous of using the facilities as thereof for the manufacture of various items for both war time and commercial use. The lease with the Defense Plant Corporation extends only until December 31, 1946 with no provisions for ultimate purchase by Higgins. From now until December 31, 1946 is but little over two years. It is manifestly impossible for an industrial organization to plan a manufacturing future and a community economy upon a short time basis. The facilities are excellent and should be used to capacity for the future economy of the community in which it is located. To do other than to use these facilities fully would certainly be a flagrant misuse of the monies which have been expended by our taxpayers on this project.

New Orleans, with its natural advantages of location, has substantially embraced industry during the last several years, and the economy of not only New Orleans itself, but a number large surrounding area, has become dependent upon the industry which is now located there. As an example, Higgins Industries, Inc., with all of its subsidiary companies, has been pouring into the community a weekly payroll of approximately $1,000,000. Should the facilities at Higgins Aircraft, Inc. be allowed to remain idle, and as war contract cutbacks in the boat building portions of Higgins Industries, Inc. become effective, the economics of the lower Mississippi Valley will be gravely affected.

Coupled with the threatened dislocation of community economy and the unemployment which is bound to result, we must consider and be prepared to meet the problems of the returning veterans, be he disabled or be he physically sound but lacking employment. As an example, when the C-46 contract was cancelled, it was necessary that 200 disabled veterans employed as trainees at Higgins Aircraft, Inc. be discharged immediately without any provision for their welfare.

Request is hereby made that the lease between the Defense Plant Corporation and Higgins Aircraft, Inc. be extended to the full limit possible, namely, to the termination of the 25 year lease of the site now leased to the Defense Plant Corporation by the Maritime Commission with a proviso permitting ultimate purchase by Higgins. It is thoroughly understood that a modification of our lease payments would have to be made, and we feel that the pattern which has already been set with Higgins Plastics Corporation, namely, three per cent of the sales value of manufactured articles, could well be applied to this extension of the lease.

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In view of the rapidity with which events are now moving, it is urged that this application be acted upon expeditiously in order that a complete dislocation of the economics of this area may not occur, and that planning for the future can be accomplished, to the end that the industrial future of our part of the south can be facilitated.

Because of the urgency of this matter, may we request a conference in a week or ten days between your corporation and an officer of Higgins Industries, Inc. authorized to act in the name of the corporation to work out final details.

Very truly yours,

HIGGINS INDUSTRIES, INC.

By _____
John H. Jouett
Vice President

jhj/drr

c.c. - Chief of Material and Services
Army Air Forces
Washington - 25, D. C.

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Major E.E. Greiner
1:30-I Tel.28250

File

ARMY AIR FORCES
MATERIEL COMMAND
OFFICE OF THE COMMANDING GENERAL

ADDRESS REPLY AND ENVELOPE TO:
COMMANDING GENERAL
AAF MATERIEL COMMAND
PRODUCTION DIVISION
DEPARTMENT
WRIGHT FIELD, DAYTON, OHIO.

WRIGHT FIELD, DAYTON, OHIO

1 September 1944

No action to be taken until OPC requests the Assembly

CONFIDENTIAL

SUBJECT: Lease of Higgins Aircraft Plant to Higgins Industries, Inc.

TO: War Department
Headquarters of the Army Air Forces
Washington, D.C.
Attention: Frederick M. Hopkins, Jr.,
Brigadier General, U.S.A.
Chief, Resources Division

1. Reference is made to your letter 25 August 1944, regarding subject Company's request for new long time lease on the Aircraft plant located at New Orleans, La.

2. After careful consideration Materiel Command recommends and approves that such a lease be negotiated between the Defense Plant Corporation and Higgins Industries, Inc. The details and rental charges are entirely up to a mutual agreement between DPC and the subject Company, and it is understood that as long as there is war requirement, subject Company will be available for this type of production. Materiel Command has furnished a list of prime contractors to the representatives of the Higgins Aircraft Company from whom it may be possible for them to secure subcontract work to be placed in this plant. It is understood that they also will be able to secure war work from the Army Engineers, which is agreeable to the Army Air Forces.

3. It is recommended, however, that from the time a new lease is made that no further Army Air Forces funds will be expended for any new equipment or plant conversion of any kind whatsoever. Any expense must be borne by Higgins Industries, Inc.

4. Any post war lease made with subject Company for peace time production rests entirely with the DPC as to terms and conditions. It is understood that the present work on completing the airport will not be cancelled or affected in any way by a new lease.

For the Commanding General,

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September 4, 1944.

CONFIDENTIAL

Defense Plant Corporation,
Washington, D. C.

ATTENTION: Mr. F. J. O'Hara

Gentlemen:

With reference to our letter of August 22, 1944, regarding a lease between the Defense Plant Corporation and Higgins Aircraft, Inc., at New Orleans, and conversations held with you, September 2, this letter is being written to you to cover immediate questions which have arisen regarding the use of space and equipment in the Aircraft Plant, New Orleans.

The Clinton Engineering Works, Tennessee Eastman Company, a subsidiary of Eastman Kodak Company, has a prime contract with the U. S. Engineers to produce a secret article for war use. The contract number is W 7401 - eng 23. The Clinton Engineering Works have approached officials of Higgins Aircraft, Inc. to enter into a contract to produce critically needed machined carbon parts. Higgins Aircraft, Inc. is desirous of entering into such a contract and herewith requests authority to use certain machinery and a portion of the Aircraft factory to accomplish the work desired.

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The preliminary program which the Clinton Engineering Works is urging Higgins to undertake comprises 26 different items and specifies the following:

(a) That production should commence at the earliest possible date

(b) That production should reach a rate of 100,000 pieces per month during October, 1944, and

(c) That the production rate subsequent to October, 1944, should be no less than 100,000 pieces per month and that any production rate in excess of 100,000 pieces per month would be highly desirable.

All machinery and equipment needed is now on hand and available for usage at the Higgins Plant. The equipment to be used consists of about 30 shapers, planers, table saws, band saws, bench drills and small milling machines. Approximately 20,000 square feet of factory space would be required.

It is anticipated that the sales volume will amount to approximately $500,000 per month. It is understood that the prime contract will run for six months after the succession of hostilities in the Pacific.

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In addition to the above and requiring immediate decision by you is the desire of Higgins Aircraft, Inc. and the desire of the Army Air Forces at Wright Field to fill the Higgins Plant with as much war work in the aircraft field as possible. Please refer to the letter from the Chief of the Resources Control Section at Wright Field to the Army Air Forces, Washington, D. C., dated September 1, 1944, which was handed to you September 2.

The Army is urging Higgins to procure such work in order to relieve manpower shortages in other areas, but Higgins cannot proceed to solicit this business until authority is received from you to do so and a working agreement decided.

Will you please give both of these matters your immediate attention? Not only is speed essential, because of the manpower situation in other areas, but Higgins Aircraft, Inc. stands to lose many of its trained employees if word cannot be gotten to them immediately that more technical work is forthcoming.

Very truly yours,

HIGGINS AIRCRAFT, INC.

By _____
John H. Jouett
Vice President

jhj/mc/drr

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CONFIDENTIAL

September 5, 194[illegible]

Higgins Aircraft, Inc.
New Orleans, Louisiana

Attention: Mr. [illegible] Higgins
President

Gentlemen:

Reference is made to the recent request on the part of the company to use certain of the facilities consisting of approximately 80,000 square feet of factory space and thirty pieces of equipment consisting of shears, presses, table saws, band saws, bench drills and small milling machines, together with certain tool room equipment, all of which facilities were provided by this Corporation under its agreement of lease with your Company (Number 1569) for the purpose of performing certain subcontracting work for the War Department.

Please be advised that this Corporation hereby consents to the use of the aforesaid facilities for the purpose of enabling your Company to perform certain subcontracting work for the Gilmore Engineering Works on its contract W 7401 - eng 88 with the War Department. The foregoing consent on the part of this Corporation is subject to all applicable terms and conditions of said agreement of lease, as amended, and to the following additional conditions:

1. Your use of said facilities is to be limited to subcontracting work for the Gilmore Engineering Works on contract W 7401 - eng 88 except to the extent that other use is permitted under said agreement of lease, as amended, with this Corporation;

2. You shall obtain the consent of the War Department to the use of said facilities for the purposes herein authorized, a copy of which consent should be furnished to this office;

3. You shall pay to this Corporation for the use of said facilities, as herein authorized, a rental which shall be satisfactory to it. The determination of the amount of such rental shall be made shortly by this Corporation.

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...ement herein contained to the use of said facilities for the purposes indicated may be terminated by this Corporation at any time upon 30 days notice.

If the foregoing is satisfactory to your Company, will you kindly make your acceptance on the original of this letter and return the same to this Corporation. Carbon copy is enclosed for your files.

Very truly yours,

(Signed) Sam T. Husbands

President

...day of _____, 1944.

...CORPORATION, INC.

By _____

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CONFIDENTIAL

11 September 1944

Higgins Aircraft, Incorporated
532 Shoreham Building
Washington 5, D. C.

Attn: Mr. John H. Jouett
Vice President

Gentlemen:

Reference is made to your letter of 7 September 1944, requesting War Department authority for the use of Defense Plant Corporation facilities, Plancor 1569, which have been provided Higgins Aircraft, Incorporated, for the production of certain subcontracting work for the Clinton Engineering Works.

The Headquarters, Army Air Forces hereby consents to the use of the above-mentioned facilities for the purpose of enabling Higgins Aircraft, Incorporated to perform certain subcontracting work for the Clinton Engineering Works on its Contract No. W-7401-Eng-23. This consent on the part of the Headquarters, Army Air Forces is subject to the conditions as set forth in letter to Higgins Aircraft, Incorporated dated 8 September 1944, from Mr. Sam H. Husbands, President, Defense Plant Corporation.

Very truly yours,

FREDERICK M. HOPKINS, JR.
Brigadier General, U.S.A.
Chief, Resources Division
AC/AS, Material & Services

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20 September 1944

MEMORANDUM FOR: Navy Department
Bureau of Aeronautics
Production Division
Room 2W-09

SUBJECT: Request for Additional Storage Space
Consolidated Vultee Aircraft Corporation
New Orleans, Louisiana

1. Attached hereto is correspondence from the Bureau of Aeronautics Representative, Consolidated Vultee Aircraft Corporation, New Orleans, Louisiana addressed to the Air Technical Service Command, Wright Field, Dayton, Ohio, dated 8 September 1944, submitting a request of Consolidated Vultee Aircraft Corporation for an additional 50,000 square feet of storage space in the Higgins Aircraft, Incorporated plant at New Orleans, Louisiana. Reference is made to verbal request of Lt. R. G. Woods, of your office, who stated that instead of 50,000 square feet of additional floor space required by Consolidated Vultee Aircraft Corporation in the Higgins Aircraft, Incorporated plant, another 50,000 square feet is required, making a total of 100,000 square feet which Consolidated Vultee Aircraft Corporation desires at this time.

2. The Army Air Forces has no objection to Consolidated Vultee Aircraft Corporation leasing an additional 100,000 square feet of floor space in the Higgins Aircraft, Incorporated plant at New Orleans, Louisiana. Therefore, it is suggested that the Consolidated Vultee Aircraft Corporation enter into negotiations direct with Higgins Aircraft, Incorporated and the Defense Plant Corporation relative to the use of this additional 100,000 square feet of floor space.

3. This consent of the Army Air Forces is given with the understanding that it may be necessary for Consolidated Vultee Corporation to give up the space in the Higgins Aircraft, Incorporated plant if other war needs dictate the use of this plant in the War Department's production program. No assurance can be given by the Headquarters, Army Air Forces as to the length of time which Consolidated Vultee Aircraft Corporation may utilize subject space.

For the Commanding General, Army Air Forces:

FREDERICK M. HOPKINS, JR.
Brigadier General, U.S.A.
Chief, Resources Division
AC/AS, Material & Services

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Incl:
Ltr fr Naval Representative
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HIGGINS AIRCRAFT, INC.
NEW ORLEANS, LA.

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TELEPHONE
EXECUTIVE 1702
1703

932 SHOREHAM BUILDING
WASHINGTON 5, D. C.

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27 SEPTEMBER 1944 AC/AS, MAT. RESOURCES DIVISION

AAF AIR TECHNICAL SERVICE COMMAND MILAS M. HAY, MAJ. AC 72519

WRIGHT FIELD, DAYTON, OHIO

ATTN: MATERIEL COMMAND P.M.HOPKINS, JR.
RESOURCES CONTROL SECTION BRIG.GEN.,U.S.A.
(LT. COL. J. L. BOWLING)

DRC-2 MAT

THE OFFICE OF THE FISCAL DIRECTOR HAS REQUESTED PERMISSION TO USE A PORTION OF THE DOUGLAS AIRCRAFT, INCORPORATED PLANT NOW BEING ERECTED BY THE DEFENSE PLANT CORPORATION AT NEW ORLEANS, LOUISIANA. THE OFFICE OF THE FISCAL DIRECTOR ESTIMATES THAT THEY WILL REQUIRE 2,000,000 SQUARE FEET OF FLOOR SPACE.

IT IS REQUESTED THAT THE AIR TECHNICAL SERVICE COMMAND MAKE A SURVEY OF THE AMOUNT OF FLOOR SPACE WHICH WILL BE STORED IN THE DOUGLAS AIRCRAFT, INCORPORATED PLANT FOR THE PRODUCTION OF ALL ITEMS FOR THE ARMY AIR FORCES. 135

INFORMATION IS ALSO REQUESTED AS TO THE EXTENT OF THE WORK THE DOUGLAS AIRCRAFT, INCORPORATED WILL REQUIRE THE USE OF THE TOOL FACILITIES FOR THE PERFORMANCE OF THEIR SUBCONTRACTS WITH VARIOUS AIRCRAFT MANUFACTURERS. INFORMATION IS DESIRED AS TO WHETHER OR NOT THESE SUBCONTRACTS COULD BE SOLVED TO OTHER LOCATIONS WITHOUT ANY INTERFERENCE WITH PRODUCTION. END.

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28 September 1944

Defense Plant Corporation
811 Vermont Avenue, N. W.
Washington, D. C.

Attn: Mr. Henry Green
Room 851

Gentlemen:

Reference is made to the construction of Higgins Aircraft, Incorporated plant at New Orleans, Louisiana, erected by the Defense Plant Corporation under Plancor 1569.

It is the opinion of the Army Air Forces that the cost of cancellation of the construction presently underway on drop hammer building and airport facilities, including runways, drainage pump stations and utility services, together with the funds already expended for work accomplished, would approach the cost of these items completed. The completion of these items will add value to the existing completed facilities.

It is therefore recommended that Defense Plant Corporation complete the airport facilities and the drop hammer building presently 65% complete, in accordance with the existing Army Air Forces approved plans. It is further recommended that acquisition of machinery and equipment in connection with the subject project be frozen and that undelivered commitments be cancelled except for those undelivered items for which the acceptance of delivery will be profitable to the government.

Very truly yours,

FREDERICK H. HOPKINS, JR.
Brigadier General, U.S.A.
Chief, Resources Division
AC/AS, Materiel & Services

MHH:mfh
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TSBRC 163// 16490 OWB DAYTONN SEPT 14 1944 241PM

ATTN: RESOURCES DIVISION

REFERENCE AFDRE-2 MH 7734 DATED 26 AUGUST 1944 CONCERNING HIGGINS AIRCRAFT, INC., NEW ORLEANS, LOUISIANA, RCS PROJECT 381 A SERIES, RE PLANCOR 1569. IT IS THE OPINION OF THIS COMMAND THAT THE COST OF CANCELLATION OF THE CONSTRUCTION PRESENTLY UNDER WAY ON DROP HAMMER BUILDING AND AIRPORT FACILITIES INCLUDING RAXX RUNWAYS, DRAINAGE, DRAINAGE PUMP STATIONS AND UTILITY SERVICES TODXX IXR TOGETHER WITH THE FUNDS ALREADY EXPENDED FOR WORK ACCOMPLISHED WOULD APPROACH THE COST OF THESE ITEMS COMPLETED. THE COMPLETION OF THESE ITEMS WILL ADD VALUE TO THE EXISTING COMPLETED FACILITIES. BY COMPLETING THESE ITEMS THE OVERALL COMPLETED FACILITY WILL BE MORE EAR EASILY DISPOSED OF AT A GREATER RETURN TO THE GOVERNMENT. IT IS THEREFORE RECOMMENDED THAT DEFENSE PLANT CORPORATION BE INSTRUCTED TO COMPLETE THE AIRPORT FACILITIES AND THE DROP HAMMER BUILDING PRESENTLY 85 PERCENT COMPLETED, IN ACCORDANCE WITH THE EXISTING AAF APPROVED PLANS. IT IS FURTHER RECOMMENDED THAT ACQUISITION OF MACHINERY AND EQUIPMENT IN CONNECTION WITH THE SUBJECT PROJECT BE FROZEN AND THAT UNDELIVERED COMMITMENTS BE CANCELLED EXCEPT FOR THOSE UNDELIVERED ITEMS FOR WHICH THE ACCEPTANCE OF DELIVERY WILL BE PROFITABLE TO THE GOVERNMENT. END AATSC

OCT 14 3 45 PM '44
RESOURCES CONTROL OFFICE
SERVICE BRANCH

WOLFE-MEYERS, AIR TECHNICAL SERVICE COMMAND

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4 October 1944

MEMORANDUM FOR: Headquarters, Army Service Forces
Facilities and Inspection Branch
Attn: Major H. C. Gilbert
Room 4C-640, Pentagon

SUBJECT: Request for Floor Space in
Higgins Aircraft, Incorporated Plant
New Orleans, Louisiana

1. Reference is made to the request of the Office of the Fiscal Director for a portion of the Higgins Aircraft, Incorporated plant, constructed by the Defense Plant Corporation at New Orleans, Louisiana. After an investigation the Army Air Forces has determined that definite plans to place subcontracting programs in subject plant will utilize all available floor space for production, making it impossible to release space to the Office of the Fiscal Director.

For the Commanding General, Army Air Forces:

FREDERICK R. HARRIS, JR.
Brigadier General, U.S.A.
Chief, Resources Division
AC/AS, Materiel & Services

MRH:MFR
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Mrs. C. B. Chapman:js
Tel. 26025

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CONFIDENTIAL

30 September 1944
3:30 P.M.
Resources Control Section

381a

ENGINEERS DIVISION
MAJOR MILLS H. MAY

G. H. MORIARTY
Colonel, Air Corps

[illegible] ..... MSTEL AVIEN-2 NR 7346 RELATIVE TO AVAILABILITY OF A PORTION OF HUDSON PLANT FOR FISCAL DIRECTOR. INVESTIGATION DISCLOSES THAT AIR TECHNICAL SERVICE COMMAND HAS DEFINITE PLANS TO PLACE SUBCONTRACTING PROGRAMS IN SUBJECT PLANT WHICH WILL UTILIZE ALL AVAILABLE FLOOR SPACE FOR PRODUCTION, MAKING IT IMPOSSIBLE TO RELEASE ANY FOR OTHER PURPOSES.

THIS OFFICE WILL CONTINUE EFFORTS TO LOCATE AVAILABLE SPACE BUT CANNOT EXTEND TOO MUCH ENCOURAGEMENT FOR SUCH A LARGE AREA AS THE FISCAL DIRECTOR DESIRES.

END AAF32.

WOLFE - MEYERS
AIR TECHNICAL SERVICE COMMAND

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Mr. May Requirements Div.

File

TELEPHONE CONVERSATION BETWEEN COL. PHILLIPS AND GEN. COOK, WRIGHT FIELD, 27 OCTOBER 1942.

CONFIDENTIAL

Col. P: Say, we got an informal inquiry from Mr. Cummings, the Bureau of the Budget today as to what are - your plans were for Higgins. He said that he had ~~xxx~~ heard - a rumor to the effect that we were thinking about turning it over to the Ordnance to repair ~~xx~~ trucks, repair of jeeps.

Gen. Cook: No, I understand that they have taken on a contract for the repair of 10,000 jeeps down there, but that will only occupy a part of the space. Part of the space is being used for subcontracting Curtiss-Wright, they are building outer wing panels.

Col. P: You have no plans to change that, eh?

Gen. C: We have no plans at the present time to change that.

Col. P: O.K. Well, I think that clears that up.

Gen. C: I don't know whether that contract for repair of the 10,000 jeeps went through or not, but the last information I heard of was they were going to take on that work.

Col. P: Yes. Well, you would have no objection to that, I suppose?

Gen. C: No, I would have no objection to that because it's for war purposes and they can use some of the space they have available there for that purpose.

Col. P: Now, didn't I understand that Higgins was coming up to talk to you and K.B. a couple or three weeks ago?

Gen. C: Yes. He did. He talked to me.

Col. P: What was the outcome of that, sir?

Gen. C: Well, the outcome of that was, as I told them, we have no objection to them putting these jeeps in -- out there.

Col. P: O.K. Orval, that gives us the dope that we want.

Gen. C: Does that clear it up? We don't want to let those facilities go yet because we don't know whether they are going to be needed for maybe post war storage or it is possible they may be needed for something else, and the facilities are just too good to turn loose yet.

Col. P: O.K.

Gen. C: Does that fix you up?

Col. P: That fixes me up. How's business?

Gen. C: Oh, about the same as usual.

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31 October 1944

MEMORANDUM FOR: The Under Secretary of War
Attn: Chief, Contracts & Facilities
Rm 3D-723, Pentagon Building

SUBJECT: Higgins Aircraft, Incorporated
New Orleans, Louisiana
Plancor 1569

1. Defense Plant Corporation has received an application from Higgins Aircraft, Incorporated requesting an amendment to their lease agreement so as to include that part of the aircraft plant and facilities necessary to perform contracts between Higgins Aircraft, Incorporated and the Clinton Engineering Works.

2. For your information, a copy of a letter from this Headquarters to Defense Plant Corporation is attached, in which it is advised that this Headquarters has no objection to subject amendment.

For the Commanding General, Army Air Forces:

FREDERICK M. HOPKINS, JR.
Brigadier General, U.S.A.
Chief, Resources Division
AC/AS, Material & Services

Attachment

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AFDRE
HDG/ieh
Ext. 5663

2 December 1948

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MEMORANDUM FOR THE ASSISTANT CHIEF OF AIR STAFF, MATERIEL AND SERVICES
ARMY AIR FORCES
(Attention: Chief, Resources Division)

Subject: Utilization of War Department-Owned or Sponsored Industrial Installations for Industrial Storage - Eighth Service Command Area.

1. Attached is a copy of the plan for the utilization of War Department-owned or sponsored industrial installations for surplus industrial storage purposes within the Eighth Service Command. It is proposed that certain War Department-owned or sponsored industrial installations be made available for use as disposal centers for industrial property becoming surplus as a result of contract terminations, such installations to be administered by War Department personnel until the space can be turned over, as outlined in the plan, to the Reconstruction Finance Corporation for operation.

2. This plan deals with one War Department-sponsored industrial installation in which the Army Air Forces is named as the sponsoring service, namely: the Higgins Aircraft, Inc., New Orleans, Louisiana, Plancor 1969.

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3. The Production Division, AMF, has been requested to concur in the use of this facility for the stated purpose. It is not in a position to do so since the position of the Army Air Forces in this matter is not known. Even though this particular matter does not directly fall within the purview of the procedure outlined in War Department Memorandum M5-11, regarding disposal of OPC-owned, War Department-sponsored industrial installations, it is forwarded requesting comments and/or concurrence regarding relinquishing the space incorporated within the above-named Plancor for the stated purpose, including therein a statement to indicate any reservations upon which such use may be made or other data pertinent to the proposed operation.

4. An early reply is requested.

For the Commanding General:

H. S. KIRTON,
Brig. General, U.S.A.,
Director, Production Division.

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23 November 1944.

MEMORANDUM FOR THE UNDER SECRETARY OF WAR

Subject: Army Air Forces Requirements for Disposal Centers

1. The Committee composed of the Chief of Warehousing Division, Reconstruction Finance Corporation, Director of Storage Division, Army Service Forces and Chief of Real Estate Division, Office, Chief of Engineers, authorized by the Under Secretary of War and the Surplus War Property Director of the Reconstruction Finance Corporation, has completed the selection of Disposal Centers in all Service Commands with the exception of the Fourth and Eighth. Prior to selection of sites for these Disposal Centers, the Technical Services of the Army Service Forces and the Army Air Forces were contacted both in Washington and in the field to ascertain final estimates of requirements as of V-E Day. Disposal Centers selected have been set up and organized on the basis of these requirements.

2. Upon arriving in the Los Angeles area of the Ninth Service Command, the Committee was informed of the existence of eighteen separate disposal facilities which were being established independently by the Army Air Forces. These installations were planned to take care of surpluses accumulating in existing Army Air Forces issue depots. A large percentage of the requirements consist of obsolete parts from tactical aircraft. In addition to these requirements, Army Air Force representatives informed the Committee of certain requirements to be taken care of in the Reconstruction Finance Corporation Disposal Center.

3. The Committee, with the concurrence of the Army Air Forces, inspected two of these Centers, one at Los Angeles, California, and one at Houston, Texas. The utilization of space and the methods of warehousing in both of these installations are contrary to sound commercial warehouse practice, and are uneconomical in the use of space and manpower. The installation at Los Angeles is in property which was secured by the Chief, Real Estate Division, Office, Chief of Engineers, through condemnation proceedings from the Zellerbach Paper Company. The property is exceptionally fine warehouse space located in an area where storage is at a premium, and it is believed that there will be much political and civilian opposition to the use

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of the property for the storage of surpluses.

4. Analyses of requirements and availability of potential storage sites in the Eighth Service Command prompted the Committee to request a conference with representatives of the Army Air Forces at Houston, Texas. The result of that conference has been the development of a plan to absorb in the Reconstruction Finance Corporation Disposal Center plan those facilities now set up by Army Air For ces for disposal that are well situated, are not subject to objection, and can be retained under long term leases for the storage of surplus property. The requirements for the entire country have been recomputed and adjustments made so that the War Department will have a standardized plan of Disposal Centersin conjunction with the Reconstruction Finance Corporation.

5. The continuance by the Army Air Forces of its proposed separate Disposal Center system is at variance with the policies approved by your office, and would be uneconomical both from the standpoint of the use of space and the disposal of surplus property. The Army Air Forces Disposal Center plan can be absorbed into the Reconstruction Finance Corporation Disposal Center plan without too much confusion provided the consolidation is effected at once. Further development by the Army Air Forces of a s eparate Disposal Center plan would make it difficult and uneconomical to merge the two plans at a later date. It is, therefore, recommended that a letter substantially as attached be t ransmitted to the Commanding General, Army Air Forces.

JOHN J. O'BRIEN
Colonel, Corps of Engineers
Chief, Real Estate Division

ALB ERT B. DRAKE
Colonel, GSC
Director, Storage Division, ASF

C. D. WILLIAMS
Chief, Warehousing Division
Reconstruction Finance Corporation

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28 November 1944

MEMORANDUM FOR THE COMMANDING GENERAL, ARMY AIR FORCES

Subject: Army Air Forces Requirements for Disposal Centers

1. The Surplus War Property Administrator appointed the Space Control Committee under date of 29 March 1944, to plan storage f acilities for all Gov ernment agencies. The Space Con trol Committee under date of 22 August 1944, made a recommendation for the storage of surplus property under a Disposal Center plan. A copy of that letter is attached for your information. This plan has my approval and a Committee selected by the Reconstruction Finance Corporation and the War Department was instructed under date of 17 October 1944 to set up Disposal Centers to take care of requirements as of V-J Day.

2. I am informed that Army Air Forces are proceeding independently of this Committee to set up their own Disposal Centers. Separate Army Air Forces Disposal Centers are considered unnecessary and it is my desire that appropriate instructions be issued to have the total estimated requirements for Army Air Forces for V-J Day submitted t o the Space Control Committee and the existing Disposal Center facilities of the Army Air Forces made available to that Committee.

Under Secretary of War

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PLAN OF DISPOSAL CENTER FOR THE 8th SERVICE COMMAND, CONSISTING OF
AREA 1, (NEW ORLEANS, [illegible], SHREVEPORT, KINDER, MARSHALL, TEXARKANA)
AREA 3, (SAN ANTONIO AND HOUSTON)
AREA 4, (DALLAS, FT. WORTH, SWEETWAN AND AMARILLO), FURTHER IDENTIFIED AS
SHOWN ON EXHIBIT A ON 8th SERVICE COMMAND DISTRIBUTION MAP ATTACHED.

24 NOVEMBER 1944.

I. REQUIREMENTS

1. The total requirements for this area amount to 4,5[illegible],000 sq. ft. of closed space and 726,000 sq. ft. of open space. 901,000 sq. ft. of closed space requirements are Army Air Forces. Approximately 600,000 sq. ft. of the AAF requirements had been planned for by the AAF. They had already established installations in Houston, Texas and Mobile, Alabama, and were in the process of establishing an installation at New Braunfels, Texas. In addition, there is an intransit depot at New Orleans, known as the Shrewsbury site which according to inspection made by the Real Estate Division, Office, Chief of Engineers is not now being used to any great extent. Also, the greater proportion of the Engineer requirements are presently surplus in existing posts, camps and stations. Therefore just a small proportion of the total requirements come from contract terminations as of V-E Day. The requirements are widely scattered through the entire area and present a different problem than those Service Commands that have requirements, the larger portion of which come from contract termination in concentrated industrial areas. It is the opinion of the Committee that the requirements especially those of the AAF are very inaccurate. In two days' work with the AAF in the field, the requirements have been screened down to one-third of their original estimate. In view of the possible uncertainty of requirements, especially AAF, and the type of availability (see Section II), the following formula has been used.

a. Acquire sufficient land to provide open and closed space equivalent to 75% of the total closed and open requirements as reported.

b. Allocate immediately closed space equivalent to 25% of the open requirements.

c. Allocate immediately open space equivalent to 25% of the open requirements.

II. SPACE AVAILABLE

1. The following space is available in this area:

		Warehouse	Shelter	Total	Open
1.	Southwestern Exposition Bldgs., Ft. Worth, Texas Stockyards.	300,000	—	300,000	100,000
2.	Reed Roller Bit Co., Plancor 537, Houston.	43,000	—	43,000	75,000
3.	Houston Air Depot (Ford Motor Assembly Plant, Harrisburg Blvd.)	145,000	—	145,000	172,000
4.	New Braunfels	106,000	—	106,000	300,000
5.	Higgins Aircraft Corp., New Orleans(heated)	275,000	—	275,000	420,000
6.	Shrewsbury Air Depot, New Orleans	337,000	—	337,000	—
7.	Mobile Air Depot, Mobile, Alabama	100,000	—	100,000	[illegible]

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The Committee (Colonel John J. O'Brien, Mr. C. D. Williams of RFC, and Colonel Albert B. Drake) has considered all available locations in the 6th Service Command. After due consideration to the type of requirements and the existence of locations 3, 4, 6 and 7, which are sites already selected by the AAF for an independent Disposal Center, (reference is made to memorandum attached from the Committee to the Under Secretary of War), the Committee has decided to use all of the locations listed (1 through 7) in the Disposal Center plan for this area. The RFC will arrange with their various agency offices for proper administration. Location 1 is the only location in the Dallas area that is available and suitable for the storage of surplus. Consideration has been given to the use of vacant space in depots and posts, camps and stations, and none of it is deemed as desirable as Location 1, even though this site must be acquired. Location 2 is presently in production. The plant consists of approximately 600,000 sq. ft. but the management has no need for the 43,000 sq. ft. of closed space and 75,000 sq. ft. of open space selected, and is agreeable to the use of it for the storage of surplus property. The Committee has been advised by the War Department that the plant will no longer be needed after V-E Day for war production. After the present machine tools are either sold or consolidated into permanent storage, additional storage space will be available. Location 3 has been under lease by the AAF since 1942. It is a very suitable storage facility, although it is multiple story, the elevators are sizable and the building is capable of economical handling. The open area is well laid out and fenced and consists of good hard standing. The AAF have some surpluses in this building at the present time. Location 4 has recently been released by the CMC and is available at a very reasonable rental. In view of a proportion of the requirements developing from the San Antonio area, it is the opinion of the Committee that this location is desirable. Location 5 is in an existing RFC plant that is standby. RFC has secured the necessary clearances for the use of 275,000 sq. ft. closed and 420,000 sq. ft. open space in this plant. Location 6 has been under lease by the AAF for a number of months and according to reports from the Real Estate Division, Corps of Engineers, is not now being utilized to any extent. It is a desirable facility for the storage of surplus and has been utilized in the Disposal Center plan on recommendation of the Chief, Real Estate Division, Office, Chief of Engineers. Location 7 is presently under lease by the AAF and has some surplus already stored in it. In view of further AAF requirements developing in that area, it has been deemed advisable to use this facility. The RFC Agency Managers in the Dallas, Houston, and New Orleans areas are satisfied with the facilities selected and concur in the decision of the Committee of the selection of the Disposal Center plan.

2. Exhibit B shows:

a. The breakdown of the requirements.
b. Application of the formula to the requirements.
c. Application of the space available worked out in accordance with the formula.
d. Allocation of space to the Technical Services, and
e. Pool space which is balance left for future allocation.

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III. LOCATIONS

1. With the exception of the Corps of Engineers, the Technical Services advise that they can get along with their present arrangements for storing their immediate requirements until V-E Day. The Division Engineer of the Southwestern Division advises that 130,000 sq. ft. of closed space and 90,000 sq. ft. of open space requirements in the Dallas area must be taken care of as soon as possible. The Dallas RFC Agency Manager therefore will make arrangements as soon as possible with the Division Engineer to accommodate these requirements in Location 1. The same arrangements will be made between the Houston RFC Agency Manager and the Division Engineer to take care of 56,000 sq. ft. closed and 164,000 sq. ft. open in Location 2 or 3 just as soon as possible.

2. RFC is making arrangements for the operation of Locations 1,2,3,4,5, 6 and 7. The standard form of contract as approved by the Surplus War Property Administrator will be used. The operators of these locations will submit to RFC for approval on or before 10 December, organization charts filled in as to key personnel. Locations 3, 4, 6 and 7, which are presently being operated by the AAF will continue to be operated by them until such time as RFC is ready to assume responsibility for these operations. At that time the RFC will complete arrangements for the transfer of operations to the operators selected. The operators selected will take an inventory of the surplus property with the Commanding Officer of the AAF installation and when satisfied of the accuracy of the inventory will issue suitable receipts to the AAF for the surpluses stored or if desirable, the RFC can assume accountability after inventory is taken.

3. The operators will submit to RFC by 10 December the amounts and kinds of materials handling equipment needed for each location.

4. RFC has directed its Dallas, Houston and New Orleans Agency Managers to be prepared by 10 December to give specific shipping instructions to the Technical Services upon request as to what specific locations surplus materials and production equipment are to be shipped from plants located in the area described in this plan.

5. Considerable care must be exercised by the RFC in assigning origin points of surplus to specific disposal locations. It is suggested that the three Agency Managers involved, hold a joint meeting with the Technical Services and the AAF representatives in this area to insure full coordination and proper assignment of sites to shipping points.

IV. EMERGENCY PLAN FOR PLANT SHAKEDOWN

1. The Technical Services are to be directed that all materials and production equipment are to be packed and processed according to existing regulations prior to shipment to the Disposal Center. The Technical Services advise that there is no need for processing provisions at the Disposal Center and that all materials shipped will be properly packed and processed at the plant.

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V. FINAL ALLOCATIONS

1. The pool of space as shown on Exhibit B will be allocated to the Technical Services and RFC by Storage Division, AFF on justification by the Technical Services and RFC as soon as each Technical Service and RFC has firmed up actual requirements. This should be accomplished prior to the turnover of the plan to RFC, which is supposedly 16 December. It is to be noted that the pool space is the balance left of 75% of the total requirements developed by the formula after 25% allocations have been made. It is to be further noted that this pool space is now available and ready for use.

2. Paragraph 1 gives the War Department control of all space provided until such time as it is satisfied that RFC is organized to operate the Disposal Center sites in a manner satisfactory to the War Department.

VI. INTERIM PERIOD

1. Until RFC is ready to operate Disposal Centers and not later than 16 December, the War Department has the emergency plan to depend upon in addition to the space that is available as outlined in Section II, Paragraph 1, As outlined in Section III, the Technical Services have advised that their present arrangements for handling surplus storage from now until V-E Day are adequate.

VII. WAR RESERVES

1. Under this plan, it is necessary that the Technical Services provide permanent shipping addresses in their existing installations so that war reserves coming from contract terminations can be shipped to those points on instructions from the Technical Services.

VIII. ACQUISITION AND CONSTRUCTION

1. Location 1, Southwestern Exposition Buildings, Ft. Worth, Texas:
This will be acquired by the RFC. RFC will accomplish any necessary preparation such as repairs, grading, railroad tracks, etc.

Location 2, Reed Roller Bit Co., Planeor 537, Houston, Texas:
RFC will make the necessary arrangements for the use of the space in this plant.

Location 3, Houston Air Depot (Ford Motor Assembly Plant):
The War Department, Real Estate Division, Office, Chief of Engineers, will arrange for the transfer of the lease to the RFC, upon their request.

Location 4, New Braunfels (Lone Star Wool and Mohair Building) Dallas:
The War Department will complete negotiations for the leasing of this site and will arrange for a transfer of lease to the RFC upon their request.

Location 5, Higgins Aircraft Corp., New Orleans:
RFC will make arrangements for the use of space in this plant.

Location 6, Shrewsbury Air Depot, New Orleans:
The War Department, Real Estate Division, Office, Chief of Engineers will arrange for the transfer of this lease to the RFC upon their request.

Location 7, Mobile Air Depot (Navco Bldg.) Mobile, Alabama:
The War Department, Real Estate Division, Office, Chief of Engineers will arrange for the transfer of this lease to the RFC upon their request.

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IX. RECOMMENDATIONS

1. It is recommended that AAF use the same channels for requirements and acquisition in the future as have been outlined for use of the Technical Services.

2. It is apparent that Disposal Centers in this area contain a large percentage of parts of tactical aircraft that are obsolete and have no sales value, even though the cost price represents a considerable amount of money. It is the opinion of the Commit tee that the Government will be open to severe and justifiable criticism for incurring wasteful expenditures in large amounts for packing, crating, shipping and providing space for obsolete parts and other material that can never be sold by the MRC except as scrap. It is therefore recommended that the Readjustment Division, ASF together with the disposing agencies take the necessary steps to insure that a minimum of surplus that has no sales value, reaches the Disposal Center, and that this type of material be determined scrap at the point of origin and be shipped to the scrap yards rather than to the Disposal Center.

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EIGHTH REGION - Area 1 (New Orleans, Mobile, Mobile, Shreveport, Biloxi, Barksdale, Jackson)
Area 3 (San Antonio and Houston)
Area 4 (Dallas, Ft. Worth, Harlingen and Amarillo)

Breakdown of Availability

		Closed	Waters	Total	Use
1.	Southern Expedition Bldgs., St. Louis, Texas, Stock Yards	300,000	-	300,000	150,000
2.	Reed Roller Bit Co., Lamar #557; Houston, Texas	63,000	-	63,000	75,000
3.	Houston Air Force Depot, #28, 3500 Southboro Blvd; Houston, Tex.	145,000	-	145,000	174,000
4.	New Braunfels Air Depot; New Braunfels, Texas	106,000	-	106,000	60,000
5.	Higgins Aircraft Corp., New Orleans	275,000	-	275,000	450,000
6.	Shreveport Air Depot; PARID #7; New Orleans	337,000	-	337,000	-
7.	Navco Building; Mobile, Alabama	100,000	-	100,000	150,000
TOTAL		1,326,000	-	1,326,000	1,059,000

Space Allocations
(In thousands of square feet)

Agency	S.F.P. Closed	S.F.P. Open	Bureau Closed	Bureau Open	Navy Closed	Navy Open	Navy & Ord. Closed	Navy & Ord. Open	Army Closed	Army Open	Total Closed	Total Open	Other Closed	Other Open	Grand Total Closed	Grand Total Open	Grand Total
Headquarters	15	7	181	104	155	226	3	-	18	0	43	187	-	-	973	-	1,133 56
Paragraph 4	4	2	43	35	49	61	1	-	4	0	11	47	-	-	109	-	283 136

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EXHIBIT 9

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EIGHTH REGION - Area 1 (New Orleans, Gulfport, Mobile, Shreveport, Vicksburg, Marshall, Texarkana)
Area 3 (San Antonio and Houston)
Area 4 (Dallas, Ft. Worth, Harlingen and Amarillo)

Breakdown of Availability

		Closed	Quarters	Total	USE
1.	Southern Expedition Bldgs., Ft. Worth, Texas, Stock Yards	200,000	-	300,000	100,000
2.	Reed Roller Bit Co., Palmer #537; Houston, Texas	43,000	-	43,000	75,000
3.	Houston Air Force Depot #428, 3906 Baltimore Blvd; Houston, Tex.	145,000	-	145,000	172,000
4.	New Braunfels Air Depot; New Braunfels, Texas	106,000	-	106,000	360,000
5.	Higgins Aircraft Corp., New Orleans	279,000	-	475,000	450,000
6.	Shreveport Air Depot; #4215 #7; New Orleans	137,000	-	137,000	-
7.	Navco Building; Mobile, Alabama	100,000	-	100,000	250,000
	TOTAL	1,000,000	-	1,309,000	1,317,000

Area Allocations
(In thousands of square feet)

Agency	H.E.D.		Navy		Ordnance		Signal		T.S.C.		T.C.		QMC		A.A.F.		TOTAL	
	Closed	Open	Closed	Open	Closed	Open	Closed	Open	Closed	Open	Closed	Open	Closed	Open	Closed	Open	O.	C.
Requirements	15	7	181	104	195	226	3	-	18	0	43	187	-	-	675	-	1,13	56
Paragraph 4	4	2	49	36	49	61	1	-	4	0	11	47	-	-	169	-	283	136

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EIGHTH REGION - AREA 1 (New Orleans, Amite, Mobile, Shreveport, Minden, Marshall, Texarkana)
AREA 3 (San Antonio and Houston)
AREA 4 (Dallas, Ft. Worth, Sherman and Amarillo)

TOTAL REQUIREMENTS

(In Thousands of Square Feet)

F.F.C.		ORDNANCE		ENGINEERS		SIGNAL CORPS		C.W.S.		T.C.		A.A.F.		TOTAL		TOTAL
Closed	Open	Closed	Open	Closed	Open	Closed	Open	Closed	Open	Closed	Open	Closed	Open	Closed	Open	
21	9	241	138	261	329	3	-	23	-	60	250	901	-	1510	726	2,236

Application of Formula

Reference Paragraph 1 of Formula: 75% of 1,510,000 = 1,132,000 sq. ft. of closed space
75% of 726,000 = 544,000 sq. ft. of open space

Reference Paragraph 2 of Formula: 25% of 1,132,000 = 283,000 s . ft. of closed space
25% of 544,000 = 136,000 s. ft. of open space

Availability

	REQUIREMENT		AVAILABILITY				POOL PACK	
	Closed	Open	Base.	Shelters	Total	Open	Closed	Open
Paragraph 1 of Formula	1,132,000	544,000	1,306,000	-	1,306,000	1,317,000	174,000	773,000
Paragraph 2 of Formula	283,000	136,000	1,306,000	-	1,306,000	1,317,000	1,023,000	1,181,000

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SDRC-12-1GHM DAYTON DEC 13 1944

ATTN: RESOURCES DIVISION

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REFERENCE ACSRE P-2770 CRC, THIS COMMAND AGREES TO THE RELEASE OF APPROXIMATELY 435,275 SQ FT OF FLOOR SPACE AT THE HIGGINS AIRCRAFT, INC., NEW ORLEANS, PLANT, FOR USE ON THE PRODUCTION OF 105 MM SHELLS HOWN ORDNANCE. THE 550,000 SQ FT REQUIRED, AS OUTLINED IN YOUR TELETYPE, WAS CHECKED WITH HIGGINS INDUSTRIES, AND WAS FOUND TO BE INADEQUATE. THE FIRST FIGURE THAT WE HAVE GIVEN YOU AS RELEASE IS THE AMOUNT ACTUALLY REQUIRED. IT IS RECOMMENDED, HOWEVER, THAT THE ORDNANCE DEPARTMENT BE CAUTIONED TO BE SURE OF AVAILABLE LABOR IN NEW ORLEANS FOR THEIR PROJECT.

PROCUREMENT DIVISION

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Smith/esq/6341

TO INSURE PROMPT ATTENTION IN REPLYING REFER TO

NO. 4375

ATTENTION OF

SPOIP-Facilities

WAR DEPARTMENT
OFFICE OF THE CHIEF OF ORDNANCE
WASHINGTON, D. C.

CONFIDENTIAL 4 December 1944

MEMORANDUM FOR Headquarters, Army Air Forces
Asst. Chief of Air Staff, Material and Services
Resources Division
Attn: Brig. Gen. F. M. Hopkins

Subject Higgins Aircraft.
Plancor 1569

1. It is requested that sufficient space be made available to the Ordnance Department in the main assembly building of subject plancor to permit production of 500,000 - 105 mm shells per month by Higgins Plastics. This space has been estimated at 435,000 ft. but it is believed that when finalized the figure will be somewhat lower.

2. To avoid the necessity of establishing a separate plancor, it is further requested that Army Air Forces authorize expenditure of funds under subject plancor to provide for necessary alterations to the building. The cost of such alterations has not yet been determined but it is not believed that the amount will be excessive since the changes contemplated consist principally of erection of curtain walls around the forging and heat treating operations. Your office will be informed as soon as figures are received by this office.

For the Chief of Ordnance:

R. V. SAFFORD.
Brig. Gen., United States Army
Chief, Production Service Division.

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WAR DEPARTMENT
HEADQUARTERS OF THE ARMY AIR FORCES
WASHINGTON, D. C.

CONFIDENTIAL 16 December 1944

MEMORANDUM FOR THE CHIEF OF ORDNANCE
Attn: Brig. Gen. H. F. Safford
Chief, Production Service Division

SUBJECT: Higgins Aircraft
Planor 1569

1. Reference is made to memorandum, dated 14 December 1944, requesting that space be made available to the Ordnance Department in subject plant for the production of 5000,000 105mm shells per month by Higgins Plastics. It is noted that, while the necessary space has been estimated at 435,000 square feet, it is believed that this amount of required area may be decreased.

2. To avoid the setting up of another Defense Plant Corporation lease agreement covering the cost of financing building alterations for the Ordnance work in the Higgins plant at New Orleans, La., The Headquarters Army Air Forces agrees to sponsor and arrange for the financing of such alterations as an amendment to Planor 1569 upon recommendation of the Ordnance Department.

3. It is requested that this office be advised, at the earliest opportunity, of the plans and cost of conversions and alterations which must be made to the present Army Air Forces sponsored Defense Plant Corporation building at Higgins Aircraft, Inc., New Orleans, Louisiana.

For the Commanding General, Army Air Forces:

FREDERICK M. HOPKINS, JR.
Brigadier General, U.S.A.
Chief, Resources Division
AC/AS, Materiel & Services

Copies to:
Col. G. H. Moriarty, ATSC
Major F. H. Otto, OUSW
Defense Plant Corporation

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PRIORITY

T E L E G R A M

Official Business - Government Rates

Letter and FF
Total - Partial
Uniform and Non-Uniform

FROM: KNUDSEN, ATSC
Lt. L. D. McKinley
tg:TSRTE-5a Ext. 2-5102
Docket No. 14,717
19 December 1944

TO: MULTIPLE ADDRESS

TO: HIGGINS PLASTICS CORPORATION
P. O. BOX 1070
NEW ORLEANS, LOUISIANA

TO: COMMANDING GENERAL
MIDWESTERN DISTRICT, ATSC
ATTENTION: TERMINATION SECTION

C. J. LAWSON
LT. COLONEL, AIR CORPS
CONTRACTING OFFICER

TO: AAF RESIDENT REPRESENTATIVE
HIGGINS AIRCRAFT, INC.
P. O. BOX 793
NEW ORLEANS 2, LOUISIANA

TO: COMMANDING GENERAL
ARMY AIR FORCES
WASHINGTON 25, D. C.
ATTENTION: AC/AS, M & S, RESOURCES DIV.

TSRTE-5-12-22 . . . . . YOUR CONTRACT NO. W 33-038 AC-3415 IS HEREBY TERMINATED IN PART FOR THE CONVENIENCE OF THE GOVERNMENT BY CANCELLING A QUANTITY OF 300 EACH, ITEM NO. 1, LIFEBOAT, AIRBORNE TYPE A-1.

YOU ARE INSTRUCTED TO IMMEDIATELY STOP ALL WORK, TERMINATE SUBCONTRACTS AND PURCHASE ORDERS AND PLACE NO FURTHER ORDERS IN CONNECTION WITH THE TERMINATED PORTION OF THE CONTRACT, EXCEPT TO THE EXTENT THAT YOU OR A SUBCONTRACTOR OR SUPPLIER WISH TO RETAIN AND CONTINUE FOR YOUR ACCOUNT ANY WORK IN PROCESS OR OTHER MATERIALS. TELEGRAPH SIMILAR INSTRUCTIONS TO ALL SUBCONTRACTORS AND SUPPLIERS. THIS NOTICE IS NOT APPLICABLE TO ITEMS PREVIOUSLY SHIPPED AND NO SHIPMENTS OF THE TERMINATED ITEMS SHALL BE MADE AFTER THE RECEIPT OF THIS NOTICE WITHOUT PERMISSION OF THE CONTRACTING OFFICER ASSIGNED TO SETTLE YOUR CLAIM. IF THIS TERMINATION WILL RESULT IN THE DISPLACEMENT OF LABOR, FACILITIES OR PRODUCTION TOOLS, YOU ARE REQUESTED TO NOTIFY YOUR AAF REPRESENTATIVE AND TO COOPERATE WITH HIM IN ARRANGING FOR A MEETING WITH WPB, WMC, AND YOUR EMPLOYEES OR THEIR REPRESENTATIVES, IF ANY, BEFORE RELEASING ANY LABOR, FACILITIES OR PRODUCTION TOOLS. LETTER AND INSTRUCTIONS FOLLOW. REQUEST YOU CONTACT AAF RESIDENT REPRESENTATIVE, ATTENTION TERMINATION OFFICER, HIGGINS AIRCRAFT, INC. P. O. BOX 793, NEW ORLEANS 2, LOUISIANA.

FOR ANY INFORMATION IN CONNECTION HEREWITH. WRIGHT FIELD DOCKET NO. 14,717.

SIGNED C. J. LAWSON, LT. COLONEL, AIR CORPS
CONTRACTING OFFICER

COORDINATION

PREPAID

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22 December 1944

HEADQUARTERS FOR DIRECTOR, PRODUCTION DIVISION, ARMY SERVICE FORCES
Attention: Chief, Facilities & Inspection Branch

SUBJECT: Utilization of War Department-Owned or Sponsored Industrial Installations for Industrial Storage Eighth Service Command Area

1. Reference is made to your memorandum on the above subject, dated 2 December 1944, and inclosure, in which comments and/or concurrence of the Army Air Forces are requested as to the use of 275,000 square feet of inside space in the Defense Plant Corporation, Army Air Forces sponsored Douglas Aircraft Corporation plant at New Orleans, Louisiana, Plancor 1519, by Reconstruction Finance Corporation for an Reconstruction Finance Corporation Disposal Center.

2. Determination has not been made that this plant will be held in reserve for stand-by by the Army Air Forces until after V-J Day. Therefore the requested space will not be available to Reconstruction Finance Corporation until that time.

For the Commanding General, Army Air Forces:

FREDERICK P. HOBLER, JR.
Brigadier General, U.S.A.
Chief, Resources Division
AC/AS, Material & Services

WRC:pmd
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26 December 1944

MEMORANDUM FOR EXECUTIVE OFFICER, MATERIEL DIVISION
(Attention: Lt. Col. A. P. Tappan, Rm 4D871)

SUBJECT: Higgins Aircraft, Incorporated
New Orleans, Louisiana

1. The following is a breakdown of the space which is being utilized in the Higgins Aircraft plant:

ITEM	FLOOR SPACE
C-46 Outer Wing Panels	600,000 sq. ft.
Air Rescue Boats	400,000 sq. ft.
Consolidated Vultee Storage	300,600 sq. ft.
Subcontract - Clinton Engineering Works	40,000 sq. ft.
Ordnance Shell Contract	435,000 sq. ft.
TOTAL	1,775,600 sq. ft.

2. The Air Technical Service Command advises this office that the contract for C-46 wing panels will expire in February 1945. The last contract is scheduled to be completed in the second quarter of 1945. The floor space allotted for the production of shells is for a new contract which the Ordnance Department has let to Higgins recently. The total floor space of the plant is 2,395,000 sq. ft.

FREDERICK M. HOPKINS, JR.
Brigadier General, U.S.A.
Chief, Resources Division
AC/AS, Materiel & Services

MMP/afh
AFDRC-2

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Attn: SHIP-Facilities Ind.

ASW, Office of the Chief of Ordnance, 27 December 1944

To: Headquarters, Army Air Forces
Attn: Brig. Gen. Frederick M. Hopkins, Jr., Chief, Materiel Division

1. There are inclosed for your information two copies of approved site letter covering shell production at Burbank.

2. In accordance with information in the site letter, it is requested that Army Air Forces provide for the necessary rehabilitation and construction in the amount of $50,000 under the planner. The general nature of this work is outlined in paragraph 5 of the site letter. Detailed plans will be prepared and presented to your representative by Signal in the usual manner.

For the Chief of Ordnance:

S. T. Williams
Brig. Gen., United States Army
Chief, Production Service Division

1 Incl.
Copy site letter (in dup.)

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ALL COMMUNICATIONS SHOULD BE ACCOMPANIED BY CARBON COPY AND ADDRESSED TO

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TO INSURE PROMPT ATTENTION IN REPLYING REFER TO:

_____ NO. _____

ATTENTION OF

WAR DEPARTMENT
OFFICE OF THE CHIEF OF ORDNANCE
WASHINGTON, D. C.

Philadelphia Ord. District,
Tool, Tube & Gauge Section

15 December 1944

Commanding General
Tooling Base, Army Service Forces
Attn: Production Division

Subject: Progress Inspection of Facilities of Higgins Plastics, Inc., New Orleans, Louisiana.

The following information is submitted in connection with this project:

1. Name and Location of Project	Higgins Plastics, Inc., subsidiary of Higgins Industries, Inc., New Orleans, Louisiana.
2. Type and Mission of Plant	Higgins Plastics, Inc., subsidiary of Higgins Industries, Inc., New Orleans, Louisiana.
3. Products and Production Data to be created by this Project	Shell, Gas, 105MM, M, at a maximum rate of 300,000 units per month.
4. General Statement of Proposed Operations	Processes, operations involve slitting, breaking, planing, drawing, blanking, punch and finish machining, welding, heat treating, shot blasting, welding, degreasing, brazing, painting, packing, and packing. Additional equipment required for this project consists of: hydraulic and electric presses, furnaces, grinders, testers, hardness testers, rotolace, cast blasters, spreader, welders, degreasers, auxiliary and certain tool room equipment.

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31 Dec. 1944 CONFIDENTIAL

WB217

UHD V WADC WRTG WD

FROM ARNOLD WASHINGTON DC 302[illegible]

TO AAF ATSC WRIGHTFLD DAYTON OHIO ATTN COL C.H. MORIARTY CHF RESOURCES CONTROL SLO

GRNC

APHSR-2 7913 HOW TO REQUEST INFORMATION AS TO WHETHER OR NOT 275,000 SQUARE FEET OF HEATED STORAGE SPACE AT HIGGINS AIRCRAFT INC NEW ORLEANS LOUISIANA PLANT OF 1569 CAN BE MADE AVAILABLE NOW TO THE [illegible] CORPORATION FOR USE IN ITS DISPOSAL CENTER FULL FOR STORAGE OF TERMINATED INVENTORIES THEREOF WILL BE FOR DURATION.

REQUEST REPLY BE EXPEDITED

22012

APHSR-2 7913 FOR 275000 1569

1-
OHIO:ISOTC
2-WC Rcl,

Major Welsh
Check with District and find out if space can be released.
Bowling

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Higgins

CONFIDENTIAL

January 3, 1945

Major M. M. May,
Army Air Forces Resources Division,
Room 5-C 874,
Pentagon Bldg.,
Washington, D. C.

1. In compliance with your request received through our Mr. Frank Roder Smith, allow me to hand you herewith a composite of the improvements on the Higgins Aircraft Plant site in New Orleans, together with a floor plan of the Main Manufacturing Building on this Plant site. On this floor plan are indicated the allocation of areas as presently used. The areas indicated as Consolidated Stores are rented to Consolidated-Vultee Aircraft Corp., which rental can be terminated on short notice.

2. The principal activities on this Plant site are:

a. Liquidation of the Army Air Forces Prime Contract No. W-33-038AC298, for 500 type C-46 aeroplanes, which contract was estimated to be approximately $133,000,000.00. This contract was cancelled and the jigs, fixtures, equipment, materials and supplies incident thereto are now in process of liquidation. It is estimated that this liquidation will not be completed before the end of April, 1945.

b. Contract No. W-535AC24501, through the Curtiss-Wright Corporation for the manufacture of 155 sets of outer wing panels for the type C-46 aeroplanes. This contract is estimated to be approximately $3,500,000.00. It is further estimated that this contract will be completed on or about the middle of May, 1945.

c. Contract for the furnishing of 300 Airborne Lifeboats, Contract W-33-038AC3415, estimated value $1,134,000.00. It is estimated that that contract will be completed on or about the end of April, 1945.

d. Contract with the Tennessee-Eastman Company, Contract No. W-740l-ENG23, covered by their Purchase Order

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to us, Purchase Order C-17675. This contract is for the machining, shaping and finishing of certain carbon parts for some secret War weapon, the nature of which is not fully revealed to this contractor. The money value of this contract cannot be accurately estimated as it is on a negotiated basis, and the total volume cannot be accurately forecasted at this time.

e. Contract with the Ordnance Division, United States Army, for the repair of automotive vehicles, (jeeps). Contract No. W-01-009GRD749. This contract is for the repair of 2150 jeeps at an estimated cost of $514,500.00. There are pending, however, negotiations for the repair of a very large number of other Ordnance vehicles, (jeeps, trucks, etc.), which will probably continue for the duration. This work is presently being performed in the Flight Hangar Building and adjacent areas, and some small amount of parts storage in the Main Manufacturing Building.

f. Contract with the Ordnance Division of the United States Army for the manufacture of 105 m.m. shell. Contract No. W-01-009ORD[illegible]. This contract calls for an ultimate production of 500,000 shells per month, with an estimated money value of approximately $26,625,000.00.

g. Negotiations are also being conducted with the Ordnance Department for a large quantity of 500# bombs.

3. Please advise if there are any further details concerning activities on this site which you might require.

Very truly yours,

BELLANCA AIRCRAFT, INC.

R. L. Atkinson, Jr.
Director Plant Engineering

RLA:bd
Enc.

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WAR PRODUCTION BOARD
WASHINGTON 25, D. C.

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WAR DEPARTMENT
HEADQUARTERS OF THE ARMY AIR FORCES
WASHINGTON

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MEMORANDUM FOR THE EXECUTIVE ASSISTANT, OFFICE, UNDER SECRETARY OF WAR
(Attention: Col. G. F. Heiss, Room 3E-724, Pentagon Building)

SUBJECT: Higgins Aircraft, Incorporated
New Orleans, Louisiana

1. In accordance with memorandum of 27 December 1944, from the Under Secretary of War, subject, "Cutbacks in Army Procurement Program", the following information in regard to releasing of floor area in the Defense Plant Corporation-owned plants at New Orleans, Louisiana, operated by Higgins Aircraft, Incorporated, is submitted.

2. All contracts which the Army Air Forces has with Higgins Aircraft, Incorporated for C-46 wing panels and air rescue boats will be completed during the second quarter of 1945. It is not contemplated that additional prime contracts will be placed with Higgins. It is estimated that 1,000,000 square feet of floor area is being utilized for the production of these two items.

3. At the present time there is approximately 438,000 square feet of floor area available in the Higgins-operated Defense Plant Corporation plant. Therefore, there will be a total of 1,438,000 square feet available in the near future. The War Production Board has expressed an interest in utilizing this plant in the truck tire program. No definite request has been received by the Army Air Forces from the War Production Board and if a request is made it will be referred to the Under Secretary of War for approval before a release of space is made.

4. Space in the Higgins plant is being utilized, at the present time, as follows:

ITEM	FLOOR AREA
Ordnance Shell Contract	435,000
Clinton Engineering Works(subcontract)	40,000
Air Rescue Boats	400,000
C-46 Wing Panels	600,000
Consolidated Vultee Storage	250,000
Re-work of Trucks and Jeeps	85,200
TOTAL	1,810,200

Total space provided Higgins by Defense Plant Corporation is 2,248,200 sq.ft.

FREDERICK M. HOPKINS, JR.
Brigadier General, U.S.A.
Chief, Resources Division
AC/AS, Materiel & Services

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6 January 1945

MEMORANDUM FOR DIRECTOR, PRODUCTION DIVISION, ARMY SERVICE FORCES
(Attn: Chief, Facilities & Inspection Branch)

SUBJECT: Utilization of War Department-Owned or Sponsored Industrial Installations for Industrial Storage Eighth Service Command Area

1. Reference is made to your memorandum on the above subject, dated 3 December 1944, and inclosure, in which comments and/or concurrence of the Army Air Forces are requested as to the use of 275,000 square feet of inside space in the Defense Plant Corporation-owned, Army Air Forces-sponsored Higgins Aircraft Corporation plant at New Orleans, Louisiana, Plancor 1589, by Reconstruction Finance Corporation for a Reconstruction Finance Corporation Disposal Center.

2. The Headquarters, Army Air Forces concurs in the use of 275,000 square feet of inside space at the Higgins Aircraft Corporation plant as proposed.

FREDERICK M. HOPKINS, JR.
Brigadier General, U.S.A.
Chief, Resources Division
AC/AS, Materiel & Services

Attachments

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9 January 1945

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MEMORANDUM FOR: The Under Secretary of War
Attn: Contracts & Facilities
Room 3D-723, Pentagon

SUBJECT: Defense Plant Corporation Agreement, $500,000
Higgins Aircraft, Incorporated
New Orleans, Louisiana
Planner 1569

1. Reference is made to Defense Plant Corporation lease agreement with Higgins Aircraft, Incorporated, Planner 1569.

2. Attached hereto for your information is a copy of a WAC letter from the Office of the Chief of Ordnance, Washington, D.C., outlining a proposal whereby space in the Higgins Aircraft, Incorporated plant at New Orleans, Louisiana will be utilized by the Ordnance Department for the production of 105 mm shells by Higgins Plastics Corporation. To avoid the setting up of another Defense Plant Corporation lease agreement covering the cost of financing building alterations for the Ordnance operations in subject plant, the Army Air Forces has agreed to sponsor the financing of such alterations as an amendment to Planner 1569.

3. The estimated cost of $500,000 is reasonable and not excessive and it is requested that the Office of the Under Secretary of War recommend release of $500,000 of available funds by the Defense Plant Corporation to cover rehabilitation costs and necessary construction involved in this proposal. No amendment to the Defense Plant Corporation lease agreement is required as there are funds available in Planner 1569 with which to finance this project.

4. The Construction Requirements Committee, War Production Board approved this project on 5 January 1945.

For the Commanding General, Army Air Forces:

FREDERICK M. HOPKINS, JR.
Brigadier General, U.S.A.
Chief, Resources Division
AC/AS, Material & Services

Attachment

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War Department, Office of the Under Secretary, 10 January 1945.

To: Assistant Chief of Staff, Materiel & Services, Army Air Forces.
Attn: Brig. Gen. F. M. Hopkins, Jr., Room 5C-888 Pentagon Bldg.

Contemplated action of not renewing prime contracts for C-46 Wing Panels and Air Rescue Boats with Higgins Aircraft, Incorporated, is approved.

By direction of the Under Secretary of War:

G. K. HEISS,
Colonel, Ord. Dept.,
Executive Assistant.

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Higgins AIRCRAFT INC.

CONFIDENTIAL

MM:BAW:hj
January 1945

AIRMAIL SPECIAL DELIVERY

SUBJECT: Lease Agreement between
Higgins Aircraft, Inc., Lessor, and
Consolidated Vultee Aircraft Corporation, Lessee

TO: Army Air Forces
Asst. Chief of Air Staff
For Material & Services
Washington, D. C.

Atten: Chief of Resources Division

1. We wish to advise that we entered into a lease, dated 28 December 1943, with Consolidated Vultee Aircraft Corporation whereby we agreed to lease that company approximately 97,713 square feet of floor space in this plant for use as a storage area. Subsequently, we allowed that company to occupy an additional 90,000 square feet pending the preparation of a form of lease to cover the additional area.

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2. Subject lease expired on 27 December 1944. On 9 December, CVAC wrote us requesting a renewal of this lease. Pending negotiations for the renewal of this lease, we notified CVAC that it was likely that Higgins Plastics Corporation would receive some new War contracts that would make it necessary either to refuse to renew the lease or in case it had been renewed at that time to cancel it. The anticipated War contracts were awarded to Higgins Plastics Corporation during the time negotiations regarding this lease

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A.A.F. Asst. Chief of Air Staff
Washington, D.C.

15 January 1945

CONFIDENTIAL

were still in progress. Therefore, pursuant to the terms of the old lease, we notified CVAC on 5 January 1945 to vacate the premises by 20 January.

3. However, notwithstanding the notice mentioned in the preceding paragraph, the United States Navy, Bureau of Aeronautics, has caused CVAC to delay in withdrawing from the areas involved. We therefore wish to furnish you information on the use of this space for such productive purposes so that you may aid in having this space cleared.

4. The total area in this plant is 1,826,800 square feet. This space is allocated to present production and production in the immediate future, as follows:

1.	Shell Manufacturing area	302,750 sq. ft.	Completion
2.	Truck Repair area	241,633 sq. ft.	
3.	C-46 Outer Wing Panel area	734,317 sq. ft.	5/15/45
4.	Lifeboat Contract	147,000 sq. ft.	4/30/45
5.	Carbon Contract	37,800 sq. ft.	
6.	Storage area for liquidation of C-46 contract No. W33-038 ac-298	196,870 sq. ft.	5/1/45
7.	Cafeteria and Kitchen	43,617 sq. ft.	
8.	Aisle space, toilet facilities, canteens and miscellaneous lost areas	122,813 sq. ft.	
	Total	1,826,800 sq. ft.	

5. If you need any further information in this regard, please advise.

Michael Macheca

Michael Macheca
Asst. Secretary-Treasurer

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18 January 1945

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MEMORANDUM FOR: Navy Department
Bureau of Aeronautics
Attn: Production Division
Room 2B-09

SUBJECT: Storage Space for the Consolidated Vultee Aircraft Corporation in the Higgins Aircraft, Incorporated Plant, New Orleans, Louisiana

1. Reference is made to letter dated 20 September 1944, subject, "Request for Additional Storage Space, Consolidated Vultee Aircraft Corporation, New Orleans, Louisiana", in which this office consented to the use by Consolidated Vultee Aircraft Corporation of an additional 100,000 square feet of floor space in the Higgins plant for storage space. 100,000 square feet of floor space had previously been allotted to Consolidated Vultee Aircraft Corporation in this plant. It is the understanding of this office that Consolidated Vultee Aircraft Corporation is now using approximately 180,000 square feet of floor space which has been allotted by the Army Air Forces.

2. The consent of the Army Air Forces to the use of the above-mentioned space was given with the understanding that it might be necessary in the future for Consolidated Vultee Aircraft Corporation to relinquish the space in the Higgins Aircraft, Incorporated plant if other war needs indicated the necessity for use of this space in the War Department's production program.

3. Recent increases in the Army Ordnance program for the production of shells and the repair of trucks necessitates utilizing the entire main manufacturing area in the DFC-owned plant operated by Higgins Aircraft, Incorporated. The total area in this plant is 1,826,800 square feet. This space is allocated to present production and production in the immediate future, as follows:

a.	Shell Manufacturing Area	302,750 sq. ft.
b.	Trunk Repair Area	241,633 sq. ft.
c.	C-46 Outer-Wing Panel Area	734,317 sq. ft.
d.	Lifeboat Contract	147,000 sq. ft.
e.	Carbon Contract	37,800 sq. ft.
f.	Storage area for liquidation of C-46 Contract	196,870 sq. ft.
g.	Cafeteria and Kitchen	43,617 sq. ft.
h.	Aisle Space, Toilet Facilities, Canteens and miscellaneous lost space	122,813 sq. ft.
	TOTAL	1,826,800 sq. ft.

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MEMO FOR: Navy Dept.,Prod.Div.,Baker
SUBJECT : Storage Space, Con.Vultee Aire.Corp. in Higgins Aire.,Inc. Plant, New Orleans, Louisiana
1/18/45

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4. In view of the requirements of the Higgins Aircraft, Incorporated plant for production purposes, the Army Air Forces hereby withdraws its consent for Consolidated Vultee Aircraft Corporation to continue to use storage space in the subject facility. It is desired that action be taken by the Navy Department to secure other storage space for the Consolidated Vultee Aircraft Corporation.

For the Commanding General, Army Air Forces:

FREDERICK M. HOPKINS, JR.
Brigadier General, U.S.A.
Chief, Resources Division
AC/AS, Materiel & Services

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carbon - Higgins - 2 of 5
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AFDRE-2
Major H.M. Hay/em/72537

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18 January 1945

MEMORANDUM FOR THE CHIEF, PRODUCTION DIVISION, ARMY SERVICE FORCES
(Attn: Chief, Facilities and Inspection Branch)

SUBJECT: Utilization of War Department-Owned or Sponsored Industrial Installations for Industrial Storage, Eighth Service Command Area

1. Reference is made to memorandum dated 8 January 1945 from this Headquarters, similar subject, in which the Army Air Forces concurred in the use of 275,000 square feet of inside space in the Higgins Aircraft, Incorporated plant at New Orleans, Louisiana for the use of the Reconstruction Finance Corporation as a disposal center.

2. This letter is to advise the Army Service Forces that all of the main manufacturing area in the Higgins plant is to be utilized for immediate production needs.

For the Commanding General, Army Air Forces:

FREDERICK M. HOPKINS, JR.
Brigadier General, U.S.A.
Chief, Resources Division
AC/AS, Material & Services

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Page 14 of 16 (Exhibits "A" & "C") not included in this copy of report.

WAR DEPARTMENT
OFFICE OF THE INSPECTOR GENERAL
WASHINGTON

CONFIDENTIAL

20 February 1945

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SUBJECT: Special Inspection of the Administration of Cost-Plus-a-Fixed-Fee Contracts with Higgins Aircraft, Inc., near New Orleans, Louisiana

TO: Acting The Inspector General

I. DATE OF THIS INSPECTION - INSPECTING OFFICER

1. a. This inspection was made 1 - 5 February 1945 by Lt Col C. A. Remaley, IGD.

b. Last inspection was made by Col Ernest L. Lucas, IGD, and Lt Col Joseph J. Imhoff, IGD, on 12 - 14, 18 August 1943. All recommendations made in the report of that inspection have been complied with.

II. ORGANIZATION - PERSONNEL

2. Government

a. The AAF Resident Representative and Contracting Officer - Maj E. T. Cuddeback, AC, was appointed 5 December 1943.

b. Assistant AAF Resident Representative - Maj L. L. Conner, AC, reported for duty 9 November 1944.

c. The personnel comprises 15 commissioned officers, 2 enlisted personnel, and 58 civilian employees (Exhibit "A"). There has been an increase of 55 AAF personnel since the date of the last inspection. This increase in personnel is largely occasioned by the additional work load on AAF personnel in connection with termination activities of two CPFF contracts. In general, it appears that the Government personnel will be excessive on completion of the present termination activities and plans should be formulated to materially reduce the force at that time.

3. Contractor

a. Higgins Aircraft, Inc., a subsidiary of the parent company, Higgins Industries, Inc., is the Operating Contractor of the aircraft plant for the CPFF contracts. The Higgins Plastics Corp., another subsidiary, is the Operating Contractor for the several fixed-price contracts now in force in the adjacent plastics plant and in the aircraft plant. Mr. P. O. Higgins is Vice President and General Manager of both subsidiary companies. The Contractor's organization charts are attached as Exhibits "B" and "C," and with respect to form, seem generally satisfactory. The work is being done in a

Higgins Aircraft, Inc.

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Defense Plant Corporation (DPC) plant, erected at a cost of approximately $25,000,000. All tools, jigs, and dies, etc., are either Government-furnished equipment (GFE) or Government-owned.

b. As of 31 January 1945, Contractor's employees on CPFF contracts totaled 2,834. The number of employees on these contracts appeared to be excessive and action should be taken to materially reduce this force. The ratio of indirect labor (63 percent) to direct labor (37 percent), as indicated by Exhibit "D," is considered excessive and it is the opinion of this Inspector that it should be reduced. The labor turnover has been consistently high, absenteeism is prevalent, and loafing on the job appeared to be excessive. A study should be made with a view to correcting deficiencies in the Contractor's organization to eliminate excessive production and overhead costs.

III. CONTRACT INFORMATION

4. At the time of this inspection, the AAF Resident Representative (Contracting Officer) was supervising one major CPFF subcontract, one fixed-price contract, and termination activities of two CPFF prime contracts.

5. Subcontract No. 2107 to Prime Contract W-535-ac-24582, Curtiss-Wright Corp., Buffalo, New York

a. This subcontract, dated 20 December 1943, provides for the manufacture and assembly of 400 sets of outer wing panels (left and right) for Curtiss C-46-A airplanes at an estimated cost of $10,123,560 (including $1,235,560 for tooling), plus a fixed fee of 4 percent of the total estimated cost or $404,942. On 2 December 1944, the contract quantity was cut back to 155 sets. To date, the Subcontractor has not submitted to the prime Contractor any vouchers for payment of fees. It is the opinion of this Inspector that the adjusted fixed fees should be submitted and paid on a current basis.

b. Based on 400 sets, the estimated unit price of wing panels, including the fixed fee, is approximately $26,500. As of 31 January 1945, 50% sets were completed and accepted at a cost of $6,837,969, exclusive of fixed fees, or at a unit price in excess of $150,000 per set. This reflected cost is excessive and immediate action should be taken to further curtail or cancel this contract.

6. Contract W-33-038-ac-3415

a. This fixed-price contract, dated 27 May 1944, provides for the fabrication of 600 airborne life boats, AAF, type A-1, for use in connection with B-17 planes at a unit price of $3,781.31, or a total contract price of $2,268,786. On 20 September 1944, this contract quantity was cut back to 300 boats.

b. The contract provides for price redetermination after 1 January 1945 and thereafter not oftener than every 60 days during the life of the contract. At the time of this inspection, no action had been taken by the Contracting Officer to determine the reasonableness of costs. Action should be taken immediately to redetermine unit cost per boat.

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c. The Resident Representative was advised by the Contractor that a letter order contract was received by the Company for the fabrication of 300 airborne life boats of the same type as the A-1. It is understood that the only difference in the two boats was the change in upper contour lines necessary to fit against the fuselage of the planes. This award is reported to be for boats to be used in connection with the B-29 airplane. Inasmuch as contract No. 3415 for the fabrication of airborne life boats for B-17 planes is in current production, it is believed that the best interests of the Government would have been served had the award been handled as an engineering change rather than a partial termination of one contract and the awarding of an additional contract for the same basic item.

7. CPFF Contract W-33-038-ac-298

a. Letter order contract, dated 2 August 1943 and formalized 2 September 1943, provides for the manufacture of 500 airplanes, type C-46-A, and spare parts at an estimated cost of $128,584,200 exclusive of a fixed fee of $5,143,368, or 4 percent of the estimated cost. On 19 August 1944, this contract was cut back to two planes.

b. The estimated unit cost per plane on a 500-plane basis was approximately $225,000 each. The cost of the two planes completed totaled approximately $22,500,000.

8. CPFF Contract W-535-ac-34486

a. This contract was entered into by letter form contract 2 November 1942 and formalized 17 November 1942. Effective date of termination of the contract was 5 August 1943.

b. The contract provided for the manufacture of 1,200 planes, type C-76A2, at an estimated cost of $135,600,000 and spare parts estimated to cost $27,120,000, or a total estimated cost of $162,720,000. The fixed fee was $4,881,600 or 3 percent of the estimated cost.

c. Final settlement upon this contract was negotiated 2 November 1944 and has been submitted to the Director, Readjustment Division, ASF, for final approval.

9. Contract W-33-038-ac-3673 provides for engineering and flight test reports on experimental helicopters. The Contractor is currently building two such planes (reported to be at the Contractor's own expense) and it is estimated that the final reports will be ready for submission of the engineering data to the AAF the latter part of February 1945. The value of this contract was not known by the AAF Resident Representative.

10. Contracts in force at the plant with Higgins Plastics Corp. and not under the jurisdiction of the AAF Resident Representative, are as follows:

a. Contract W-91-009-Ord-769, Order No. 2416, provides for repair and rehabilitation of 2,100 Army jeeps on a time-and-material basis. The work under this contract is being performed in the hangar building at the aircraft plant.

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b. Contract W-7401-Eng-23, Order No. C-17675, (known as the carbon contract) provides for the machining of carbon items for the Clinton Engineering Works, Tennessee, a Contractor for the Corps of Engineers.

c. Letter Order Contract W-01-009-Ord-603 provides for the installation of equipment and the operation of five shell lines for the Ordnance Department. Work under this contract will be performed in the aircraft plant, and at the time of this inspection, foundations were being emplaced for the various machines and equipment to be installed.

d. The Contractor stated that two additional letter orders were recently received from the Ordnance Department for the rehabilitation of 1½ and 2½ ton Army trucks. It is planned to perform the work under these contracts in the aircraft plant. It is contemplated to use the night crew, now working on the rehabilitation of the jeeps, as a nucleus of the force to be employed on these contracts.

e. The Contractor is performing work under Account No. X-45 (reported to be at his own expense) for experimentation and manufacture of parts and the assembly of a robot bomb.

IV. FISCAL

11. Audit Procedure

a. A selective audit procedure is in force upon the active CPFF subcontract and appears to be functioning satisfactorily. The efficiency and ability of the audit staff, in general, are adequate to protect the interests of the Government in the administration of the audit program.

b. In general, the Government audit is not current due to the failure of the Contractor to submit costs promptly, and the AAF Resident Representative determined on 2 February 1945 that an inter-company mixed plant operation was in effect and had been since 1 August 1944. No reimbursement has been made on vouchers presented since 17 August 1944 due to lack of sufficient supporting data. Determination as to reasonableness and applicability of operation and overhead cost, as applies to each contract, should be made without further delay.

12. Audit Status

a. CPFF subcontract No. 2107 (manufacture and assembly of wing panels for C-46-A airplanes)

(1) As of 31 January 1945, Subcontractor's costs totaled $6,837,969, amount audited totaled $5,767,740, and the amount reimbursed totaled $5,091,210. The Contractor has unsubmitted costs in the amount of $838,541, consisting of direct labor, estimated overhead and material, and, in general, are five months old. Action should be taken to insure the submission of cost data on a current basis.

(2) Materials Audit and Purchases. All purchases, as made by the Contractor, on a direct basis or by subcontract purchases

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are carefully scrutinized by Government personnel as to reasonableness of price, articles purchased, their applicability to the contracts and reimbursability items. Adequate control and liaison are maintained between Government and the Contractor in purchasing, in relation to stock levels, and production requirements.

(3) Time checking. Floor checks are made by two methods, complete departmental and test checks on a surprise basis. The clock station is the medium of control and all employees are properly accounted for. Idleness is recorded for necessary disciplinary action or dismissal.

(4) Payrolls are audited directly from the basic clock cards and approved pay rates. Test checks are used to prove the accuracy of the payrolls. It appears that necessary action is being taken to protect the Government's interest.

(5) The General Accounting Office Field Audit Staff has not performed any audit functions to date on this subcontract.

b. CPFF Contract W-33-038-ac-298 (manufacture of C-46-A airplanes)

(1) As of 31 January 1945, Contractor's costs, excluding fixed fee, totaled $21,511,202 of which $21,088,968 had been audited and $19,624,839 had been reimbursed. Fixed fees in the amount of $401,180 have been accumulated and the net payment to the Contractor totaled $361,064. The unaudited overhead and payroll costs in the amount of $422,233 are being withheld pending determination of allocation of costs inasmuch as it has been determined that this installation is no longer a 100 percent CPFF plant. The Contractor has known unsubmitted costs in the amount of $303,666, consisting of direct labor, material, and termination charges.

(2) Advance Payments to the Contractor totaled $4,275,000 of which $1,468,960 has been liquidated, leaving an unliquidated balance of $2,806,040. The Contractor's bank balance is in excess of $900,000. In view of the fact that this contract has been terminated and now is in the final process of liquidation, the amount of unliquidated balance is excessive and should be cleared immediately.

(3) Status of Fixed-Price and CPFF Subcontractors' Claims. The fixed-price subcontracts or fixed-price purchase orders terminated total 2,516, of which 1,634 have been settled without cost to the Government, and 612 claims settled at a cost of $532,629. Remaining to be settled are 270 claims, of which 180 have been submitted and 90 claims are unsubmitted. Three CPFF subcontracts were terminated, none of which has been settled. Over six months have elapsed since the effective date of contract termination and it appears that more aggressive action should be taken on the part of both the Contractor and the Government in order to liquidate this contract and clear the plant of termination inventory stored therein.

c. CPFF Contract W-535-ac-34484 (manufacture and assembly of C-76A2 airplanes)

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(1) As of 31 January 1945, Contractor's costs excluding the fixed fee totaled $1,655,730; amount audited and approved for payment totaled $1,649,079. Fixed fees in the amount of $46,350 have accumulated of which $41,715 have been paid. All Contractor's costs in connection with this contract have been submitted.

(2) Termination Status. Final settlement agreement has been negotiated and submitted to the Director, Readjustment Division, ASF, for final approval.

d. Per Diem. It was observed that CPFF Contract W-33-038-ac-298 and CPFF Subcontract No. 2107 provided for per diem payments to Contractors' personnel as follows:

$12.50 per day for Executives and Department Heads
8.00 per day for other personnel on short trips
7.00 per day for other personnel on long trips

At other AAF installations visited by this Inspector, it was observed that per diem rates of Contractors' employees were usually $7.00 per day. This variation in per diem rates paid on various contracts should be standardized and it is believed that the best interests of the Government would be served if a uniform rate were developed.

V. PRODUCTION

13. CPFF Subcontract No. 2107

a. The original production schedule called for the delivery of the first set of wing panels during the month of April 1944 and the delivery of the 400th (final) set of wing panels by February 1945. As of 31 January 1945, 52½ sets of wing panels had been fabricated and accepted. Due to the Contractor being unable to produce wing panels as scheduled, the contract has been cut back and the production schedule changed three times as indicated by Exhibit "F." The total Subcontractor's costs, exclusive of the fixed fee, as of 31 January 1945 for 52½ sets of wing panels totaled $7,145,273, against an estimated cost, exclusive of fixed fee, of $10,123,560 for 400 sets of wing panels. The present monthly expenditure for direct and indirect labor and overhead is approximately $500,000, and by the time this contract is scheduled for completion (May 1945), the 155 sets of wing panels will have cost the Government the amount estimated for the original contract price prior to the cut-back. At the time of this inspection, approximately 30 sets of wing panels were standing in idle storage awaiting pick-up by Curtiss-Wright trucks for delivery to Buffalo, New York. The cost of the item produced appears to be excessive, and in view of the apparent lack of an acute need for the products of this Contractor, the undersigned cannot see any advantage to the war effort in continuing to spend half a million dollars monthly largely on overhead and indirect labor for a product that could possibly be more economically produced elsewhere in sufficient quantities to supply the prime Contractor.

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b. Control, with respect to production, planning and engineering, has been inefficient in the past, but it was reported that some improvement was shown in the last month. It was observed that the flow of work through the plant was not coordinated. The operation of the production line as such was inefficient and considerable difficulty was being experienced in keeping the line moving. This lack of planning is reflected in the excessive overtime payments to employees in the attempt to keep the line moving and meet production schedules. It is the opinion of this Inspector that the deficiencies are due to poor supervision and the lack of "know how" on the part of the Contractor notwithstanding that large sums have been reimbursed under this contract for training purposes.

14. Contract W-33-038-ac-1615. This contract for 300 airborne boats is scheduled for completion by 30 April 1945 and it appeared that the hulls would be completed in advance of that date. The present production schedule (No. 3) is based on a receipt of self-righting chambers which is a GFE item manufactured by the Goodyear Tire and Rubber Company, Akron, Ohio. The Contractor is currently on production schedule and at the time of this inspection, 75 boats had been accepted by the Government representative.

15. Contract W-01-009-Ord-769

a. This contract provides for the repair and rehabilitation of 2,100 jeeps on a time-and-material basis. At the time of this inspection, the Contractor was considerably behind schedule. Originally, the delays were due to the non-delivery of spare parts (GFE) and the necessity of training personnel to man the job as well as developing a Contractor's organization for this work. Present production difficulties appear to be inefficient plant management and a lack of an organized production line, as well as a lack of required organization on the existing so-called "line."

b. As of 7 January 1945, 241 jeeps had been processed at a unit cost of $1,293 which included Contractor's organization and training costs. The average unit price is $678.75 which includes an organization and training cost of $79.63 per jeep, based on a scheduled output of 2,100 vehicles. These costs appear to be excessive and action should be taken to survey the Contractor's organization and procedures in order that apparent excessive production costs can be materially reduced. A comparison of costs for the same work being done by Bechtel-McCone, Birmingham, Alabama, as of 7 January 1945, is as follows:

	Bechtel-McCone Birmingham, Alabama	Higgins Plastics near New Orleans, La.	Higgins over Bechtel
No. Accepted thru 7 Jan 45	359	241	
Total Labor Cost thru 7 Jan 45	$239,692.36	$311,613.47	$71,921.11
Average Cost per Unit to Date	818.08	1,293.00	474.92
Average Weekly Unit Cost	517.54	599.12	81.58
Starting Load Cost per Jeep	51.38	79.63	28.25
Adjusted Unit Cost to Date (Weekly)	568.92	678.75	109.83

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c. At the time of this inspection, 18 jeeps were being processed daily against a scheduled output of 25 jeeps per day.

d. Audits and costs under the contract are on a current basis. Costs are computed and vouchers are submitted on a satisfactory basis and reimbursements are promptly made.

16. Production Status of Incidental Contracts

a. Work being performed under carbon contract W-7401-Eng-23 for the machining of carbon items for the Clinton Engineering Works, Tennessee, is on a job-lot basis. Many items are being machined and the Contractor is currently setting up several of the machines for additional new items to be worked. The amount of scrap being generated appears to be high due to the necessity of training personnel to perform this type of work. As of the date of this inspection, no action had been taken toward the disposal of scrap carbon.

b. Production under Ordnance contracts for shell manufacture and the remanufacture of 1½ and 2½ ton trucks has not yet started, as letter orders for such work have just recently been issued.

VI. INSPECTION

17. CPFF Subcontract No. 2107

a. The Contractor has a total of 114 inspectors working on a one-shift basis. The workmanship of inspectors is, in general, fair. The Contractor is performing 100 percent detailed wing panel inspection. The inspectors are presently catching existing defects, but decisions as to what action to be taken must necessarily be referred to the Contractor's supervisor of that particular set of wings. The number of Contractor's inspectors is high due to the low quality of inspection personnel. It is the opinion of this Inspector that a large reduction could be made if better qualified inspectors were employed.

b. Government inspection force is in charge of a competent Chief Inspector and a well-trained force of inspectors is on the job. The Government inspectors supervise the entire plant inspection set-up on an over-all basis, spot check minor assemblies and fabrications, and perform 100 percent final acceptance inspection.

18. Fixed-Price Contract W-33-038-ac-9415

a. The Contractor performs detailed inspection from raw stock to finished airborne boats at the ten established inspection stations. The Contractor's inspection staff is composed of four inspectors which appeared to be deficient in number to perform adequate inspection on the line and final inspection.

b. The Government force is composed of two inspectors, one of whom supervises Contractor's inspection on the fabrication of the boat and the other inspector supervises the installation of equipment as well as performing final and acceptance inspection.

c. Inspection of the remanufacture of jeeps by both the Contractor and the Government appeared adequate and satisfactory.

VII. MISCELLANEOUS

19. Property

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a. Property records are kept by the Contractor under Government supervision and are satisfactory and adequate to protect the interests of the Government. The last audit by the Eighth Service Command for the period 1 March 1943 to 17 November 1944 indicated no discrepancies or irregularities existed. Inventories have been taken as prescribed by current WD regulations.

b. Control of small tools is being exercised in a satisfactory manner. All tools are issued to employees by means of tool checks and any losses are charged against employees by means of payroll deduction.

c. Salvage and Disposal. Control and disposal of salvage are being accomplished in accordance with existing regulations. During the course of work under the several contracts, there have been 155 transfers of accountability and 27 sales consummated on surplus, salvage, and scrap with the total value of $1,895,899. The amount realized on the scrap sales totaled $36,606. Neither the Government nor the Contractor maintains control of scrap generated in production. Efficiency of operation demands that production scrap be controlled and such action should be taken.

20. Plant Protection

a. An AAF Internal Security Survey of this facility was made 23-25 October 1944 by the Midwestern District, and a resurvey was made 5 - 8 January 1945. All recommendations made in those reports have been accomplished except the following:

(1) Paint spray booths be equipped with sprinklers and exhaust fans.
(2) Overhead sewage system be equipped with cushion valves.
(3) Smoking rules be more rigidly enforced throughout the facility.

The plant rating, based on inspection of 23 - 25 October 1944, was "fair." Action should be taken to eliminate the existing deficiencies and to improve the internal security rating.

b. There are 75 guards employed at this facility on a three-shift basis, of which 59 guards are charged to existing CPFF contracts. It is the opinion of this inspector that the number of guards reimbursable to the CPFF contracts is excessive in relation to the number of other contracts and work performed thereunder at the facility.

21. Cafeteria. The cafeteria at this plant is being operated by the Contractor. The cafeteria has been operating at a loss which is considered to be excessive, since its incention on 16 October 1943. No steps were taken to curtail these losses. Reimbursement for losses has been made to April 1944; losses to that date were $23,413.50. Since that date, the Contractor has submitted vouchers for additional losses of $32,174 for the period 29 April 1944 to 16 October 1944. Reimbursement has not been made on these vouchers, however, the Contractor claims that the "losses were necessary." The Contracting

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O-Higgins (C.A.)
Insp. Rep. Br. - 1/10/45

Officer requested the Contractor on 19 October 1944 to furnish a monthly profit and loss statement and a balance sheet supported by accounts payable and accounts receivable. To date the Contractor has not complied with this request. Action should be taken to eliminate further losses by a more efficient cafeteria operation.

22. Discussion

a. Summary of Contributions and Work Done. The Government capital invested in the [redacted] plant at this facility is approximately $25,000,000. CPFF Subcontract No. 2107 provides for the manufacture of 400 sets of wing panels at a total estimated cost of $10,123,660, exclusive of fixed fee. However, only 52 sets have been produced at a cost of $7,145,273. The contract for the fabrication of 300 airborne life boats is an item the Contractor is thoroughly familiar with and able to produce. CPFF Contract No. 298 provides for the manufacture of 500 C-46 airplanes at a total estimated cost of $128,424,200, exclusive of the fixed fee. However, only two planes were produced at a cost in excess of $11,000,000 each, which is an exorbitant amount and believed to be the most expensive planes known. CPFF Contract No. [redacted] for the manufacture of C-76B2 airplanes was terminated after being in operation for nine months, and during this period $1,750,000 was expended and no items were produced. The total termination charges, cafeteria losses, etc., were unknown at the time of this inspection.

b. Fixed Fees. The fees under the CPFF Contracts Nos. 2107 and 298 should be adjusted downward in accordance with WD Procurement Regulations (Par 566.4 JTR).

c. This inspector is at a loss to understand the attitude of the supervising agency when such large sums of monies have been expended over a period of two years and are continuing to be expended when production has been practically non-existent and the cost of the items produced have been exorbitant.

VIII. RECOMMENDATIONS

23. It is recommended that:

a. Plans be formulated for the reduction of Government personnel upon completion of termination activities. (Par 2 c)

b. Action be taken to reduce the number of Contractor employees and reduce the ratio between indirect and direct labor. (Par 3 b)

c. A study be made with a view to correcting deficiencies in Contractor's organization and to eliminate excessive production and overhead costs. (Par 3 b)

d. Fixed fees be submitted by the Contractor and paid on a current basis. (Par 5 a)

e. Consideration be given to canceling Subcontract No. 2107. (Pars 5 b and 13 a and b)

f. Action be taken in accordance with contract provisions to determine reasonableness of costs for airborne life boats. (Par 6 b)

g. Wherein practicable, contract changes be handled as engineering changes rather than as partial terminations. (Par 6 c)

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n. Determination as to reasonableness and applicability of operation and overhead costs, as applied to various contracts, be made without further delay. (Par 11 b)

i. Action be taken to insure the submission of Contractor's costs on a current basis. (Pars 12 a (1) and 12 b (1))

j. Advance payment on Contract No. 298 be liquidated. (Par 12 b (2))

k. More positive action be taken on the part of the Contractor and the Government in completing final settlement on Contract No. 298 and clearing the plant of the termination inventory. (Par 12 b (3))

l. Consideration be given to the standardization of per diem rates for all Contractors' users of per diem allowances. (Par 12 d)

m. Contractor's management under Ordnance Contract No. 749 be improved and action taken to reduce excessive production costs. (Par 15 a and b)

n. Determination be made as to feasibility of reclaiming carbon scrap in connection with Engineer Contract No. 23. (Par 16 a)

o. Action be taken to improve the quality of Contractor's inspection on wing panels and the inspection force be materially reduced. (Par 17 a)

p. Contractor's inspection staff be increased on airborne life boats. (Par 18 a)

q. Action be taken to insure control of production scrap incident to wing panel production by both Contractor and Government personnel. (Par 19 c)

r. Action be taken to eliminate existing plant protection deficiencies and to improve the internal security rating. (Par 20 a)

s. The amount of guard service reimbursable under CPFF contracts be pro rated. (Par 20 b)

t. Immediate action be taken to effect efficient management of the cafeteria and minimize operational losses. (Par 21)

u. Fixed fees be adjusted downward. (Par 22 b)

v. In case the operation of this installation is necessary to the war effort, "know how" be furnished by the Contractor or consideration be given to the placing of this contract under a qualified operator. (Par 22 a and c)

C. A. RENALEY
Lt Col, IGD

5 Inclosures:
(See list of Incls.
next page)

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AFRIT 333.1-Wrecking Aircraft
Ins., New Orleans, La. (PWC) 1st Ind.

War Department, OIG, Washington, 22 February 1945.

To: Commanding General, Army Air Forces, under the provisions of paragraph 19 a, AR 20-10.

1. Copy of this report has been forwarded to the Commanding General, Army Service Forces, for appropriate action within his organization.

2. Paragraphs 20 and 21 r and s have been extracted to the Air Provost Marshal.

3. The return of these papers to this office is requested.

BY THE AUTHORITY OF THE INSPECTOR GENERAL:

J. A. AKERS
Brig. Gen, US Army
Chief, P & C Division

5 incl: n/c
Ltr to The Dir, ASF

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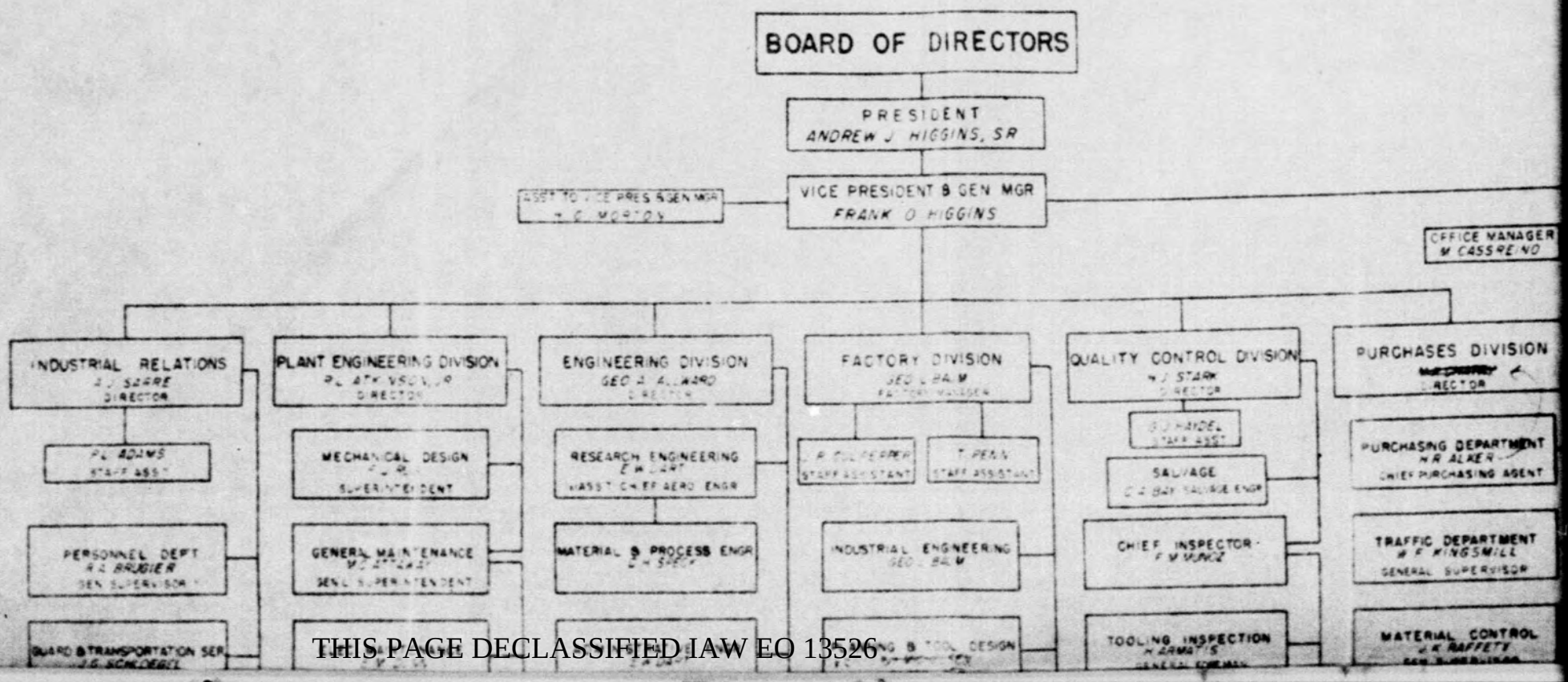
HIGGINS INDUSTRIES, INC.
NEW ORLEANS, LA.
ORGANIZATION CHART
1 JAN 1945



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HIGGINS [illegible] INC.
AS OF [illegible] 1 JAN 1945
[illegible] ORGANIZATION CHART

BOARD OF DIRECTORS

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ASST TO VICE PRES & GEN MGR
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[illegible]
SUPERINTENDENT

[illegible] GENERAL MAINTENANCE
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[illegible] SUPERINTENDENT

[illegible] ELEC MAINTENANCE
[illegible]

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ASST. CHIEF AERO ENGR

MATERIAL & PROCESS ENGR
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T. PENN
STAFF ASSISTANT

INDUSTRIAL ENGINEERING
GEO. L. BALM

PLANNING & TOOL DESIGN
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SALVAGE
C. J. RAY SALVAGE ENGR

CHIEF INSPECTOR
F. W. MUNOZ

TOOLING INSPECTION
[illegible]

PURCHASES DIVISION
[illegible]
DIRECTOR

PURCHASING DEPARTMENT
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CHIEF PURCHASING AGENT

TRAFFIC DEPARTMENT
H. F. KINGSMILL
GENERAL SUPERVISOR

MATERIAL CONTROL
[illegible]

COMPTROLLER DIVISION
A. M. DANIEL
COMPTROLLER

GENERAL LEDGER & DISBURSMENT DEPT
E. V. ANSEMAN, JR - CHIEF

ACCOUNTS PAYABLE
ACCOUNTS RECEIVABLE
& BILLING DEPTS
M. W. O'BRIEN - CHIEF

COST DEPT
M. L. DELAMOUSSAYE - CHIEF

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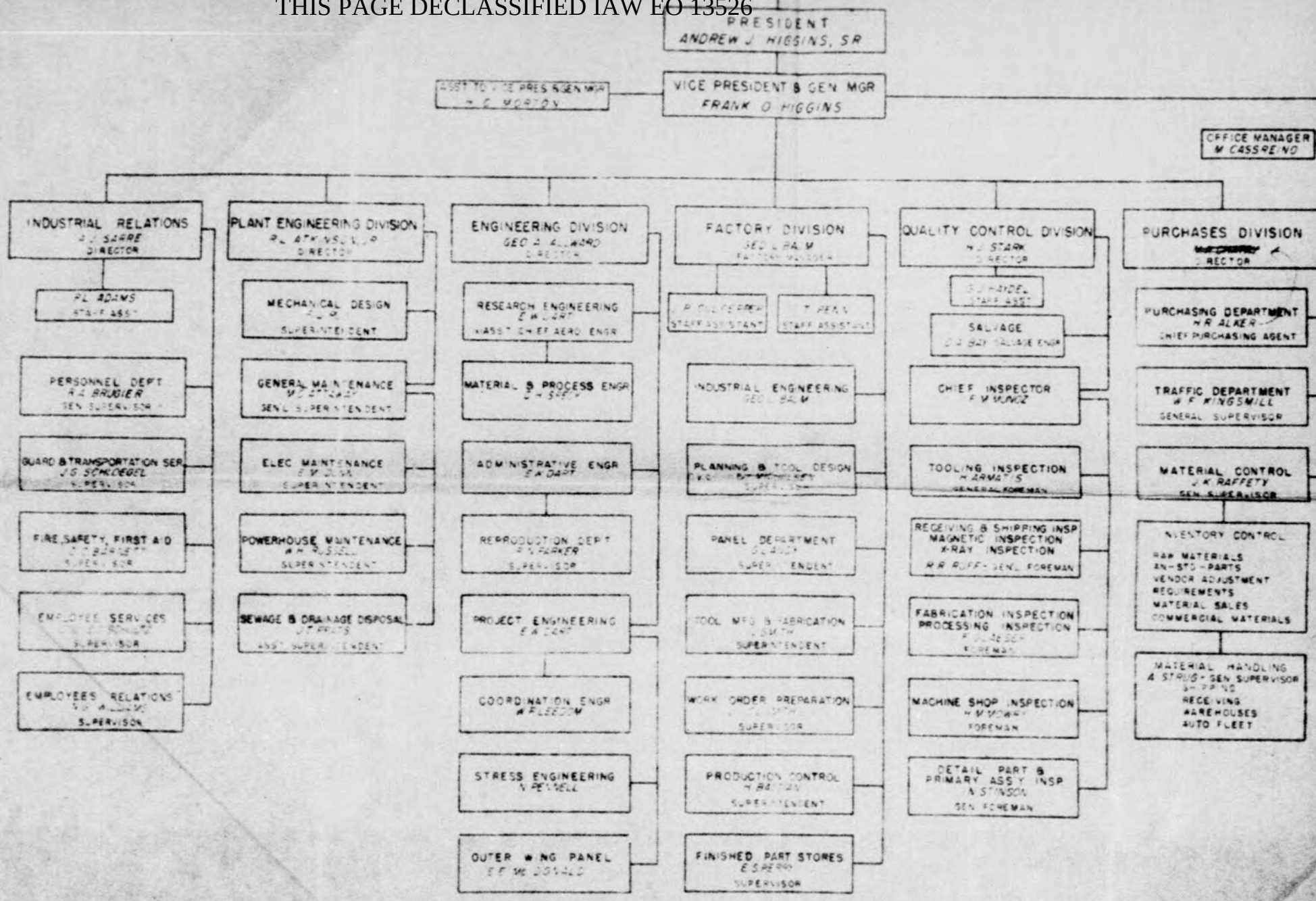

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M M MACHECA

OFFICE MANAGER
M CASSREINO

NT ENGINEERING DIVISION
R L ATKINSON, JR
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MECHANICAL DESIGN
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M D ATTAWAY
GEN'L SUPERINTENDENT

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MATERIAL & PROCESS ENGR
E H SPECK

ADMINISTRATIVE ENGR
E A DART

REPRODUCTION DEPT
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SUPERVISOR

PROJECT ENGINEERING
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COORDINATION ENGR
A FLEEDOM

STRESS ENGINEERING
V PETRELL

OUTER WING PANEL
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J P COLEPEPER
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T PENN
STAFF ASSISTANT

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GEO L PALM

PLANNING & TOOL DESIGN
V C [illegible]
SUPERVISOR

PANEL DEPARTMENT
G L AUDY
SUPERINTENDENT

TOOL MFG & FABRICATION
J SMITH
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WORK ORDER PREPARATION
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FINISHED PART STORES
E SPERRY
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TOOLING INSPECTION
H ARMATIS
GENERAL FOREMAN

RECEIVING & SHIPPING INSP
MAGNETIC INSPECTION
X-RAY INSPECTION
R R RUFF - GEN'L FOREMAN

FABRICATION INSPECTION
PROCESSING INSPECTION
F BLAESER
FOREMAN

MACHINE SHOP INSPECTION
H M SPOHN
FOREMAN

DETAIL PART & PRIMARY ASSY INSP
A STINSON
GEN FOREMAN

PURCHASES DIVISION
[illegible]
DIRECTOR

PURCHASING DEPARTMENT
H R ALKER
CHIEF PURCHASING AGENT

TRAFFIC DEPARTMENT
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MATERIAL HANDLING
A STRUG - GEN SUPERVISOR
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M W O'BRIEN - CHIEF

COST DEPT
H L DELAHOUSSAYE - CHIEF

TIMEKEEPING DEPT
J H KUEHLER - CHIEF

PAYROLL AUDIT
C D GRENIER - CHIEF

PAYMASTER DEPT
J STEINHARDT - CHIEF

TABULATING DEPT
W J HIGGINS, JR - CHIEF

TRAVEL EXPENSE DEPT
A W BOHMFALK - CHIEF

CASHIER DEPT
L J BAKER - CHIEF

BOND DEPT
J T HALL - SUPVR

CREDIT UNION DEPT
M A CREAGAN - SUPVR

OFFICE MANAGEMENT & REIMBURSEMENT DEPT
L GRUNEMANN - ASST CHIEF ACCTANT

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SUBCONTRACT 2107 OF PRIME CONTRACT
W-535-AC-24581

DELIVERY SCHEDULE

1.	Schedule No. 1	Schedule No. 2	Schedule No. 3	Schedule No. 4
April 44	1			
May	5	2		
June	10	5		
July	27	10		
August	51	15		
September	51	20	5	
October	51	35	10	
November	51	45	24	
December	51	55	38	20
January 1945	51	60	55	25
February	51	60	60	25
March		60	70	25
April		39	70	25
May			60	19

[redacted] "E"

1. (a) Statement on Outer Panels Accepted

1 Set of Panels accepted on Schedule No. 2 during May.
3 Sets of Panels accepted on Schedule No. 2 during June.
4 Sets of Panels accepted on Schedule No. 2 during July.
None accepted on Schedule No. 2 during August.
1 Set of Panels accepted on Schedule No. 3 during September.
4 Sets of Panels accepted on Schedule No. 3 during October.
9½ Sets of Panels accepted on Schedule No. 3 during November.
6 Sets of Panels accepted on Schedule No. 4 during December.
20 Sets of Panels accepted on Schedule No. 4 during January.
50½

Note: 7 additional sets of Outer Panels were manufactured by the Contractor for Prime Contract AC-298.

2. It is the opinion of the Inspector-In-Charge that Contractor difficulties were due to poor over-all planning, tooling, to the receipt of w Inspector engineering information from the Prime Contractor. Great difficulties were experienced with regards to tool coordination, tools robbing parts were changed without any coordination with tools which were to produce coincident parts.

3. It is the opinion that the Contractor will not meet his production schedule until approximately 15 March 1945.

4. The percent of rework of all production items has not exceeded 5% of total production. Less than ½ of 1% of reworked parts have been rejected.

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16 April 1945

CONFIDENTIAL

Defense Plant Corporation
811 Vermont Avenue, N.W.
Washington, D. C.

Attention: Mr. L. A. Kelly

Gentlemen:

Reference is made to Higgins Aircraft Corporation, Planser 1569 with respect to rehabilitation and construction of a portion of the plant for production of 105 mm. shells.

This office has been advised by the Ordnance Department that the project estimated to cost $500,000 has been cancelled.

It is therefore requested that any authorization for rehabilitation and construction authorized for the Ordnance production of 105 mm shells be cancelled.

Very truly yours,

FREDERICK M. HOPKINS, JR.
Brigadier General, U.S.A.
Chief, Resources Division
AC/AS, Materiel & Services

MMH/mel
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GOSmith/mit/6341

TO ENSURE PROMPT ATTENTION IN REPLYING REFER TO

OO No. 160/133930

WAR DEPARTMENT
OFFICE OF THE CHIEF OF ORDNANCE
WASHINGTON, D. C.

ATTENTION OF
SPOIP - Facilities

Higgins Aircraft

11 April 1945

Subject: Higgins Aircraft Planoer 1569

To: Headquarters, Army Air Forces
Assistant Chief of Air Staff
Material & Services
Resources Division
Attn: Major Hartung

1. Reference is made to memorandum to your office dated 14 December 1944, subject as above, requesting that your office authorize certain building changes at subject to Plancor to accommodate production of 500,000 - 105MM. Shells per month, and to subsequent letters in connection therewith.

2. This project has been cancelled, and the Ordnance contract with Higgins is in process of termination. Accordingly, it is requested that your office take the necessary action to cancel the Defense Plant Corporation portion of the project. DPC has been informed of the contemplated action, and it is understood has issued stop orders to the lessee. It is further understood that little, if any, commitments have been made under the Plancor.

FOR THE CHIEF OF ORDNANCE:

G. C. Smith
Lt Col, Ord Dept
Assistant

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SPUPS

HEADQUARTERS, ARMY SERVICE FORCES
WASHINGTON 25, D. C.

APR 20 1945

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CONFIDENTIAL

MEMORANDUM FOR THE ASSISTANT CHIEF OF AIR STAFF, MATERIEL AND SERVICES, A.A.F.
(Attention: Resources Division)

SUBJECT: Request for Acquisition of Floor Space, Higgins Aircraft Corporation, Plancor 1569, New Orleans, Louisiana, for Use as a Surplus Property Disposal Center

1. It is the understanding of this office that on 15 May 1945 there will be available, at the subject Plancor, approximately 1,000,000 square feet of floor space which may be found suitable for use other than the operations for which the plant was designed.

2. The Reconstruction Finance Corporation, and in turn the Storage Division of the Army Service Forces, have evidenced an interest in and a desire for acquisition of this floor space. The space is desired for the establishment of a surplus property disposal center for the storage and sale of surplus industrial property.

3. In view of the above, it is requested that your office review the desirability and feasibility of releasing any available floor space for the above specified purpose. It is requested that this office be advised if any of the space can be released for this purpose and of any reservations which may be made limiting the use of such space. If positive action is indicated it is requested that the Army Air Forces initiate appropriate action to effect transfer of this space for the stated purpose.

FOR THE COMMANDING GENERAL:

F. R. DENTON
Colonel, G.S.C.
Deputy Director, Production Division

cc: Storage Division
Readjustment Division

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SUBJECT: Higgins Industries, Inc.
New Orleans, Louisiana
Plancor 2969

TO: Commanding General
Army Air Forces
Washington 25, D. C.

Attention: Assistant C/AS, M & S
Requirements Division
Major Willis M. May

1. Attached is a copy of a letter from Montgomery, Feazer and Brown, attorneys for Higgins Industries, Inc., New Orleans, La., in which is set forth the terms of an agreement reached out by subject firm with Defense Plant Corporation.

2. Briefly the proposal is as follows:

a. Higgins lease agreement, Plancor 2969, is to be terminated.

b. All manufacturing facilities are to be segregated and leased to Higgins on a commercial basis.

c. A selected group of machine tools, to constitute a well equipped machine shop, is to be also leased to Higgins on a commercial basis. The balance of the machine tools and equipment in the Plancor to be declared surplus.

d. The overhead and maintenance of the main manufacturing plant is to be assumed by ATC and a fair and reasonable rental figured and paid square foot basis. Thereafter Higgins will pay only for the number of square feet actually in use by him.

e. The Army Air Forces will sponsor only such projects as are necessary for the accomplishment of contracts which may be placed with Higgins.

f. Space for which Higgins has no foreseeable use will be released to ATC for storage and redistribution purposes. This may range from 85% of the floor area to a maximum of 30%.

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Gen. Con., AAF, Wbo. DC
Subj: Higgins Industries, Inc.
3 May 1943

3. This Command concurs in the termination of the Higgins Lend agreement and recommends that the new arrangements as presented in Montgomery, Ferner and Brown Letter shall be approved.

For the Acting Director:

CONFIDENTIAL

G. M. MERIGHT
Colonel, Air Corps
Chief, Insurance Control Section
Procurement Division

1 Encl.
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LAW OFFICES
MONTGOMERY, FENNER AND BROWN
1103-6 MARITIME BUILDING
NEW ORLEANS 12, LA.

RICHARD B. MONTGOMERY
RICHARD B. MONTGOMERY, JR.
CHARLES PAYNE FENNER, JR.
WOOD BROWN
FONTAINE MARTIN, JR.

GUS B. BALDWIN, JR. •
THOMAS BARR III •
ROBERT U. BLUM •
HENRY C. FOSS •

April 23rd, 1945

CONFIDENTIAL

RECEIVED
APR 25 1945

Director, Air Technical Service Command
Wright Field
Dayton, Ohio

ATTENTION: Resource Control Section
Colonel Moriarity

IN RE: PLANCOR #1569.

Gentlemen:

As you are aware, Higgins Aircraft, Inc. will shortly have completed its subcontract with Curtiss-Wright Corporation for the production of wing panels. No other aircraft work is being performed at the Michoud plant by Higgins Aircraft, Inc. However, Higgins Plastics Corporation is sub-lessee of Higgins Aircraft, Inc. and has continuing contracts being performed in part in the main manufacturing building at said plant, these contracts being the production of airborne lifeboats for the Air Forces and molded carbon as sub-contractor for Tennessee-Eastman Corporation under sponsorship of the Corps of Engineers.

The sub-lease terminates automatically upon the termination of the Higgins Aircraft, Inc. lease. As you are aware, Laister-Kauffmann Aircraft Corporation desires to have Higgins Plastics Corporation manufacture the Center Section of the CG-10A cargo gliders in the Higgins Aircraft, Inc. plant, and also, subsequently, to assemble and test these cargo gliders. Douglass Aircraft desires to have Higgins Plastics Corporation perform certain work as sub-contractor in connection with the cowling for the A-26 planes. In addition, you are aware of the proposed production by Higgins Plastics Corporation as sub-contractor under Higgins Industries, Inc. of Solar Stills for the Army Air Forces.

Moreover, there is some prospect of a contract for the production by Higgins Plastics Corporation of additional airborne lifeboats for the Navy Department,

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as well as Solar Stills for the Navy Department.

Higgins Plastics Corporation also holds a letter contract with the Ordinance Department for the repair of trucks.

In addition to all of the above, Higgins Plastics Corporation, under the sub-lease, is utilizing the woodworking facilities at the plant for the making of plywood for Higgins Industries, Inc., which is used in the manufacture of PT boats and other small craft for both the Army and the Navy.

Higgins Aircraft, Inc.'s contracts have been on a cost-plus basis, under which the cost of maintenance and operation of the plant have been borne by the Army Air Forces. None of the aforesaid contract work by Higgins Plastics Corporation is or will be on the cost-plus basis, some being fixed-price prime contracts, and others lump-sum sub-contracts, the truck contract being on a time-and-material basis.

No contractor could undertake the Solar Stills, Laister-Kauffmann Corporation, the Douglass, or any other contracts on a basis that necessitates the contractor carrying the maintenance and service costs in connection with the entire Michoud plant. If Higgins Plastics Corporation is to undertake the above work and to continue to supply plywood to be used in connection with PT boats and other wooden craft for the Army and Navy, some new basis must be worked out for the use of these facilities by Higgins Plastics Corporation, after the termination of the Higgins Aircraft, Inc. base agreement with Defense Plant Corporation.

Higgins Plastics Corporation has discussed the present situation with the representatives of Defense Plant Corporation, as a result of which the following proposal is submitted for the consideration of the Air Technical Service Command.

In order that Higgins Plastics Corporation may continue to provide an adequate and continuous supply of plywood to Higgins Industries, Inc. in connection with the production of PT boats and other small craft for the

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Army and Navy, continue to perform its contracts in connection with the production of airborne lifeboats and molded carbon, and undertake the performance of the contracts for the production of Solar Stills, Center Sections of CG-10A cargo gliders and cowling for A-25 planes, it is proposed that Army Air Forces sponsor a new lease agreement between Defense Plant Corporation and Higgins Plastics Corporation, to commence upon the termination of the existing lease agreement between Defense Plant Corporation and Higgins Aircraft, Inc. In this connection, detail as to the proposal is hereinafter set forth:

1. Higgins Plastics Corporation will enter into a fixed-term commercial lease with Defense Plant Corporation, under its standard provisions applicable in such cases, for the use of the so-called woodworking facilities at the plant, in order to insure to Higgins Industries, Inc. an adequate and continuous plywood supply for its production in connection with PT boats and other small craft for both the Army and Navy. Such a lease is possible, as these woodworking facilities can be operated as an integrate whole without relation to or dependence upon any of the other facilities of the plant.

2. Higgins Aircraft, Inc. and Higgins Plastics Corporation will prepare a list of items of machinery and equipment portable durable tools and automotive equipment now located and/or installed in the Michoud plant, which shall be the minimum required for the establishment and maintenance of a machine shop for such machine work as may ordinarily be required under contracts now or hereafter held by Higgins Plastics Corporation and performed at the Michoud plant. All other items of machinery and equipment will be declared surplus. The so-called machine shop will include in the machinery and equipment schedule the testing and laboratory equipment, the cafeteria equipment, the autoclaves, etc. A separate fixed rental will be paid in connection with the use of the machine shop.

3. Separate rentals will be fixed for use of space in both the administration and engineering buildings on the basis of the space in said buildings used by Higgins Plastics Corporation.

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4. Higgins Plastics Corporation contemplates using the hangar and the apron in front thereof in connection with its truck repair contract with the Ordinance Department, and for such use, it will pay a separate rental to Defense Plant Corporation.

5. Higgins Plastics Corporation will declare to be surplus to its requirement (a) the items of machinery and equipment as above set forth; (b) the airport, and (c) various small buildings located upon the site, which have been used by contractors and for storage and other purposes.

6. Higgins Plastics Corporation will be agreeable to releasing to Defense Plant Corporation for warehousing purposes twenty-five per cent of the floor area in the main manufacturing building, and, provided it was not required by Higgins Plastics Corporation for production purposes, a total area not to exceed fifty per cent of the floor area of the main manufacturing plant.

7. Higgins Plastics Corporation will require the use from time to time of specific spaces in the above area for the performance of war contracts, and the lease agreement will be amended from time to time to provide for such use. The rent to be paid for the use of such space shall have to be determined by Defense Plant Corporation and Higgins Plastics Corporation for the reason that Defense Plant Corporation's investment in all of the facilities making up Plancor #1569 are extremely large due to various factors resulting from construction of the plant at its location under the necessities of war. Consequently, a rental based upon the normal Defense Plant Corporation formula would be prohibitive to anyone using this plant for production unless it was on a cost-plus fixed-fee contract, where the cost of maintenance and operation is borne by the sponsor. Higgins Plastics Corporation feels that it can work out with Defense Plant Corporation a rent that is reasonable in view of all of the conditions existing at the said plant. A similar situation exists with respect to the maintenance and service costs which, by reason of the physical layout of the plant, are necessarily high and cannot be absorbed by the contractors using only a part of the space in the plant.

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Higgins Plastics Corporation, however, feels that with reasonable and fair adjustments it can absorb such portion of the maintenance and service costs as the productive area of the plant used by it bears to the total. The adjusted Defense Plant Corporation investment in the facilities and the adjusted maintenance and service costs included in this proposal will be determined by Defense Plant Corporation in consultation with Higgins Plastics Corporation.

Very truly yours,

MONTGOMERY, FENNER & BROWN

BY C. P. Fenner Jr.
General Counsel for Higgins
Plastics Corporation and
Higgins Aircraft, Inc.

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SUBJ: Request for Acquisition of Floor Space, Higgins Aircraft Corporation, Plancor 1569, New Orleans, Louisiana, for use as a Surplus Property Disposal Center

1st Ind. TSHMcN/CMC/ms

Hq., Air Technical Service Command, Wright Field, Dayton, Ohio. 2 May 1945.

CONFIDENTIAL

381.A

To: Commanding General, Army Air Forces, Washington 25, D. C., Attention: Asst C/AS, M & S, Resources Division, Colonel J. G. Vaughan.

1. Negotiations are now under way between Higgins Aircraft, Inc., and Defense Plant Corporation which would preclude the allocation of 1,000,000 square feet of floor space to the Reconstruction Finance Corporation.

2. Your attention is invited to a letter from this Command dated 1 May, to which was attached a copy of a letter received from Montgomery, Fennell, and Brown, attorneys for Higgins Industries. This will explain the entire situation in regard to Plancor 1569 as of the present time.

For the Acting Director:

G. H. MURTAGH
Colonel, Air Corps
Chief, Resources Control Section
Procurement Division

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Subject: Higgins Industries, Inc., New Orleans, Louisiana, Plancor 1969

CONFIDENTIAL 1st Ind. AFMID-S.

Headquarters, Army Air Forces, Washington 25, D. C. 4 May 1945

To: Headquarters, AAF Air Technical Service Command, Wright Field, Dayton, Ohio. Attn: Chief, Procurement Division, TSMMD.

1. With respect to attached correspondence it is requested that this Headquarters be advised as to whether subject plant and equipment is excess to Air Technical Service Command, if so a declaration of excess should be forwarded to this Headquarters in accordance with War Department Memo W5-14.

2. In the event that the entire Plancor is not excess to the requirements of the Air Technical Service Command, how much floor space is excess to Air Technical Service Command production requirements and also what machinery and equipment is excess?

3. Attention is invited to the fact that any arrangements Higgins Aircraft may want to make thereafter for a commercial lease is a matter between Higgins and Defense Plant Corporation.

By command of General ARNOLD:

/s/ John C. Vaughan, Col, AC

for FREDERICK M. HOPKINS, JR.
Brigadier General, U.S.A.
Chief, Resources Division.
AC/AS, Material & Services.

1 Incl. n/c

2nd Ind. TSMMD/SEC/ms

Hq., AAF Air Technical Service Command, Wright Field, Dayton, Ohio. 9 May 1945.

To: Commanding General, Army Air Forces, Washington 25, D. C., Attention: Asst C/AS, M & S, Resources Division, Major Hills H. May.

1. Since receiving your 1st Indorsement it has been definitely decided that Higgins Industries will not be used for the production of CG-15A gliders. This makes a declaration of excess in order, and this is now being handled by the Midwestern District office.

For the Acting Director:

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E. E. [illegible]
Colonel, Air Corps
Chief, Resources Control Section
Procurement Division

1 Incl. n/c

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Higgins
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Pers. Div.

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WAR DEPARTMENT
OFFICE OF THE UNDER SECRETARY
WASHINGTON, D. C.

19 May 1945.

CONFIDENTIAL

MEMORANDUM FOR HEADQUARTERS, ARMY AIR FORCES
Attention: Major Mills M. Hay
Room 5-C-875

Subject: Proposed Amendment No. 1 to Agreement of Sublease between Defense Plant Corporation, Higgins Aircraft Inc. and Higgins Plastics Corporation. Plancor 1569.

1. Attached hereto is copy of subject agreement.

2. It is requested that this office be advised as promptly as possible whether or not Army Air Forces recommends the execution of this amendmatory agreement.

F. H. Otto

F. H. OTTO
Major, O.D.
Contracts & Facilities Division.

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MAY 19 1946

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Higgins Plastics Corporation
Plancor 1569
Amendatory No. 1

AGREEMENT AMENDING AGREEMENT OF SUBLEASE

THIS AMENDATORY AGREEMENT, made and entered into as of the _____ day of _____, 1945, by and between Defense Plant Corporation (hereinafter referred to as "Defense Corporation"), a corporation created by Reconstruction Finance Corporation pursuant to Section 5d of the Reconstruction Finance Corporation Act, as amended, to aid the Government of the United States (hereinafter sometimes called the "Government") in its National Defense Program, Higgins Aircraft, Incorporated (hereinafter called "Higgins"), a corporation organized and doing business under the laws of the State of Louisiana, and Higgins Plastics Corporation (hereinafter called "Plastics"), a corporation organized and doing business under the laws of the State of Louisiana;

WITNESSETH:

WHEREAS, an agreement of sublease was entered into as of the 15th day of December, 1943, by and between Defense Corporation and Higgins and Plastics covering the sublease to Plastics of facilities for the purpose of enabling Plastics to increase production and to extent its capacity for the manufacture of products for the Government or for contractors for the Government for use in products for utlimate purchase by the Government in connection with the National Defense Program; and

WHEREAS, Higgins and Plastics have requested that said Agreement of Sublease be amended in order to include thereunder a double steel paint spray booth, thirty-seven thousand eight hundred (37,800) square feet of space in the main aircraft manufacturing building and five hundred fifty-seven (557) items of machinery and equipment and sixty-three thousand (63,000) additional square feet of space adjoining the easterly bay of the main aircraft manufacturing building; the said paint spray booth, space and machinery and equipment having been acquired under an Agreement of Lease entered into as of the 4th day of December, 1942, by and between Defense Corporation and Higgins; Plastics presently requiring the use of said paint spray booth and the additional sixty-three thousand (63,000) square feet of space in connection with its contract for the construction of airborne lifeboats and requiring the use of said thirty-seven thousand eight hundred (37,800) square feet of space and machinery and equipment in connection with its contract for the production of moulded carbon; and

NOW, THEREFORE, in consideration of the premises it is agreed by and between the parties hereto that said agreement of sublease entered into as of December 15, 1943, by and between Defense Corporation, Higgins, and Higgins Plastics,

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be and the same hereby is amended by striking therefrom the second subparagraph of paragraph ONE and the entire paragraph THREE thereof and substituting in lieu and in place of the second subparagraph of paragraph ONE and the entire paragraph THREE the following second subparagraph of paragraph ONE and the entire paragraph THREE:

SUBPARAGRAPH TWO OF PARAGRAPH ONE:

The term "Facilities, whenever used in this agreement of sublease, shall include (a) that portion of the site covered by the agreement of lease entered into as of December 4, 1942, by and between Defense Corporation and Higgins under Plancor 1569, which lies East of a north-south line located about one hundred yards west of a building known as the Lumber Storage Building, exclusive of that portion thereof that is occupied by the Sewage Disposal plant, (b) the use of the Dry Kiln Building and of a portion of the two easterly bays (approximately 147,000 sq. ft.) of the Main Aircraft Building including the Receiving Dock, (c) the Veneer Mill, Saw Mill, Lumber Storage Building, Log Pond and Warehouse B, (d) the humidification equipment in the Dry Kiln Building, four complete auto claves and foundations located in the easterly bay of the Main Aircraft Manufacturing Building, Veneer Plywood fabricating equipment contained in the Veneer Mill, and miscellaneous items of woodworking machinery and equipment, (e) the spur track crossing said site, and all roads and rights-of-way on or adjacent to said site and necessary for the use thereof, provided, however, that said spur tracks and/or rights-of-way shall be available for the common use of Plastics and of Higgins, (f) a double steel paint spray booth equipped with water curtains and exhaust and located in Bay 6 to 7 of the main aircraft manufacturing building at column line Q, (g) that portion of the main aircraft manufacturing building located at the southeasterly corner thereof and containing thirty-seven thousand eight hundred (37,800) square feet (120 ft. x 315 ft.), and (h) five hundred fifty-seven (557) items of machinery and equipment of an aggregate cost to Defense Corporation of One Hundred Ninety-four Thousand Four Hundred Fifty-three Dollars Twenty-eight Cents ($194,453.28) heretofore acquired under the lease agreement entered into as of December 4, 1942, by and between Defense Corporation and Higgins, under Plancor 1569, and identified in a schedule designated "Plastics-Carbon" furnished by Plastics. It is understood and agreed

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that the Facilities shall be more specifically defined and identified by Defense Corporation and, in this connection, Plastics agrees to furnish Defense Corporation with such information and schedules as Defense Corporation may require.

THREE: In consideration of the covenants herein contained and as rental for the Facilities, Plastics agrees to pay to Defense Corporation three per cent (3%) of the aggregate net sales (whenever made) of all products manufactured or furnished (through the use of the Facilities herein provided) during each year of this sublease. Such rental shall be paid quarterly not later than the twentieth day after the end of each quarter beginning with the quarter ending December 31, 1943, until all products so manufactured or furnished during the period of this sublease have been sold or disposed of. The term "Net Sales" as herein used, shall mean gross receipts from sales less return sales, trade allowances and cash discounts.

IN WITNESS WHEREOF, the parties hereto have caused their corporate seals to be hereunto affixed, and these presents to be signed by their duly authorized officers the day and year first above written.

Executed in the presence of: DEFENSE PLANT CORPORATION

_____ By _____
President

_____ Attest: _____
Secretary

Executed in the presence of: HIGGINS AIRCRAFT, INCORPORATED

_____ By _____
President

_____ Attest: _____
Secretary

Executed in the presence of : HIGGINS PLASTICS CORPORATION

_____ By _____
President

_____ Attest _____
Secretary

DISTRICT OF COLUMBIA: SS

On this _____ day of _____, 1944, before me appeared _____

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Higgins Plastics
Contract 1469
Amend. Agr. #1

_____, to me person ly known, who, being by me duly sworn, did say that he is the _____ of Defense Plant Corporation, and that the seal affixed to the foregoing instrument is the corporate seal of said corporation and that said instrument was signed and sealed in behalf of said corporation by authority of its Board of Directors, and said _____ acknowledged said instrument to be the free act and deed of said corporation.

In witness whereof I have hereunto set my hand and official seal.

_____
Notary Public in and for the District of Columbia
My Commission Expires

STATE OF LOUISIANA)
PARISH OF ORLEANS) SS
CITY OF NEW ORLEANS)

On this _____ day of _____, 1944, before me appeared _____, to me personally known, who, being by me duly sworn, did say that he is the President of Higgins Aircraft, Incorporated, and that the seal affixed to the foregoing instrument is the corporate seal of said corporation and that said instrument was signed and sealed in behalf of said corporation by authority of the Board of Directors, and said _____ acknowledged said instrument to be the free act and deed of said corporation.

In witness whereof I have hereunto set my hand and official seal.

_____
Notary Public in and for Orleans Parish, Louisiana
My commission Expires

STATE OF LOUISIANA)
PARISH OF ORLEANS) SS
CITY OF NEW ORLEANS)

On this _____ day of _____, 1944, before me appeared _____, to me personally known, who, being by me duly sworn, did say that he is the _____ President of Higgins Plastics Corporation and that the seal affixed to the foregoing instrument is the corporate seal of said corporation and that said instrument was signed and sealed in behalf of said corporation by authority of its Board of Directors, and said _____ acknowledged said instrument to be the free act and deed of said corporation.

In witness whereof I have hereunto set my hand and official seal.

_____
Notary Public in and for Orleans Parish, Louisiana
My commission Expires

In consideration of the execution by Defense Plant Corporation of the foregoing Agreement Amending Agreement of Sublease, the undersigned hereby assumes and agrees that it shall be responsible for and liable on all covenants, obligations, liabilities, duties, and representations of Higgins Plastics Corporation thereunder, agrees to perform according to the terms thereof all covenants undertaken by, and all obligations, liabilities, and duties imposed upon Higgins Plastics Corporation thereunder, covenants that Higgins Plastics Corporation will perform all covenants, obligations, liabilities, and duties imposed upon it thereunder, and agrees that it will be liable for performance thereof and compliance therewith by Higgins Plastics Corporation, agrees that the undersigned and Higgins Plastics Corporation shall in all respects hereunder be jointly and severally liable; and nothing contained in this paragraph or in said Agreement of Sublease, as amended, shall be construed to

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Higgins Plastics
Pioneer 1969
Amendatory #1

relieve either the undersigned or Higgins Plastics Corporation from, or to prevent the compliance or performance by either the undersigned or Higgins Plastics Corporation of the covenants, obligations, liabilities, duties, and representations under said Agreement of Sublease, as amended, nor shall anything contained in this paragraph or in said Agreement of Sublease, as amended, be construed to relieve the undersigned from its obligations and responsibilities under the guaranty executed by the undersigned on December 4, 1942, in connection with the agreement of lease entered into as of December 4, 1942, by and between Defense Plant Corporation and Higgins Aircraft, Incorporated.

Executed this _____ day of _____, 1944.

HIGGINS INDUSTRIES, INC.

By _____
President

Attest _____
Secretary

STATE OF LOUISIANA)
PARISH OF ORLEANS) SS
CITY OF NEW ORLEANS)

On this _____ day of _____ in the year 1944 before me personally came _____, to me known, who, being by me duly sworn, did depose and say that he resides at _____ in the _____ of _____, that he is the President of Higgins Industries, Inc., the corporation described in and which executed the above instrument; that he knows the seal of said corporation; that the seal affixed to said instrument is such corporate seal, that it was so affixed by order of the board of directors of said corporation and that he signed his name thereto by like order.

_____
Notary Public in and for Orleans Parish, Louisiana

My Commission Expires

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PRIORITY

TELEGRAM

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TO: MULTIPLE ADDRESS

FROM: MILLER, ATSC

TO: HIGGINS PLASTICS CORPORATION
P.O. BOX 1070
NEW ORLEANS, LOUISIANA

1st Lt. W. M. Howell
TSRTE5Asjo Ext. 2-5102
Docket No. 14717
31 May 1945

TO: COMMANDING GENERAL
MIDWESTERN DISTRICT, ATSC
ATTN: TERMINATION SECTION

TO: AAF RESIDENT REPRESENTATIVE
HIGGINS AIRCRAFT CORPORATION
P.O. BOX 1070
NEW ORLEANS, LOUISIANA

WILLIAM M. HOWELL
1st Lt., AIR CORPS
CONTRACTING OFFICER

TSRTE-5-5-149 .. .. .. REFERENCE CONTRACT NO. W 33-038 ac-3415, TERMINATION DOCKET NO. 14717. TELEGRAPHIC NOTICE OF TERMINATION TSRTE-5-12-22 DATED 19 DECEMBER 1944 AND CONFIRMING LETTER TERMINATION NOTICE DATED 22 DECEMBER 1944 WHICH EFFECTED THE CANCELLATION OF 300 EACH, ITEM NO. 1, LIFE BOAT, AIRBORNE TYPE A-1, IS HEREBY RESCINDED WITHOUT TERMINATION COST. IT IS REQUESTED THAT THE CONTRACTOR ACKNOWLEDGE THE REINSTATEMENT OF THESE LIFEBOATS WITHOUT TERMINATION COST BY RETURN WIRE. ANY MATTERS PERTAINING TO INCREASED UNIT PRICE SHOULD BE SUBMITTED TO THE PROCUREMENT DIVISION, THIS HEADQUARTERS, ATTENTION TSHPR404. SIGNED WILLIAM M. HOWELL, 1ST LT., AIR CORPS, CONTRACTING OFFICER.

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URGENT CONFIDENTIAL

DATE: 1 June 1945
TIME: 2:30 p.m.
FROM: MILLER, ATSC

TO: RESOURCES DIVISION
WASHINGTON 25, D. C.

G. H. MORIARTY
Colonel, Air Corps

Higgins RCS 381 A-

TSERC4-6-2 CBC ..... ATTENTION: COLONEL J. C. VAUGHAN. WITH REFERENCE TELEPHONE CONVERSATION RELATIVE DISPOSITION FORD AND HIGGINS PLANCORS YOU ARE ADVISED AS FOLLOWS:

1. FORD WILLOW RUN BOMBER PLANT TO BE HELD IN STANDBY. FLIGHT HANGAR #1 AND AIRPORT TO BE UTILIZED BY MAINTENANCE DIVISION, ATSC, FOR STORAGE AND REWORK BOMBERS IN RE-DEPLOYMENT.

2. HIGGINS AIRCRAFT PLANT NOW IN PARTIAL USE BY AAF AS FOLLOWS:

A. SPACE UTILIZED FOR PRODUCTION C-46 WINGS. CONTRACT NOW COMPLETED AND TO BE TERMINATED. 209,410 SQUARE FEET.

B. PRODUCTION AIR RESCUE BOAT FOR AAF NOW BEING COMPLETED. THIS SHOULD BE COORDINATED WITH BU AER AS IT IS THE UNDERSTANDING OF THIS COMMAND THAT BU AER INTENDS TO PLACE A CONTRACT FOR THE SAME TYPE BOATS. 369,076 SQUARE FEET.

C. NEW CONTRACT FOR SOLAR STILLS FOR AAF. 100,000 SQUARE FEET.

D. ENOUGH OFFICE AND NON-PRODUCTIVE AREA TO PROPERLY ADMINISTER AAF CONTRACTS.

EXCEPT AS DETAILED ABOVE, THE BALANCE OF THE HIGGINS AIRCRAFT PLANT IS EXCESS TO AAF REQUIREMENTS. SIGNED, PROCUREMENT DIVISION.

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HEADQUARTERS, ARMY AIR FORCES
WASHINGTON

5 June 1945

CONFIDENTIAL

MEMORANDUM FOR THE DEPUTY DIRECTOR, PRODUCTION DIVISION, ASF
(Attn: Colonel F.R. Denton, Room 4D-628 Pentagon)

Subject: Request for Floor Space, Higgins Aircraft, Inc. Plancor 1569, New Orleans, Louisiana.

1. The Higgins Aircraft Plant is now in partial use by the Army Air Forces as indicated by the following:

(a) 209,410 square feet is being used for the production of C-46 wings.

(b) 369,076 square feet is being used for the production of air rescue boats for the Army Air Forces. This contract is now being completed. It is understood that the Bureau of Aeronautics intends to place a contract for the same type of boat with Higgins.

(c) 100,000 square feet required on new contract for the production of solar stills. Some office and non-productive area will be required to properly administer Army Air Forces contracts.

2. The balance of the Higgins Aircraft Plant is excess to Army Air Forces requirements. Therefore there is at least 1,000,000 square feet of floor space which may be made available to the Reconstruction Finance Corporation for storage area, if it has been determined that the excess floor area is surplus to the War Department.

For the Commanding General, Army Air Forces:

for FREDERICK M. HOPKINS, JR.
Brigadier General, U.S.A.
Chief, Resources Division
AC/AS, Materiel & Services

CONFIDENTIAL

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Thos. Hurst

AFDRE-4/Maj Hilbertung/mcg/3750
6 June 1945

Defense Plant Corporation
811 Vermont Avenue, N. W.
Washington, D. C.

CONFIDENTIAL

Subject: Emergency Facilities. DPC Lease Agreement Pioneer 1549, Higgins Aircraft, Inc., New Orleans, Louisiana

381A-

Gentlemen:

Reference is made to facilities located at or near New Orleans, Louisiana, acquired by your corporation under the above lease agreement.

Pursuant to War Department Memorandum No. W5-44, you are hereby advised that subject facilities are excess to the production requirements of the Army Air Forces with the exception of the following areas:

(a) 500,000 square feet is being used for the production of B-24 wings.

(b) 300,000 square feet is being used for the production of air rescue boats for the Army Air Forces. This contract is now being completed. It is understood that the Bureau of Aeronautics intends to place a contract for the same type of boat with Higgins.

(c) 200,000 square feet required on new contract for the production of motor utility. Some office and non-productive area will be required to properly administer Army Air Forces contracts.

(d) The airport and related installations.

You are further advised that a determination will be made as to whether the remaining facilities are surplus to the requirements of the War Department as a whole, the result of which will be communicated to you by the Under Secretary of War. It is the understanding of this office that the Reconstruction Finance Corporation is interested in utilizing 1,000,000 square feet of floor space as storage area, if it is determined that the excess floor area is surplus to the War Department.

Very truly yours,

FREDERICK H. HOPKINS, JR.
Brigadier General, U.S.A.
Chief, Resources Division
AC/AS, Materiel & Services

AFDRE-2
Maj Hilbertung/mg Col.Vaughan Brig.Gen.Hopkins

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HEADQUARTERS, ARMY AIR FORCES
WASHINGTON

IN REPLY REFER TO:

CONFIDENTIAL

22 June 1945

MEMORANDUM FOR BRIGADIER GENERAL E. M. POWERS

Subject: Higgins Industries, Inc.
New Orleans, Louisiana
RCS Project 381 C

1. Attached hereto is letter outlining an expansion for the subject company in the amount of $258,456 for additional facilities.

2. Subject contractor holds letter contract W33-038-ac-11407 for the production of 172,678 kits for sea water distillation. Such kits comprise three solar stills each which are fabricated of vinylite plastic and are provided as equipment on aircraft life rafts for distilling sea water by means of solar heat. Higgins Industries is one of two sources being established at the present time, the other source being the DuPage Plastics Company, Chicago, Illinois, which will have capacity for the production of 75,000 kits and will be unable to produce more than that amount.

3. With the proposed facilities, Higgins Industries will be able to produce 93,000 stills or 31,000 kits per month with an estimated annual sales value of $9,050,760 based on one ten-hour shift per day.

4. It is anticipated that 650 employees of whom 260 will be males will be required to operate the proposed facilities on a one-shift basis. It is anticipated that former Higgins employees will be utilized for the proposed production.

5. It is therefore recommended that this project be approved for processing with the War Production Board and the Office, Under Secretary of War.

Frederick M. Hopkins Jr.

FREDERICK M. HOPKINS, JR.
Brigadier General, U.S.A.
Chief, Resources Division
AC/AS, Materiel & Services

Attachment

ELW
EW

Approved
John H. Moore

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CONFIDENTIAL 23 June 1945

MEMORANDUM FOR: War Production Board
Construction Requirements Committee
Attn: Mr. George L. Hockensmith
Room 1114, Railroad Retirement Bldg.

170

SUBJECT: Higgins Industries, Inc.
New Orleans, Louisiana
ACS Project 381 C

1. It is requested that the Construction Requirements Committee, War Production Board, formally approve the attached facilities expansion proposal of the subject company in the amount of $253,456.

2. Data relative to this proposed expansion are included in the attached inclosures from the AAF Air Technical Service Command, Wright Field, Dayton, Ohio.

3. It is further requested that this office be notified immediately upon the approval of this project by the Construction Requirements Committee, War Production Board.

For the Commanding General, Army Air Forces:

FREDERICK M. HOPKINS, JR.
Brigadier General, U.S.A.
Chief, Resources Division
AC/AS, Materiel & Services

Incls:
WF ltr dtd 6/19/45 (2 cys)
Prel. Appendix "A"

Maj.WMHay/em/72517
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WAR PRODUCTION BOARD
WASHINGTON 25, D. C.

CONFIDENTIAL

IN REPLY REFER TO:

MEMORANDUM

TO War Department
Headquarters of the Army Air Forces
Facilities Section
Washington, D. C.

SUBJECT: Higgins Industries, Inc.
New Orleans, Louisiana
ROS Project 381 C

The Construction Requirements Committee hereby approves the subject application as submitted by the Army Air Forces in the amount of $288,456.00 to cover remodelling of existing building and the installation of machinery and equipment in a plant to produce kits for sea-water distillation equipment.

In order to avoid delay and duplication of effort, a signed copy of this memorandum of approval should be included in the case folder as part of the permanent record.

CONSTRUCTION REQUIREMENTS COMMITTEE

BY: G. L. Heckscher

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Feb. 27-13

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WAR PRODUCTION BOARD

WASHINGTON 25, D. C.

CONFIDENTIAL

IN REPLY REFER TO:

MEMORANDUM

TO War Department
Headquarters of the Army Air Forces
Facilities Section
Washington, D. C.

SUBJECT: Higgins Industries, Inc.
New Orleans, Louisiana
ROS Project 381 C

The Construction Requirements Committee hereby approves the subject application as submitted by the Army Air Forces in the amount of $258,456.00 to cover remodelling of existing building and the installation of machinery and equipment in a plant to produce kits for sea-water distillation equipment.

In order to avoid delay and duplication of effort, a signed copy of this memorandum of approval should be included in the case folder as part of the permanent record.

CONSTRUCTION REQUIREMENTS COMMITTEE

BY: G. L. Hockensmith

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AFPS

26 June 1945

MEMORANDUM FOR THE UNDER SECRETARY OF WAR
ATTENTION: Contracts and Facilities Division

SUBJECT: Excess Facilities - Higgins Aircraft, Inc.
Plancor 1569, New Orleans, Louisiana

1. Reference is made to correspondence from the Chief, Resources Division, Army Air Forces to the Defense Plant Corporation (copy to your office), dated 6 June 1945, same subject as above.

2. Circularization of the subject plancor was accomplished to ascertain whether the War Department or any other government agency had a need for the facility. To date no service or agency has evidenced an interest in the installation, except as noted below.

3. The Storage Division, ASF, has requested that 150,000 sq. ft. and 400,000 sq. ft. of floor space at the subject plancor be made available, respectively, to the Department of Commerce and Reconstruction Finance Corporation, for utilization in the surplus property disposal plans of these agencies.

4. Inasmuch as the plancor is surplus to the production needs of the War Department it is recommended that the Under Secretary of War initiate appropriate action, at the proper time, to relieve the Army Air Forces of its responsibilities under the Defense Plant Corporation lease agreement to the extent requested in correspondence referred to above, and take necessary steps to accomplish the request of the Storage Division.

FOR THE COMMANDING GENERAL:

1 Sgd
Col Stanton
Ag Under Sec War

cc: Resources Div., AAF
Readjustment Division, AAF

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Plan Div.

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CONFIDENTIAL

30 June 1945

MEMORANDUM FOR: Office, Under Secretary of War
Attention: Chief, Contracts & Facilities
Room 3D-718, Pentagon Bldg.

275

SUBJECT: Defense Plant Corporation Agreement, $258,456
Higgins Plastics Corporation
New Orleans, Louisiana
MCS Project 381 C

1. Reference is made to Defense Plant Corporation lease agreement with Higgins Aircraft Corporation, Planeor 1569.

2. It is noted that the inclosure from the Air Technical Service Command recommends the financing of these facilities under Defense Plant Corporation lease agreement Planeor 1969 with Higgins Industries Incorporated. Planeor 1569 is not written in the name of Higgins Industries. It is written in the name of Higgins Aircraft, Incorporated which lease agreement is in the process of termination at this time. As a result of conferences attended by Major H. M. Hay of this office, Major Henry Otis, Office, Under Secretary of War, and Mr. L. A. Kelly, Defense Plant Corporation, it has been decided that Defense Plant Corporation lease agreement Planeor 1969 will be written in the name of Higgins Plastics Corporation in the near future.

3. Attached hereto for your information is a copy of a letter from the AAF Air Technical Service Command, Wright Field, outlining a proposal of the Higgins Plastics Corporation which will provide facilities for the subject company necessary for the production of [illegible] bins for gun mortar distribution.

4. The estimated cost of $258,456 is reasonable and not excessive, and it is requested that the Office, Under Secretary of War recommend release of $258,456 of available funds by the Defense Plant Corporation as outlined in the inclosure. No amendment to the Defense Plant Corporation lease agreement is required as there are funds available in Planeor 1969, with which to finance this project.

5. The Construction Requirements Committee, War Production Board approved this project on 27 June 1945.

For the Commanding General, Army Air Forces

CONFIDENTIAL

FREDERICK L. ANDREWS, JR.
Brigadier General, U.S.A.
Chief, Maintenance Division
AC/AS, Material & Services

Maj. [illegible]/cm/72517
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Subject: Proposed Amendment No. 1 to Agreement of Sublease between Defense Plant Corporation, Higgins Aircraft Inc. and Higgins Plastics Corporation, Plancor 1569.

CONFIDENTIAL 2nd Ind. AFDRE-2

Headquarters, Army Air Forces, Washington 25, D. C. 5 July 1945.

TO: Office, Under Secretary of War, Contracts & Facilities, Washington, D.C.
Attention: Major F. H. Otto, Room 3D-718, Pentagon Building.

1. The Army Air Forces concurs in the proposal as outlined in the proposed amendment No. 1 to agreement of sublease between the Reconstruction Finance Corporation, Higgins Aircraft Inc. and Higgins Plastics Corporation, Plancor 1569.

2. Space in the Reconstruction Finance Corporation plant provided for the use of Higgins under Plancor 1569, New Orleans, Louisiana, required in connection with Army Air Forces activities is as follows:

ITEM	SQUARE FEET
Solar stills	94,500
Airborne rescue boats	63,000
Space for termination inventory C-46 (For period of 2 months)	5,000

3. In addition to the above mentioned space, Higgins is acting as a subcontractor to the Tennessee Eastman Corporation in connection with the Manhattan District Project for the production of carbon products. This production space requires 37,800 square feet. It is understood that the Ordnance Department is utilizing a flight hanger for the rehabilitation of trucks.

For the Commanding General, Army Air Forces:

FREDERICK M. HOPKINS, JR.
Brigadier General, U.S.A.
Chief, Resources Division
AC/AS, Materiel & Services

Incl
n/c

Maj. McKay/cm/72517
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Higgins
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CONFIDENTIAL

7 July 1945

MEMORANDUM FOR: Office, Under Secretary of War
Attention: Major F. H. Otto
Room 3D-718, Pentagon

SUBJECT: Higgins Aircraft Corporation
New Orleans, Louisiana
Plancor 1569

1. Reference is made to Higgins Aircraft, Inc. Reconstruction Finance Corporation lease agreement Plancor 1569.

2. The Army Air Forces has advised Higgins Aircraft, Inc. that after 1 June 1945 the Army Air Forces will bear only that proportion of overhead at the above mentioned plant as is properly allocable to the termination work on the C-46 wing contract.

For the Commanding General, Army Air Forces:

FREDERICK M. HOPKINS, JR.
Brigadier General, U.S.A.
Chief, Resources Division
AC/AS, Materiel & Services

Maj. McKay/en/72517
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Salvage - Higgins
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Plancor

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CONFIDENTIAL

14 July 1945

Reconstruction Finance Corporation
Office of Defense Plants
Lafayette Building
811 Vermont Avenue, N. W.
Washington, D. C.

175

Re: Lease Agreement with Higgins Plastics Corporation
Plancor 1569 - RCS Project 381 C.

Gentlemen:

In connection with the facilities project at or near New Orleans, Louisiana, identified as Plancor 156, please find enclosed:

(1) Copy of memorandum dated 30 June 1945, from Headquarters, Army Air Forces to this office;

(2) Copy of letter (site letter) dated 19 June 1945, from the Air Technical Service Command, Wright Field to the Commanding General, Army Air Forces, Resources Division; and

(3) Copy of Appendix "A" as approved by Army Air Forces in the amount of $258,456.

It is to be noted that the War Production Board approved RCS Project 381 C on 27 June 1945.

Inasmuch as it is understood that there are sufficient funds uncommitted under Plancor 1569 to cover the additional facilities recommended for use in the production of kits for sea water distillation, no amendment to the War Department letter agreement written in connection with Plancor 1569 will be required.

Very truly yours,

F. H. OTTO
Major, O.D.
Contracts & Facilities Division

FHO:co

Incls: Listed Above
cc: Hq, AAF, Attn: Major May
cc: Prod. Div., ASF, Attn: Miss J. Heffner

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Re - 49

Report No. 170

CONFIDENTIAL

HEADQUARTERS, ATSC

PROCUREMENT DIVISION

RESOURCES CONTROL SECTION

FACILITIES

ACTIVITY REPORT FOR WEEK ENDING 14 JULY 1945

Contents

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Expansions in Process of Analysis	2
Analysis of Expansions Completed	3
Age of Expansions in Process	4
Project Assignments	5
Weekly Progress	6
Certification	7
AAF-Owned Facility Terminations	8-9
DPC-Owned Facility Terminations	10-11

Prepared by: TSBRC4
Industrial Service Sub-Section
Resources Control Section
Wright Field, Dayton, Ohio

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FACILITIES TERMINATION CONTROL REPORT

DPC-OWNED FACILITIES

Week Ending 14 July 1945

CONFIDENTIAL

Machine Tools and Plant Equipment Letters to ER Board:		
Declared Excess	98	
Declared Surplus	2	
Total		100
Items Declared Excess or Surplus:		
Machine Tools ($350 or over each)	1,106	
Plant Equipment ($350 or over each)	4,758	
Machine Tools & Plant Equipment (less than $350 each)	3,172	
Total		9,036
Dollar Value reported on above items (only 8% of lists indicated dollar value)		$ 9,131,657
Items Retained by Tools Branch		370

Complete Plant Declared Excess:				
Chevrolet Motor Div., GMC,	Saginaw, Mich.	Plancor	1291	983,223.00
Higgins Aircraft Corp.	New Orleans, La.	"	1569	31,100,033.00
Central Specialty Co.	Ypsilanti, Mich.	"	1179	135,594.49
Continental A. & E. Corp.	Muskegon, Mich.	"	166	55,317,035.00
Studebaker Corporation	S.Bend,Chicago,Ft.Wayne	"	40	92,888,482.72
Ford Motor Co.	Willow Run, Mich.	"	151	96,487,067.34
				$276,911,435.55

CURRENT PROJECTS IN PROCESS BY AGE

Project Officer	0-4 Days	5-8 Days	9-12 Days	13-16 Days	17-20 Days	21 Days & Over	Total
Wilson	3	4	3	1	3	9	23
Grimmet	0	9	9	3	4	5	30
Atkinson	1	1	8	2	5	16	33
Cook	0	0	0	0	0	6	6
Kiester	0	3	6	1	2	2	14
Lindsay	0	7	1	0	0	1	9
Total	4	24	27	7	14	39	115
DPC Projects							
In Process (end prec. wk.)	1	17	39	17	16	21	111
Received (during wk.)	34	28	10	6	3	9	90
Total unadj.	35	45	49	23	19	30	201
Adj.(to reflect changes in age group)	9	31	55	29	24	53	201
Processed (during wk.)	5	7	28	22	10	14	86
In Process (end of wk.)	4	24	27	7	14	39*	115

*See attached Exhibit "B" for status.

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Res. Div.

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AIRMAIL

AFDRE-2, Major ELHartung/mmg/3750

19 July 1945

CONFIDENTIAL 385

SUBJECT: Higgins Industries, Inc.
New Orleans, Louisiana
RCS Project 381 C

TO: Headquarters
Air Technical Service Command
Wright Field, Dayton, Ohio
Attention: Chief, Resources Control Section,
TSBRC

The Higgins Industries, Inc., New Orleans, Louisiana, RCS Project 381 C in the amount of $258,456 of available funds was approved by the Office, Under Secretary of War on 14 July 1945. This project has been forwarded to Reconstruction Finance Corporation for necessary action.

By command of General ARNOLD:

FREDERICK M. HOPKINS, JR.
Brigadier General, U.S.A.
Chief, Resources Division
AC/AS, Material & Services

AFDRE-2
Maj ELHartung/mg AIRMAIL

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Under Secy War (1/27)
Comment Contr. & Fac. Div

JUL 28 1945

Reconstruction Finance Corporation
Office of Defense Plants
Lafayette Building
811 Vermont Avenue, N. W.
Washington, D. C.

Re: Facilities at or near New Orleans, Louisiana Leased to Higgins Aircraft, Incorporated and Higgins Plastics Corporation - Planser 1560.

Gentlemen:

Reference is made to the Defense Plant Corporation Lease Agreement with Higgins Aircraft, Incorporated, dated 4 December 1943, as last amended 1 August 1944, and to this Department's letter Agreement in connection therewith dated 27 November 1943, as last supplemented 31 July 1944.

The facilities project covered by said agreements (Planser 1560) was, as you know, originally established for the production of C-76 plywood cargo airplanes. In the fall of 1943, when production of the C-46 cargo airplane (metal) was substituted for production of the C-76, it was proposed that the woodworking facilities, which were not needed for the C-46 production, be leased to Higgins for use on war production other than aircraft. This was accomplished by means of an agreement of sublease between Defense Plant Corporation, Higgins Aircraft, Incorporated, and Higgins Plastics Corporation, dated 15 December 1943. Following termination, in August 1944, of the Army Air Forces contract with Higgins Aircraft, Incorporated, for the complete C-46 airplane, additional space at the project became available for other production. Accordingly, Higgins Plastics Corporation subsequently utilized or planned to utilize with the consent of the Army Air Forces, additional facilities, originally acquired for aircraft production, for the production of airborne rescue boats, the C-46 wing, molded cartons, 105 mm. shell, and for the rehabilitation of jeeps and trucks.

Because of the size of this facilities project, neither the above-mentioned production nor the production of kits for sea water distillation recently recommended by Army Air Forces, will require the use of all the floor space included in the buildings at this project.

Higgins Aircraft, Incorporated has accordingly suggested termination of the basic Lease Agreement. It is understood that you are agreeable to such termination and that you contemplate making a direct lease or lease with Higgins Plastics Corporation covering such portions of the facilities as it may require to fulfill existing War Department contracts.

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Cartan - Higgins
Under Secy War (2/copies)
Contr. & Fac. Div.

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You are advised that the War Department has no objection to the aforesaid arrangements.

The War Department recommends that the following floor space continue to be made available for the production indicated:

Square Feet	Product	War Department "Sponsor"
96,500	Kits for sea water distillation	Army Air Forces
43,000	Airborne rescue boats	Army Air Forces
5,000	Termination inventory, C-46 wings (For period of 2 months)	Army Air Forces
37,000	Molded carton	Corps of Engineers
87,000	Rehabilitation of trucks	Ordnance Department

Your attention is also called to the fact that the Storage Division, Headquarters, Army Service Forces, has recommended that 150,000 square feet at this project be made available to the Department of Commerce and that 400,000 square feet be made available to the Reconstruction Finance Corporation for utilization in the surplus property disposal plans of these agencies.

As indicated above, the total facilities included within this project are not required by the War Department for any immediately foreseeable use as a complete production unit. No final determination has been made as to the possibility of other use for the War Department of the kiln machine tools and other industrial equipment included within this project, it being understood that such items will be reported to the Industrial Equipment Redistribution Board, established pursuant to the memorandum between the War Department, Navy Department and Defense Plant Corporation dated 24 April 1945.

With the above understanding, the War Department gives its consent to the sale, lease or other disposition by you of any facilities not required for the production purposes listed in the third preceding paragraph upon such terms and conditions as may be determined by you in accordance with the public interest and applicable laws and regulations.

It is further understood that the commitments of the War Department as set forth in the aforesaid letter agreement dated 27 November 1942, as amended and supplemented, will not extend to your expenditures for additional productive facilities excepting those made pursuant to approvals given by representatives of the War Department "Sponsor" of the separate projects listed above.

Sincerely yours,

Signed

Robert P. Patterson
Under Secretary of War.

JUL 28 1945

cc: AAFy Attn: Major May
cc: Prod. Div., Attn: Capt. Morgan
cc: Readjustment Div., Attn: Major Gilbert
cc: Hq, ASF, Attn: Maj. Clements

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Auth: C.B. ATSC
Initials: CMT
Date: 30 AUGUST 1945

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CASE HISTORY

of

SOLAR STILLS

The solar still is a device which utilizes the heat from the sun and a black evaporator cloth to convert sea water into a suitable drinking water for personnel stranded on life rafts.

Documents in this case history were obtained from the files of Air Materiel Command, Wright Field, and Headquarters, AAF, Washington, D. C.

Classified documents are included herein, and therefore, compliance with pertinent sections of AR 380-5 is necessary.

FOR OFFICIAL USE ONLY
(AFR 11-30)

Compiled by
Historical Office
Intelligence (T-2)
Air Materiel Command
Wright Field
April 1947
Research Completed to 13 September 1946

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SUMMARY OF CASE HISTORY

OF

SOLAR STILLS

Definition and Origin of Project

The solar still is a device designed to utilize heat from the sun to convert sea water into suitable drinking water for persons stranded on life rafts. Although [illegible] stills were developed, only the [illegible] the Galloway still (also known as the [illegible] its trade name, Sunstill), which was invented by [illegible] Delano, an employee of the Galloway Company [illegible] Windsor, Vermont (hereafter Galloway); and the [illegible] which was developed by Dr. A. K. Mahoney, [illegible] at Higgins Industries, Incorporated, New Orleans, [illegible] after Higgins). Some features of a third still, [illegible] developed at MIT (the Massachusetts Institute of Technology) under a project sponsored by the Office of Scientific Research and Development, were incorporated into the design of the Galloway still, even though the still as developed by the Institute was never produced; a fourth still was developed by the University of Minnesota but was rejected by the [illegible] Forces because it was too complicated for use on life [illegible] The Galloway and Higgins stills are quite similar in [illegible] and operation. Each is comprised of a water [illegible] and of an inflatable vinylite bag in which [illegible] absorbing pad (sponge material in the Galloway still; [illegible] in the Higgins still). Heat from the sun [illegible] and the salt water contained therein [illegible] vapor to condense on the vinylite envelope [illegible] The Higgins still has in addition a ballast [illegible] reservoir, and a metering device for [illegible] water from the reservoir to the [illegible] Ballast is necessary in the Higgins [illegible] shape but is unnecessary in the Galloway [illegible]

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Information concerning the [illegible] capable of producing approximately [illegible] day was brought to the attention of the [illegible]

*The numbers placed in parentheses [illegible] documents found in the Document File [illegible]

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Purpose on 8 January 1943 by the Assistant Secretary of War for Air, with a report that the Navy had procured 1,500 such stills while the Army was still investigating. Because of this information, the Chief of the Army Air Forces directed immediate procurement of some of the stills for the Army Air Forces. Materiel Command (Wash.) replied to the effect that considerable investigation had already been conducted on the solar and other types of stills and stated that the most promising was a solar still being developed by Calloohour. The Quartermaster General's Office was conducting the development of this still, and an experimental quantity of six stills had been completed. If samples of tests on the experimental models were satisfactory, it was anticipated that a quantity procurement would be initiated by 15 February 1943. However, the Deputy Chief of Air Staff (Wash.) objected to the delay, stating that a definite directive had been issued for the procurement of solar stills, and on 20 January 1943 the Director of Military Requirements (Wash.) directed Materiel Command to comply with the directive of 8 January 1943. This resulted in the issuance of Purchase Order (2620) AJ-2367 by Wright Field on 27 January 1943 for procurement of 20 solar stills from Calloohour at $100 each. A production quantity could not be ordered at once because the solar still was not yet fully developed. Efforts were made to find another source of supply, but it was realized that a new source would have to go through the same developmental difficulties and that no advantage would be gained by such action. No offing in the Bureau of Ships, the Bureau of Aeronautics, or the Quartermaster General's Office knew of any procurement other than an experimental order.

Plans for procurement of a production quantity of solar stills were discussed even before the purchase order for an experimental quantity was issued. The Army Air Forces first considered entering into a consolidated procurement program with the other agencies interested in solar still development—the Quartermaster General's Office, the Navy, the Maritime Service, and the Lend-Lease Administration—and on 26 January 1943, the Assistant Chief of Staff (Engineering), Materiel Command (Wash.), recommended that the Director of Military Requirements (Wash.) initiate procurement of solar stills after an agreement was reached as to a single procuring agency. At a conference to be held at the end of January by the Quartermaster General's Office to discuss a new procurement program, the Army Air Forces was going to present a requirement of 20,000 stills, the quantity based upon an estimate made by the Materiel Command (AF) and the Air Service Command that 20,000 Army Air Forces units would be equipped with these stills. [illegible] the Director of Military Requirements felt that the Army Air Forces should take the initiative for the new solar still

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(7) procurement because of the urgent requirement for the stills. The Material Center (WF) then began negotiations with Gallowhur for production of the stills, but on 8 February 1943, Equipment Laboratory (WF) recommended that procurement be delayed until the still was sufficiently developed for service use.

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Army Air Forces Development

Although the tests of the Gallowhur /Delamg/ still made between 19-22 December 1942 at Miami, Florida, were considered satisfactory and the Army Air Forces had ordered 20 units, the solar still was considered experimental as of February 1943. Plans were under way the first of February for a test at Eglin Field of an improved model; the tests which were conducted at Coral Gables, Florida, by Material Center personnel from Eglin Field, 24-25 February 1943, yielded "excellent results"; and by 11 March 1943, procurement of 30,000 Gallowhur stills had been initiated. Upon completion of the tests, one still was taken to the Material Center for further test. In accordance with the provisions of the purchase order, the contractor was to provide 10 completed production models for test and approval before a production release could be granted. By 18 July 1943, two of the four stills submitted had failed to pass the test, and operational difficulties appeared in all the samples. The Equipment Laboratory (WF) directed Gallowhur to make certain modifications in design to overcome the difficulties and requested that 15 more solar stills be submitted for test. A Delamg still submitted 13 August 1943 for test brought forth from the Equipment Laboratory another series of recommendations for developmental improvements. Also, while the Material Command (WF) /formerly Material Center/ agreed on 24 July 1943 to accept 75 solar stills, waiving inspection requirements, for delivery to Langley Field, the purpose of the action was described as "experimental." By the middle of September, the Equipment Laboratory (WF) considered the Delamg stills as "reasonably satisfactory" and, in view of the urgent need for the item, requested that production start as soon as possible.

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However, as of March 1944, the Material Command (WF) did not consider the development of the still as satisfactory although more than 10,000 of the Delamg solar stills had been delivered. Consequently, a conference was held at the Equipment Laboratory (WF) on 9 March 1944 to consider the problem. By the time of the conference, two categories of solar stills had been tested at Bush Field Army Air Field, Florida, during 20-23 February 1944.

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described as follows: the inflated type of which there were three different makes: (1) the Gallowhur Type B [probably B-3] still, (2) the MIT (Telkes) still, and (3) the Higgins still; the Minnesota still which operated from heat of the sun or of the body was also tested. The Gallowhur Type B still was the easiest to operate but the least efficient; MIT and Higgins stills were efficient but difficult to operate, and the latter was not very reliable; the Minnesota still was good but too complicated for use in life rafts; and a modified Delano (cloth backed) "Sunstill" model was not satisfactory. Previously, the Materiel Command personnel at Eglin Field, between 31 December 1943 and 4 January 1944, had conducted the first comparative tests of the Gallowhur B-3 still, the MIT (Telkes) and Higgins inflated floating stills; the efficiencies of all stills were low, varying from 8 per cent to 13 per cent; and the operation was only fairly satisfactory, with failure apparently due to mechanical features. During September 1943, several models of the Higgins still were submitted to and tested by the Materiel Command, and even though the test results were not entirely satisfactory, negotiations were begun for an experimental contract. The MIT still designed by Dr. Maria Telkes was built by Gallowhur under a National Research Council-sponsored contract. The March 1944 conference, which included all the principal parties except Higgins, which was concerned about protection of its developmental rights, came to the following conclusions: (a) a sufficiently satisfactory solar still could be developed in a short time which would embody the necessary modifications and best features of the present MIT and Gallowhur stills; (b) an intensive program of development of a more satisfactory still rather than minor changes of the present stills should be carried on.

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The unwillingness of Higgins in the fall of 1943 to accept the non-exclusive license right clause in an experimental contract for development of stills resulted in the Higgins development continuing without a contract. However, assistance was given Higgins by the assignment of a representative of the Equipment Laboratory (WF), who reported favorably on the developmental endeavors. Furthermore, in connection with the March 1944 conference, Higgins was assured that in accordance with Materiel Command policy, proprietary designs would not be divulged without permission of the respective companies. Nevertheless, Higgins requested that all information previously imparted to the Materiel Command be held in confidence and that its three stills in the custody of the Equipment Laboratory be returned at once. When negotiations for an experimental development contract began

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following the conference of March 1944, Gallowhur hesitated to sign the contract because it believed that information about its still had been given to Higgins and that there had been an unnecessary delay in the test of its most recent model. Gallowhur was advised that the delay between negotiating and submitting the contract had not been unusual, that priority for making comparative tests at Eglin Field had to be obtained, and that no information had been divulged by Higgins. The explanations offered after the return of the unsigned contract on 28 June 1944 failed to satisfy Gallowhur, which in turn reiterated its previous contention that its developmental rights had not been properly protected. On 29 July 1944, Procurement Division (WP) informed Engineering Division (WP) that no further action would be taken on the proposed contract.

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The charges made by Gallowhur during the contract negotiations resulted in an investigation by the Secretary of War's Office, and in the matter being brought to the attention of the Special Committee Investigating the National Defense Program of the United States Senate (hereafter Truman Committee). On 26 May 1944, Gallowhur informed the Chief of the Army Air Forces that there had been an inexcusable delay in solar still development because of the search for an ideal still and that the Material Command (WP) had shown favoritism to Higgins, had disclosed Gallowhur engineering developments to Higgins, and had delayed prolonged tests of the Gallowhur still in order to make a special investigation of the Higgins still. Personal Equipment Laboratory (WP) explained the matter to Development Engineering Branch (Wash.), reporting that delays in the testing of solar stills had been caused by the numerous engineering difficulties encountered and denying the accusation that any information concerning the Gallowhur still had been given to Higgins. On 22 June 1944, the Deputy Commander, Army Air Forces, informed Gallowhur that the Army Air Forces had endeavored to show no partiality to any company and that individuals' patent applications and license rights would be fully protected. Gallowhur was not satisfied with the results of the investigation by the Army Air Forces and by 24 July 1944 had sent a complaint to the Truman Committee. By 24 July 1944, the Truman Committee had received a complaint from Higgins as well as from Gallowhur with respect to the alleged elements of the Government in adopting a solar still, and information on both cases was requested from the Army Air Forces by the Special Assistant to the Secretary of War. The Deputy Chief of Air Staff (Wash.) presented a [redacted] account to the Special Assistant to the Secretary of War on 4 September 1944, which stated that [redacted] investigation of charges had been started that the representatives of the Army Air Forces had acted in the best interests of the Government and that there had been no discrimination against Gallowhur. [redacted]

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in procurement of the stills could be explained by the need for developing a satisfactory article, and the development had progressed as rapidly as possible considering the degree of cooperation on the part of both Calloway and Higgins.

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In the middle of April 1944, the Material Command (WF) prepared a detailed outline for tests to determine the suitability of solar stills for use in life rafts; the tests, which were to be administered by the Army Air Forces Proving Ground Command, Eglin Field, were to be scheduled not later than 1 May 1944. However, because officials of the Engineering Division (WF) and Requirements Division, Operations, Commitments and Requirements (Wash.), were anxious to secure comparative tests of the Higgins and Calloway stills, it was decided to delay the tests until the Higgins still could be included, provided that no serious delay beyond 24 May 1944 was caused by this action. Finally, the tests, which were subsequently delayed by engineering defects on both stills, began 9 June 1944 and lasted for 21 days. As of 4 July 1944, Calloway was advised that its still when first tested gave off palatable water, but after storage of the still for eight days, not only did the water have a bad taste but also individuals suffered a stinging sensation in their stomachs after drinking it. Analysis of the various parts revealed that the Saran carrier for the pad was the source of the unpalatableness. It was estimated that four weeks would be required to complete the tests. On 28 July 1944, a telegram was received from the Proving Ground Command, Eglin Field, giving results of the tests. Both stills were valuable because they produced a sufficient amount of water on a sleep day in temperate and tropical latitudes for the survival of a man; however, the Calloway still produced three times as much water per unit as the Higgins still, even though it produced a peppery tasting water when left deflated and wet with sea water for one week. The Proving Ground Command's recommendations that the immediate requirement for solar stills be alleviated by the [illegible] feature of a limited number of Calloway stills after certain defects were corrected and that both companies continue working toward improvement of the stills were approved by Development Engineering Branch, Material Division (Wash.), on 3 August 1944. Calloway was notified on 11 August 1944, that the Calloway solar stills submitted by your company and recently tested, had been approved provided that certain changes were accomplished, and Calloway was requested to send the stills to the Material Division for further test. On the same date, Higgins was advised that its still had not been approved, but the Material Division (WF) recommended, along with an offer of assistance, that the company continue its development work.

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[redacted] the use of less critical materials than vinylite had been discussed. At that time it was the consensus of opinion that vinylite was by far the most suitable material, and there was also complete agreement concerning the use and kind of wetting agents for the vinylite. It was the contention of Gallowhur in June 1944 that the unpleasant taste reported in tests of their still was due to the plasticizer used in the manufacture

(77, 106) of vinylite, but a washing process devised by Gallowhur failed to remove the objectionable taste. Upon the investigation of the Engineering Division (WP) in September 1944 in connection with Purchase Order AS-15[redacted], Gallowhur contacted the Goodrich

(105) Rubber Company in reference to Goodrich koroseal as a possible fabricating material for the solar still envelope. On 2 August 1946, Personal Equipment Laboratory (WP) informed the manufacturer

(28) of the vinylite film, the Bakelite Corporation, New York, New York (hereafter Bakelite), that deterioration of the film, in the form of small holes appearing singly or in groups, occurred when the stills were exposed to sunlight and to either salt or fresh water. Then on 29 August 1946, Personal Equipment Laboratory advised

(189) Bakelite that the vinylite was also unsatisfactory because the plasticizer exuded and imparted an unpleasant taste to the distilled water. Bakelite was requested to submit information on the properties and wearability of polyethelene because that material was being considered as a substitute for vinylite. Bakelite replied on 4 September 1946 that it was not felt that the plasticizer imparted an unpleasant taste by exuding but that the oder of the plasticizer

(188) might be responsible. Bakelite also stated that polyethelene would not be as efficient as vinylite for solar still production because it was not as clear and because it would be harder to construct a still from it. By 13 September 1946, water submersion tests of solar stills had indicated that the deterioration of solar stills was caused by the loss of plasticizer from the vinylite film,

(186) but as of that date no satisfactory solution for the correction of either the deterioration of the film or the unpleasant taste of the water had been found.

Army Air Forces Procurement

The first experimental models of solar stills were the Dalsey stills purchased by the Army Air Forces from Gallowhur

(12) under Purchase Order (2620) AS-[redacted], issued 27 January 1943 for 20 stills at a unit price of $100. The experimental model solar

(18) stills had been tested with favorable results by 11 March 1943, and on that date Material Command (Wash.) stated that procurement of a substantial quantity of stills was warranted. Wright Field

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[redacted] for Purchase 34,991 on 13 March 1943 to authorize [redacted] of 30,000 stills at a unit cost of $25, but on [redacted] 1943, Production Division (WF) issued instructions to [redacted] the processing of the contract pending clarification of [redacted] purchasing authority. Chief, Production Division, was subsequent to sign an authority for purchase at a cost of $25 each [redacted] which Wright Field personnel felt should not cost over [redacted]. This led to a reconsideration of the cost, and Authority for Purchase 34,991 was superseded by Authority for Purchase 34,2[illegible], dated on 9 April 1943, for the same number of stills at a unit cost of $16. However, this amount did not satisfy Gallowhur, and Procurement Branch (Wash.) authorized a fifteen-dollar price to be subject to renegotiation after 7,500 items had been produced. Procurement Division (WF) felt that this was not necessary because Gallowhur was chiefly an assembler of commercially procurable components. The question was settled on 12 June 1943 by the approval of Contract W33[illegible] for [redacted] solar stills at a total cost of $[redacted] or a unit cost of [redacted]. Because of the failure of the first four of the pre-[redacted] models submitted to the Equipment Laboratory (WF) for [redacted] in July 1943, Gallowhur was requested to make certain modifi-[redacted] in design and submit additional stills for testing. By [redacted] 1943, satisfactory models had been received, and [redacted] was given authority to proceed with production. The first actual deliveries were made on 8 December 1943, and the [redacted] stills on the contract were completed by 19 May 1944 with [redacted] rejections.

The low efficiency shown for the experimental Gallowhur B-3 still, the NEY (Talbot) still, and the Higgins still in the service tests made by the Proving Ground Command from 24 December 1943 to 4 January 1944, the only partially satisfactory tests at [redacted] Field during February 1944, and the March 1944 [redacted] which recommended combining the new Gallowhur and [redacted] stills, established in the service tests of June and July 1944. With modifications, the Gallowhur still was considered sufficiently superior to warrant standardization and procurement; however, the potentiality of the Higgins still justified procurement for experimental purposes. In order to proceed with tests and experimental work on both types of solar stills, Authority for Purchase [redacted] was issued by Wright Field on 21 July 1944 to [redacted] procurement of 30 solar stills for test purposes—[redacted] from Higgins and 15 from Gallowhur—at a unit cost of $25. The Gallowhur still was to be the model produced with the [redacted] of NEY. On 24 August 1944, Higgins quoted a unit [redacted] for the still and stated that that amount represented

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[redacted] estimate of the actual labor costs and included a relatively small amount for materials. Higgins felt that this cost was reasonable because the company had spent $74,000 on stills development, and if this amount were amortized over the [illegible] stills ordered, the resulting price would be in excess of $6,000 each. The price of the Higgins model was raised by Wright Field. [illegible] Purchase Order AS-1547-S was entered into with Higgins on September 1944 for 25 stills at a unit cost of $400. Purchase Order [illegible] was entered into with Galloway on the same date for 15 stills at a unit cost of $96. Higgins subsequently shipped 25 stills, [illegible] that the purchase order called for because the original quantity was not adequate to supply all the test requirements, and [illegible] March 1945, Higgins requested that the contract price be increased by $1,500 to cover these stills. On 28 April 1945, Personal [illegible] Laboratory (NY) stated that no direct request had been made for these stills, but because of possible patent complications, it was considered advisable to accept them. Only samples owned by the Government would be used as a basis of information supplied to other potential manufacturing sources. As three of the stills submitted had not been usable, an authority for purchase was initiated to cover the cost of only 18 additional stills.

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After completion of the tests in June and July 1944, which showed the Galloway type to be the better of the two stills, negotiations were started with Galloway for a new production contract. On 31 August 1944, Technical Instruction 1628, Addendum 1, initiated action for procurement of Galloway stills to equip A-3 and B-2 multiplace life rafts with two and three stills respectively. Shortly after the issuance of these instructions, Development Engineering Branch, Material Division (Wash.), decided that production, supply, and distribution would be facilitated by having one set of standard accessories for multiplace life rafts, and that in order to approach minimum water requirements, at least six stills would be needed on each raft. Technical Instruction 1628, Addendum 2, was issued on 13 September 1944 for the purpose of providing for six stills on both A-3 and B-2 life rafts. In order to equip the rafts as directed, approximately 600,000 solar stills would have to be produced eventually. A Government-Furnished Equipment Committee, meeting on 20 September 1944, stated that 100,000 stills should be procured immediately to fulfill current requirements and that in order to protect the interests of the Government, a patent licensing agreement should be secured from Galloway when the initial order was placed. Authority for purchase ZS1545 was issued on 29 September 1944 for the recommended number of stills, but the contract was held up pending approval of Galloway's financial condition. By 28 December 1944, it had been decided that the company was solvent even though it was over

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awarded, and Letter Contract W33-038 ac-6264 was approved on 21 December 1944 in the total amount of $1,228,564.45 for [redacted] solar still kits. Each kit was to consist of three Gallowhur stills, accessories, instructions, and container and was originally designated Kit, Sea Water Distillation, Type LI-1. The latter contract provided for the release of patent licensing rights by Gallowhur.

Such other patent rights were granted by Gallowhur, an effort was made to procure from other sources a large quantity of Gallowhur stills, the only solar stills yet approved for production. Authority for Purchase Alfa 48 was issued for 247,678 kits, and invitations to bid were forwarded to [redacted] recommended sources on 29 January 1945. Miscellaneous Branch (MB) [redacted] on 20 January 1945 that this procurement was being delayed pending results of tests on the Higgins stills, but upon recognizing that the completion date of the tests was very indefinite, Miscellaneous Branch recommended that part of the procurement be placed. In the event that the Higgins still was approved, the remainder of the procurement could be converted to the Higgins type, and, if the Higgins still proved to be superior to the Gallowhur still, any existing contracts could be converted to that type. Four companies submitted bids in response to the invitations sent out by Wright Field: [redacted] Vincent, Incorporated, New York, New York (hereafter Vincent); [redacted] Buchsbaum and Company, Chicago, Illinois (hereafter Buchsbaum); Waterlight Slide Fastener Corporation, New York, New York (hereafter Waterlight); and Gallowhur. The Committee on Government-Furnished Equipment met on 24 February 1945 and recommended that contracts be placed with Buchsbaum and Waterlight for 50,000 kits each and that 247,678 kits be left uncontracted for until a report of tests of the Higgins still was received. Gallowhur was not considered because of its weak financial condition and because its previous contract would prevent any deliveries being made on a new contract before September 1945; Vincent's bid was rejected because of that company's poor record of performance on other contracts. In accordance with this decision, Contract W33-038 ac-9800 was awarded to Waterlight on 12 April 1945 for 50,000 kits at $34 per kit, and Contract W33-038 ac-9132 was awarded to Buchsbaum on 21 April 1945 for the same number of kits at a cost of $34.89 per kit.

Higgins, meanwhile, continued to develop and improve its still, and by 21 February 1945, comparative tests at Eglin Field were indicating that the improved Higgins still was superior to the Gallowhur still. The Higgins still would produce approximately a quart of potable water on a clear day while the Gallowhur would produce approximately a pint under the same conditions; the Higgins still was also simpler to operate and would interfere less with the other equipping necessary on a life raft. Therefore, the

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Proving Ground Command, Eglin Field, recommended that the Higgins still be considered for standardization after certain changes were made. On 15 March 1945, Materiel Division (Wash.) directed Wright Field to standardize the Higgins still and to place the Gallowhur still in a substandard classification. The Gallowhur still was subsequently put into a limited standard classification, instead of substandard, by Addendum 21 to Technical Instruction 2022, which was issued on 20 March 1945 to initiate action for the standardization of the Higgins still. The 247,678 solar still kits remaining on Authority for Purchase 411648 were converted to the Higgins type stills and redesignated type LL-2 kits. After patent rights were secured from Higgins, the requirement for Watertight and Buchsbaum solar stills was changed to the Higgins type as neither source had progressed very far with its contract. Gallowhur was to continue to manufacture the Gallowhur type stills then on contract in order to provide solar stills during the period required to get Higgins, Buchsbaum, and Watertight into production.

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Production of solar stills by Higgins was discussed at a conference of representatives of Air Technical Service Command (WP) with Higgins' personnel at New Orleans from 23 to 25 March 1945, and by 30 March 1945, the release of full patents rights to the Higgins still had been secured by a verbal agreement. Miscellaneous Branch (WP) stated on 24 April 1945 that it had been decided that contracts for the 247,678 kits should be placed on a basis of competitive bidding because of the excessive facility requirements of Higgins, its lack of experience with vinylite film fabrication, and its extensive loss of personnel. Most of the technical staff working on solar still development had resigned after Dr. Ueksoff was released as a result of a dispute with Higgins over patent royalties. An intensive search for potential manufacturers was conducted, 22 invitations were sent out, and bids were received from seven companies: Herni Signal Manufacturing Company, New York, New York; Batavia Metal Products Company, Chicago, Illinois; Cruver Manufacturing Company, Chicago, Illinois; Gemloid Corporation, New York, New York; Thermold Corporation, New Orleans, Louisiana (hereafter Thermold); DuPage Plastics Company, Chicago, Illinois (hereafter DuPage); and Higgins. At a meeting on 12 May 1945, Wright Field personnel decided that Higgins should be given a contract for 172,678 kits and DuPage should be given a contract for 75,000. The four solar still sources—DuPage, Higgins, Buchsbaum, and Watertight—were believed to be adequate to cover Army, Navy, and British requirements. DuPage was considered to be highly skilled and to have personnel who had considerable previous experience in the handling of vinylite. It appeared that Higgins retained a group of highly confident

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(152) engineers with a background [redacted] file, and Higgins had invested considerable [redacted] in the development of its solar still, even though the engineers had filed no definite patent applications. The amount required for facility expansion had been reduced from the original estimate of $1,200,000 to $[illegible], and the latter amount appeared reasonable to Procurement Division (WF). Thermold, whose engineering staff was headed by Mr. Ostakoff, had been organized for the sole purpose of bidding on solar still procurement, but its bid was not considered because the new contract would require a loan of $750,000, an advance payment of $475,000, and facility expansion in the amount of $171,760. In accordance with the decision made at the conference, Contract W33-038 sa-11407 was awarded to Higgins on

(141, 148) 18 June 1945 for 172,678 kits at a cost of $23.46 per kit, and Contract W33-038 sa-11412 was awarded to DuPage on 28 June 1945

(152) for 75,000 kits at a cost of $36.87 per kit.

(Chart) Production at Gallowhur of the 33,384 kits on Contract

(164) W33-038 sa-6244 proceeded slowly. Production release was granted by Wright Field on 20 March 1945 provided that certain defects were corrected, prototypes were approved by 29 March 1945, and

(139, 140, 135) deliveries were started on 16 May 1945. However, the contractor constantly failed to meet its production schedules, and on 8 August 1945, Production Section (WF) requested Eastern District to make a survey of estimated production. Eastern District advised that Gallowhur's inability to meet its schedules was caused largely by the failure of the stills to meet specification

(164) requirements and their consequent rejection by Army Air Forces' inspectors. No realistic delivery schedule could be determined at that time. On 13 August 1945, Personal Equipment Laboratory (WF) stated that poor workmanship had always been a source of

(166) trouble at Gallowhur and that 7,900 of the stills produced so far on the contract violated specifications to such an extent that the laboratory was reluctant to recommend their acceptance.

(168) In August 1945, shortly after the end of the war in the Pacific, the Army Air Forces stopped all work on the development and production of solar stills. On 15 August 1945, Contracts W33-038 sa-11407 with Higgins, W33-038 sa-7132 with Buchsbaum, W33-038 sa-9800 with Waterlight, and W33-038 sa-11412 with DuPage

(Chart, 167) were terminated, and by 29 August 1945, Contract W33-038 sa-6124 with Gallowhur had been terminated. The only deliveries that had

(168) been made by Higgins, Buchsbaum, Waterlight, and DuPage were the initial articles, while Gallowhur had shipped 6,146 of the kits on its contract.

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On 14 November 1945, [illegible] the production of [illegible] solar stills contracts, Miscellaneous Unit of Milwaukee Region (WP) indicated that there remained an urgent demand for solar stills and requested that action be taken to procure a quantity of 26,460 kits. By 30 November 1945, the four former manufacturers of Higgins' type solar stills had been contacted in connection with contract renewals. Refuge would not quote on underpan production for the Army Air Forces because new contract negotiations including solar still production for the Navy would require all its facilities until April 1946. The others of both Higgins and Pacific-Cage were unsatisfactory because both had quoted a price higher than that of the previous contracts, and, in addition, Higgins' facility requirements would necessitate the relinquishment of the facility expansion project if production was resumed at that plant. The offer of Waterlight to reinstate 26,460 type H-4 solar still kits at the original unit price was the most satisfactory, and Miscellaneous Branch recommended that a contract be placed with that company. Contract W33-038 ac-9800 was therefore reinstated in December 1945 for 26,460 kits at a unit cost of $34.20. Calloway indicated a desire to re-enter solar still production, but no formal quotation was received.

Waterlight experienced a number of serious difficulties in connection with the renewal of solar still development. On 21 June 1946, the company felt that a delivery schedule of 1,500 kits in July, 2,500 in August, 3,000 in September, 4,000 each in October, November, December 1946, and January 1947, and 3,460 in February 1947 could be maintained, but by 20 August 1946, only 1,497 kits had been shipped. Part of the work had been subcontracted to Kish Sealed Products Corporation, New York, New York (hereafter Kish Sealed), under an arrangement whereby Waterlight was responsible for stenciling the top and bottom sections of the vinylite filter bags and conducting the final inspection of the kits, and Kish Sealed was responsible for performing all assembly operations and heat sealing the filter bags. Delays had been caused by the efforts being directed to find satisfactory manufacturing methods and equipment for efficient production, and in addition many stills had been rejected because the vinylite bags were torn by the other still components very improperly sealed. The two companies were endeavoring to achieve a production rate of 700 kits per week by the latter part of August 1946.

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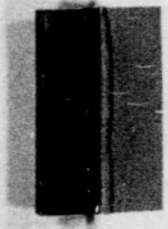

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PROCUREMENT OF SOLAR STILLS

AFP, P.O. or CONTRACT	SOURCE	DATE	Number on CONTRACT	UNIT PRICE	TOTAL ON CONTRACT	REMARKS
P.O. 2620 43-2389	Gallowhur	27 Jan. 1943	20	$100.00	$ 2,000.00	Delano still
AFP 346991	Gallowhur	13 March 1943	30,000	25.00	750,000.00	Delano still. AFP cancelled 11 Sept. 1943
AFP 347300 Resulted in	Gallowhur	9 April 1943	30,000	10.00	300,000.00	Delano still
Contract 2620 AC-278	Gallowhur	12 June 1943	30,000	12.00	360,000.00	Delano still
P.O. 387056	Gallowhur	13 March 1944			25,000.00	Engineering services. Cancelled 19 Sept. 1944
AFP 386992 Resulted in	Gallowhur & Higgins	21 July 1944 21 July 1944	15 15	25.00 60.00	375.00 900.00	Gallowhur still Higgins still
P.O. 45-1588E	Gallowhur	8 Sept. 1944	15	25.00	375.00	Gallowhur still
P.O. 45-1547E	Higgins	8 Sept. 1944	15	60.00	900.00	Higgins still
AFP 211534 Resulted in	Gallowhur	29 Sept. 1944	33,334	33.00 per kit 3 stills	1,100,022.00	Approved Gallowhur still
Ltr. Contract W33-038 AC-6284	Gallowhur	21 Dec. 1944	33,334	[36.70] per kit	1,222,564.45	Approved Gallowhur still

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AFF, P.O. or CONTRACT	SOURCE	DATE	NUMBER ON CONTRACT	UNIT PRICE	TOTAL ON CONTRACT	REMARKS
AFP 411648 Resulted in			347,678			Invitations to bid sent to 21 recommended sources on 19 Jan. 1945
Contract W33-038 AC-9132	Buchsbaum	21 April 1945	50,000	34.89 per kit	1,744,500.00	Gallowhur still. Later converted to Higgins still. Cancelled 15 Aug. 1945
Contract W33-038 AC-9800	Watertight	12 April 1945	50,000	(36.00) per kit	1,800,000.00	Gallowhur still. Later converted to Higgins still. Cancelled 15 Aug. 1945
Contract W33-038 AC-11407	Higgins	21 June 1945	172,678	23.46 per kit	4,051,025.88	Higgins still. Cancelled 15 Aug. 1945
Contract W33-038 AC-11412	DuPage	28 June 1945	75,000	32.87 per kit	2,465,250.00	Higgins still. Cancelled 15 Aug. 1945
Contract W33-038 AC-9800	Watertight	Dec. 1945	26,460	36.20 per kit	957,852.00	Reinstated contract. As of 20 Aug. 1946 Watertight deliveries were far behind schedule.

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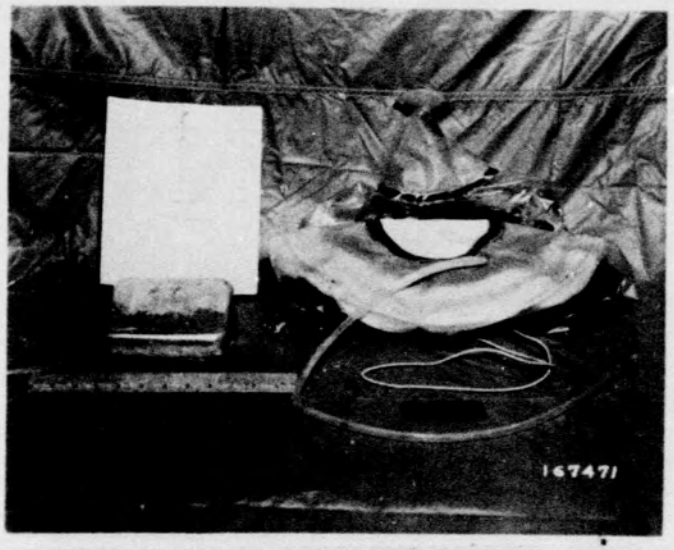

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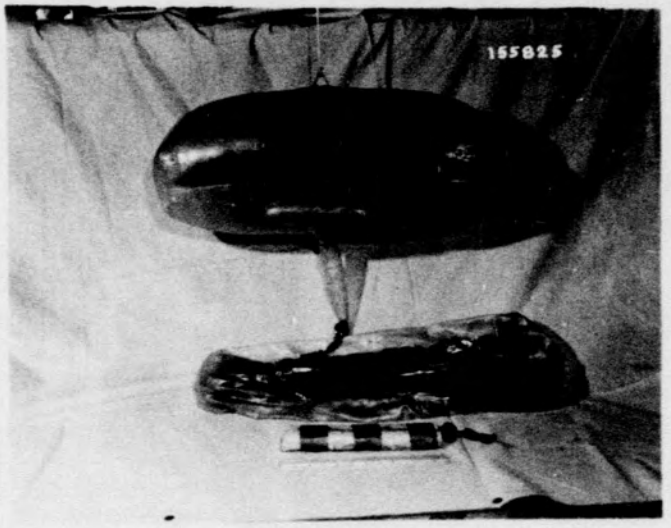

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Galloway Still

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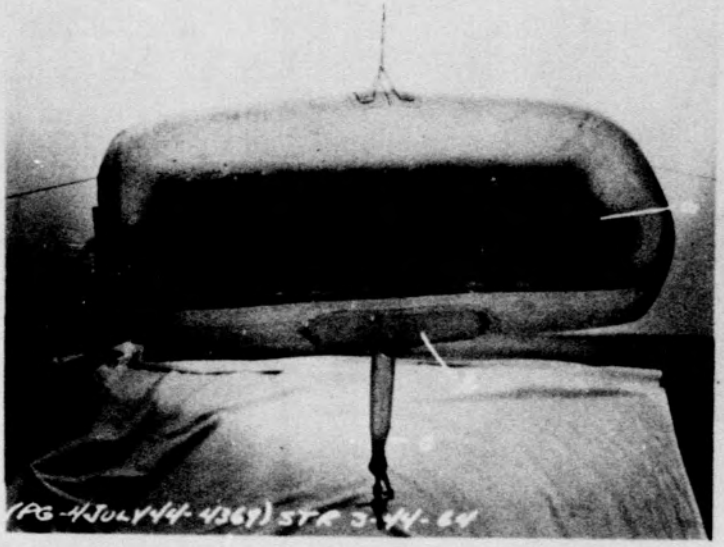

Figure 1. Gallowhur still, side view.

a. Screen with hexagonal sponges. b. Collecting chamber. c. Collecting tube with screw cap.

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Figure 15. Gallowhur stills in fair weather.

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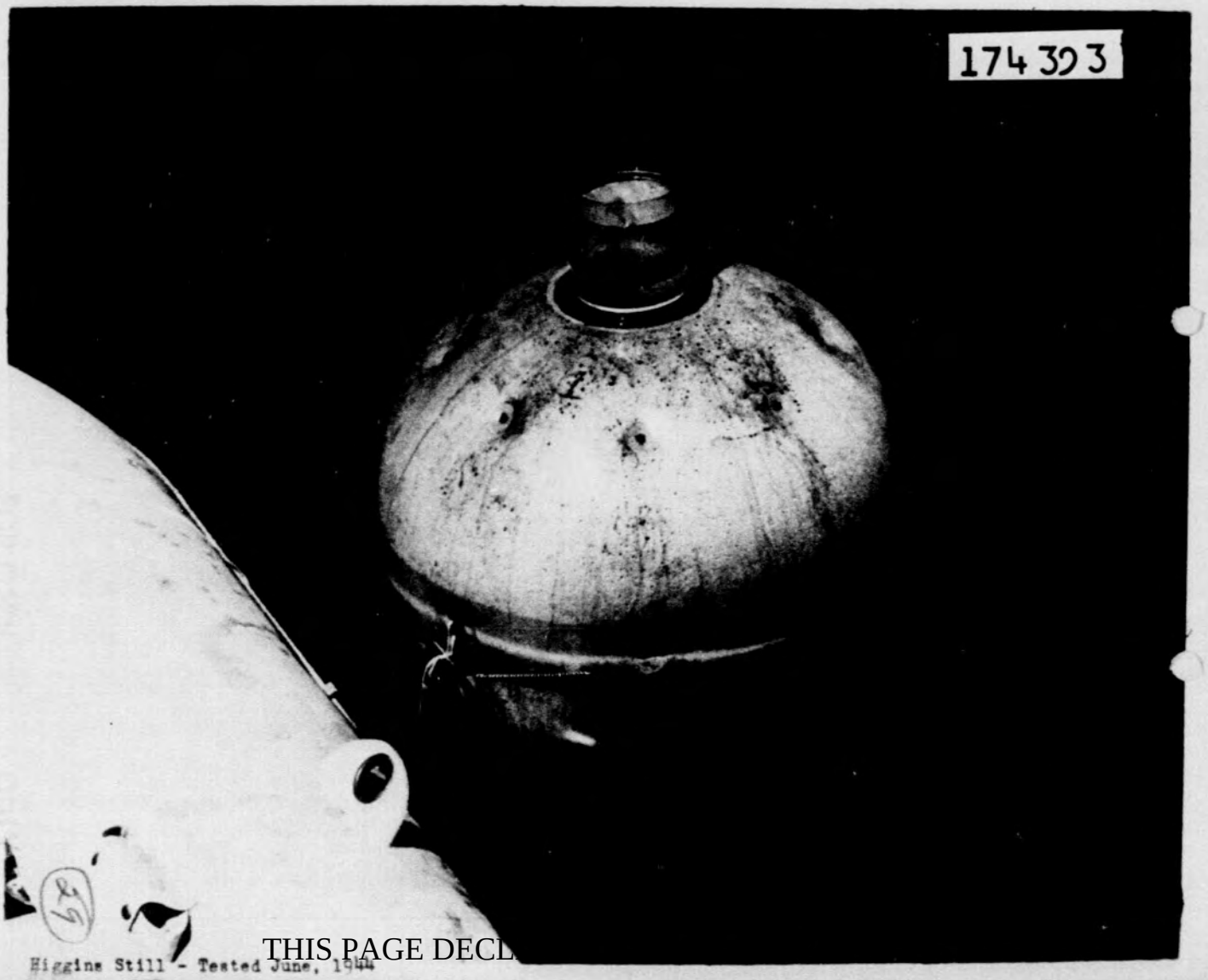

Higgins Still - Tested June, 1944

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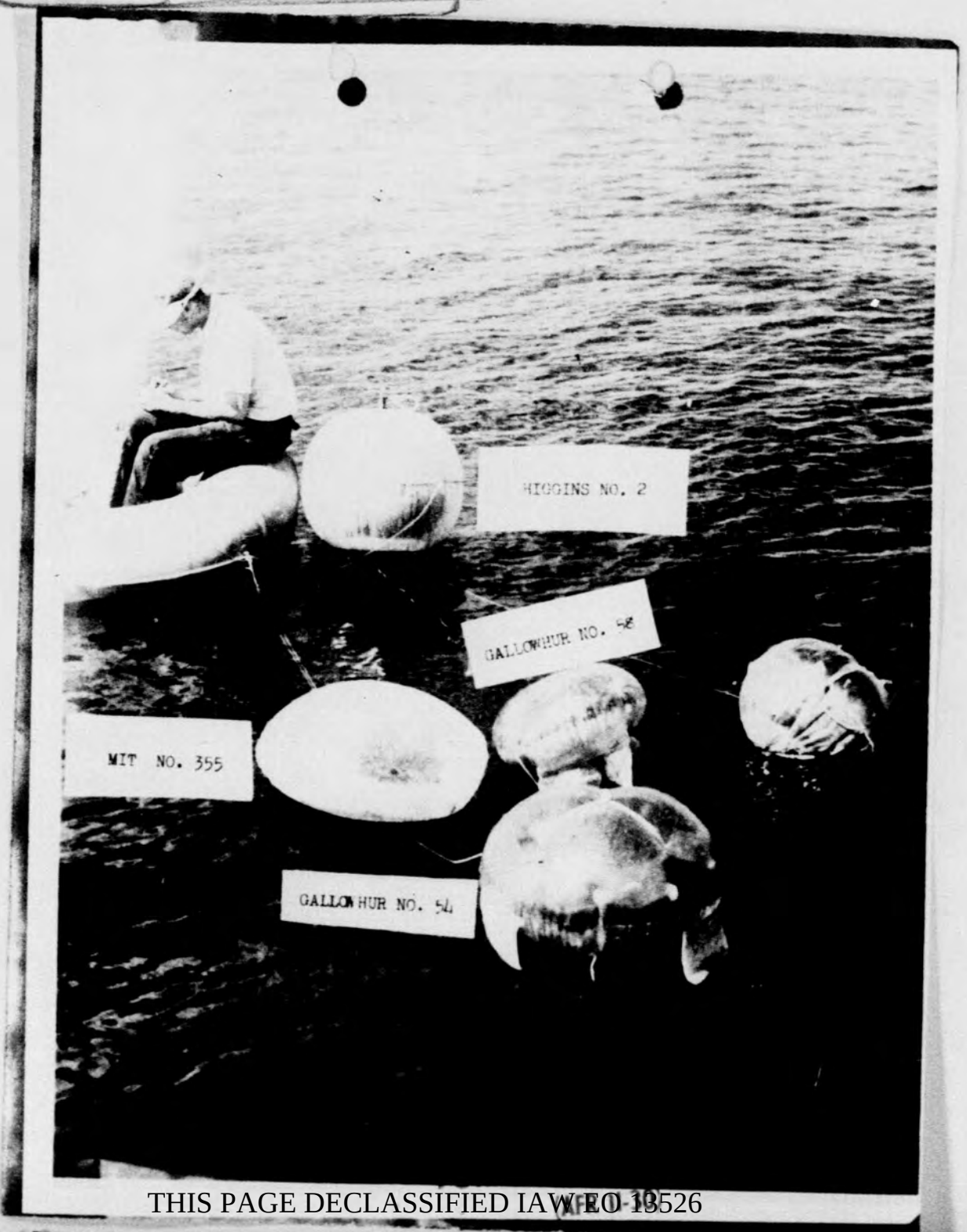

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1. (U) R&R-1, 8 Jan. 1943
Fr: Brig.Gen.T.J.Hanley,Jr.
Dep.C/AS,Wash.
To: AC/AS,Wash.
Attn: Col. Ballard
(File: MM&D)

Mr. Lovett, Asst. Secy. War (Air) (Wash) reported to Gen. H. H. Arnold, CG, AAF, (Wash) on 8 Jan. 1943 that there had been developed a two-pound Solar Still with a capacity of one pint of fresh water per day. Gen. Hanley, Dept. C/AS (Wash), stated the Army's investigation was to be continued although the Navy had already ordered 1500 such stills. Gen. Arnold desired immediate procurement of a quantity for use at "isolated stations and for installation in our boats."

2. (U) R&R-2, 11 Jan. 1943
Fr: Col.H.H.Ballard
AC/AS,Wash.
To: Dir.Mil.Req.,Wash.
(File: MM&D)

Dir. Mil. Req. (Wash) was requested by Col. Ballard, AC/AS (Wash), 11 Jan. 1943 to establish AAF requirements for Solar Stills and issue instructions to Mat. Com. (Wash) for procurement of desired quantities.

3. (U) R&R-4, 15 Jan. 1943
Fr: Brig.Gen.B.W.Chidlaw
AC/S (E),Wash.
To: Dir.Mil.Req.,Wash.
(File: MM&D)

Mat. Com. (Wash) indicated to the Dep. C/AS (Wash) thru Dir. Mil. Req. 15 Jan. 1943 that considerable investigation had been conducted on Stills, including the Solar type and that the Gallowhur Chemical Corporation, Windsor, Vt. (hereinafter referred to as Gallowhur) had developed a one pound three ounce Still which, if experimental tests proved satisfactory, a quantity purchase could be initiated by 15 Feb. 1943.

4. (U) R&R-6, 17 Jan. 1943
Fr: Brig.Gen.T.J.Hanley,Jr.
Dep.C/AS,Wash.
To: Dir.Mil.Req.,Wash.
(File: MM&D)

Gen. Hanley rebuked the Mat. Com. (Wash) 17 Jan. 1943 stating that a "definite directive" had been issued on 8 Jan. 1943 to "procure the solar still, not something which the Material Command thinks may be better."

5. (U) R&R-8, 20 Jan. 1943
Fr: Maj.Gen.Davenport Johnson
Dir.Mil.Req.,Wash.
To: Mat.Com.,Wash.
(File: MM&D)

Mat. Com. (Wash) on 20 Jan. 1943 was directed by Maj. Gen. Davenport Johnson, Dir. Mil. Req. (Wash) to take action to comply with Gen. Arnold's directive dated 8 Jan. 1943. No evidence found to indicate that Buler. or QM Gen's Off. had procured this type still. Mat. Com. and Air Service Command were to determine quantity to be procured.

6. (U) R&R-9, 26 Jan. 1943
Fr: Brig.Gen.B.W.Chidlaw
AC/S (E), Wash.
To: Dir.Mil.Req.,Wash.
(File: MM&D)

Mat. Com. (Wash) informed Dir. Mil. Req. (Wash) on 26 Jan. 1943 that the QM Gen.'s Off. had conducted development on the Solar Still produced by Gallowhur. To date six stills had been made but no production orders had been placed. As a result of first experimental tests conducted at Miami on 21 Dec. 1942 some changes had been incorporated in an improved model.

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QM Gen.'s Off. planned a conference with manufacturer and all interested agencies to discuss consolidated procurement program. Based on estimate of Mat. Center (WF) and ASC that 10,000 five-man rafts should be supplied with three Stills each, it was planned to suggest AAF requirements of 30,000 at this conference. Recommendation was made to Dir. Mil. Req. that procurement be instituted after an agreement could be reached on a single procuring agency and the selected manufacturer had some idea of size of production orders.

7. (U) R&R-10, 31 Jan. 1943
Fr: Maj.Gen.Davenport Johnson
Dir.Mil.Req.,Wash.
To: Mat.Com.,Wash.
(File: MM&D)

Office of Dir. Mil. Req. indicated to Mat. Com. (Wash) 31 Jan. 1943 that the C/AS had twice directed procurement of the Solar Stills and that the subject office had twice indicated the best immediate means for converting sea water into palatable drinking water be procured, and that "Materiel Command was in the best position to determine which device was best; and, in collaboration with the Air Service Command, in the best position for determining the quantity."

8. (U) R&R-11, 12 Feb. 1943
Fr: Brig.Gen.B.W.Chidlaw,
AC/S (E), Wash.
To: Dep.C/AS,Wash.
(File: MM&D)

Mat. Com. (Wash) notified Dep. C/AS (Wash) as of 12 Feb. 1943 that it was not yet possible to order production quantity of stills since design had just reached final stages of development. Representatives of Mat. Center and Gallowhur met at Eglin Field for the purpose of completing development by conducting practical life raft tests. If successful, production deliveries were expected to start in April.

9. (U) R&R-13, 18 Feb. 1943
Fr: Brig.Gen.B.W.Chidlaw
AC/S (E), Wash.
To: Dep.C/AS,Wash.
(File: MM&D)

Mat. Com. (Wash) notified Gen. Hanley, Dep. C/AS (Wash) that no sample stills had been or would be made available to Mat. Center (WF) for tests at Eglin Field until 26 Feb. 1943. It had been proposed that the stills be procured from a source other than Gallowhur but it was felt that other manufacturers would encounter the same difficulties and no advantages would be gained.

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10. (U) R&R-1, 21 Jan. 1943
Fr: Maj.Gen.Davenport Johnson
Dir.Mil.Req.,Wash.
To: AC/AS,Wash.
(File: M&D)

In R&R dated 21 Jan. 1943 to AC/AS (Wash) the Office Dir. Mil. Req. stated that investigation to determine value of Solar Still brought out the fact that no office in the Bur. of Shipps, BuAer., or QM Gen.'s Office had any knowledge of any procurement except an experimental order. Two stills had been procured and tested by the Navy and found to produce approximately one pint of water per day.

11. (U) Ltr. 22 Jan. 1943
Fr: Gallowhur Chemical Corp.
Windsor, Vt.
To: CO,AAF,WF
Attn: T.J.Kincaid
(File: Central Files)

Gallowhur stated in a letter to WF 22 Jan. 1943 they expected to produce 10,000 Sun Stills,at estimated cost of $19.12 per unit, within 100 days after required materials were received.

12. (U) P.O. #43-2389,
27 Jan. 1943
(File: M&D)

P.O. #43-2389 dated 27 Jan. 1943 issued at WF called for 20 Gallowhur Sun Still assemblies at $100.00 each. Expected delivery schedule was two each by 15 Feb. 1943 balance, in units of five each, to be completed by 28 Feb. 1943.

13. (U) Ltr. 1 Feb. 1943
Fr: Maj.C.D.Seftenberg
Asst.Tech.Exec.,WF
To: CO, AAFPGC
Eglin Field, Fla.
(File: Central Files)

WF proposed 1 Feb. 1943 that Eglin Field conduct actual life raft tests on experimental sea water Still models. These tests were expected to begin about 9 Feb. 1943 and to continue for approximately 10 days.

14. (U) Memo Rpt. 8 Feb. 1943
ENC-14-54-671-134
(File: Central Files)

Representatives of Mat. Center (WF), Mat. Com. (Wash) reported 8 Feb. 1943 on a visit to Gallowhur to determine status of development of the Gallowhur Solar Still. It was concluded that a properly developed still would provide a source of drinkable water for personnel stranded in life rafts. Recommendation was made for the procurement of a sufficient quantity of completely developed subject stills for installation in all AAF life rafts.

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15. (C) Memo 15 Feb. 1943
Fr: J.P.Bader,Spec.Asst. Off.QM Gen.,Wash.
To: Hon.Robert P. Patterson Under Secy.War,Wash.
(File: MM&D)

Mr. J. P. Bader, Spec. Asst. QM Gen.'s Office (Wash), provided Hon. Robert P. Patterson, Under Secy. War, (Wash) with a memo dated 15 Feb. 1943 giving a background to this project as requested: Gallowhur Chemical Corp.'s president had stated an employee, Richard Delano, had perfected a new type Solar Still which would make potable drinking water from sea water. This still was lightweight, compact, had no moving mechanical parts and operation was simple. On 17 Dec. 1942 this project was cleared through Service of Supplies and assigned to QM Gen.'s Office for completion. Tests were conducted at Miami on 19, 20, 21 and 22 Dec. and the still apparatus showed much promise. Report of the test results was submitted to interested government agencies after which the Navy ordered 2 and the Army 20 for test purposes. Capt. Eddie Rickenbacker examined this still and thought it showed more promise than any other similar device presented to the Armed Forces. Col. J. S. Mills, Chief, Devel. Br. (WF), had expressed his opinion that 30,000 of these articles should be constructed; Mr. Lovett and Col. Couier of the Office of Asst. Secy. War had also favorably commented on this subject. Mr. George Gallowhur contacted the offices of the Merchant Marine and asked that one of their personnel, a Mr. W. H. Miller, who was familiar with this Solar Still development, be returned to Gallowhur. Officials of the Merchant Marine agreed to take Mr. Miller from a convoy at Freemantle, Australia, and have him flown to Sydney. It was understood that Mr. Gallowhur had arranged for his return to America.

16. (C) R&R-1, 17 Feb. 1943
Fr: Gen.C.E.Stratemeyer C/AS,Wash.
To: CG,ATC,Wash.
Attn: Maj.Gen.H.L.George
(File: MM&D)

Gen. C. E. Stratemeyer,C/AS (Wash), in R&R 17 Feb. 1943 to Maj. Gen. H. L. George, CG, ATC (Wash), stated that the Hon. Robert P. Patterson, Under Secy. War, was very anxious to have W. H. Miller of the Merchant Marine, and now in Australia, returned to Washington to aid in manufacture of Gallowhur Solar Still. Gen. George was directed to take necessary action to have Mr. Miller informed that air transportation was available for his return.

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17. (C) M&R-2, 22 Feb. 1943
Fr: Maj.Gen.H.H.George, CG,ATC,Wash.
To: C/AS,HDQ,AAF,Wash.
(File: M&D)

Gen. George advised Gen. Stratemeyer that priority had been granted for W. H. Miller's air travel from Sydney, Australia to Washington, D. C., and that the Commander-in-Chief of S.W.P.A. at Brisbane had been notified to inform Mr. Miller to contact United Airlines upon his arrival in San Francisco for domestic transportation, already arranged.

18. (U) TT 11 March 1943
Fr: AC/S (E),Wash.
To: Chief,Eng.Div.,WF
(File: Central Files)

On 11 March 1943 AC/S (E), Mat. Com. (Wash), recommended to Eng. Div. (WF) the procurement of 30,000 Solar Stills provided WF and ASC considered that quantity sufficient for installation at isolated stations and in rubber life rafts on ships being ferried overseas. Favorable test results obtained at Eglin Field warranted expeditious action for procurement of a substantial quantity of the stills.

19. (U) M&R-1, 11 March 1943
Fr: Brig.Gen.B.W.Chidlaw AC/S (E),Wash.
To: Dep.C/AS,Wash.
(File: M&D)

Gen. Chidlaw, AC/S (E), (Wash), advised Dep. C/AS (Wash) 11 March 1943 that excellent results had been obtained from tests on Gallowhur Solar Stills by Mat. Center (WF) representatives at Eglin Field. The still after exposure to sunlight for 4 hours, with air temperature between 75° and 85°F., produced 175 cc. of drinking water. Action was initiated to procure 30,000 of these stills for life raft use.

20. (U) AFP #346991, 13 March 1943
(File: Contract Files)

AFP #346991 dated 13 March 1943 authorized procurement of 30,000 Delano Sun Stills at $25.00 each. Delivery expected to start 1 May 1943 at rate of 200 completed articles per day.

21. (U) TI-1475, 19 March 1943
Fr: Col.J.W.Sessums,Jr. AC/S (P),Wash.
To: Tech.Exec.,WF
(File: Central Files)

TI-1475 dated 19 March 1943 was issued to establish requirements for solar stills and procure quantity desired immediately.

22. (U) Memo. Rpt. 20 March 1943 ENG-M-54-671-142
(File: Survival Unit,Eng.Div.)

Memo report dated 20 March 1943 reported results of tests on Delano Sun Still conducted at Coral Gables, Fla. The still, after an eight hour test on 24 Feb. 1943, yielded an average of 44.5 cc's of fresh water per hour. Test on 25 Feb. showed a yield of 50 cc's per hour. Percentage of salt contained in the water was .007% which was safe for drinking purposes. Recommendation was made for the procurement of a sufficient number to be installed in multi-place life rafts.

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23. (U) IOM 24 March 1943
Fr: Brig.Gen.F.O.Carroll
Chief,Eng.Div.,WF
To: Chief,Prod.Div.,WF
(File: Central Files)

Eng. Div. (WF) recommended on 24 March 1943 to Prod. Div. (WF) the procurement of 30,000 Solar Stills. Col. G. V. Holloman, Eng. Div. (WF) told Col. Brentnall Prod. Div. (WF) that no stills would be installed on one-man rafts but recommended two stills for a four-man raft and three for a seven-man raft.

24. (U) IOM 2 April 1943
Fr: Col.M.D.Burnside
Chief,Aero.Equip.Br.,WF
To: Adm.Unit,Prod.Div.,WF
Attn: W.E.Donnelly
(File: Central Files)

Prod. Div. (WF) issued instructions 2 April 1943 to hold up AFP #346991 until it had been clarified as to authority. The original copies were returned to Chief, Prod. Div. by Aero. Equip. Br. (WF).

25. (U) Tel.Conv. 3 April 1943
Maj.L.T.Bradbury,
Prod.Br.,Wash. and
W.E.Donnelly,Prod.Div.,WF
(File: Central Files)

Mr. Donnelly, Office of Chief, Prod. Div. (WF), stated in a tel. conv. 3 April 1943 with Maj. L. T. Bradbury, Prod. Br. (Wash), that WF considered the Solar Still the best of its type and both ASC and WF agreed on the 30,000. However, Gen. Wolfe, Chief, Prod. Div., had indicated a reluctance to sign an AFP for a $25 article when he had been informed it could be built for $10. Mr. Donnelly also stated further investigation would be made regarding facilities and machinery, and a report regarding the release of the AFP would be ready within a few days.

26. (U) AFP #347300, 8 April 1943
(File: Central Files)

AFP #347300 dated 8 April 1943 covered procurement of 30,000 Sun Stills at an estimated unit price of $10. This AFP, initiated in accordance with TI-1475, cancelled and superseded AFP #346991 and was basis for contract W 2620 ac-278 dated 12 June 1943. Delivery was to start 1 June 1943 at a rate of 200 articles per day.

27. (U) Summary of Proposed
Procurement of Delano
Sun Stills 10 April 1943
By: Lt.Col.C.H.McGrath,
Chief,Gen.Proc.Br.,WF
(File: Proc.Div.)

On 10 April 1943 project was reviewed from Proc. Div. (WF) angle. Items of interest are noted. Still presented to Equip. Lab. (WF) late in 1942 by Mr. Delano of Gallowhur. At a meeting held 9 March 1942 purchase of 75,000 stills was discussed but this amount was later reduced to 30,000. Mr. Gallowhur estimated a price of $25.00 each. This request was predicated on advance copy of AFP #346991, which was initiated following date of 9 March. The price quoted was $20.15 each, plus facilities of approximately $12,000.00. Major Royce, Prod. Eng. Sec. (WF) advised that AFP #346991 would be held in abeyance because of lacke of initiating authority. Mr. Pearl of Gallowhur and

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Mr. Raye of Skol Co. were advised of this. On 5 April 1943, a meeting was held in Office of Gen. Wolfe, Chief Prod. Div. (WF) and the following conclusions were reached: (a) New AFP would be initiated with a top price of $10.00 per unit. (b) Specifications would be written which would include certain minor changes. (c)First articles would be submitted for inspection and test. (d) A redetermination clause would be included in contract to protect government interest.

28. (U) Tel.Conv. 13 May 1943
Lt.Col.L.T.Bradbury, Prod.Br., Wash. and Col.S.H.Brentnall,Chief, Prod.Eng.Sect.,WF
(File: Central Files)

Col. Bradbury, Prod. Br. (Wash), called to tell Col. Brentnall, Prod. Eng. Sect. (WF), that Mr. Raye of Gallowhur was "bouncing around Washington" claiming that Lend-Lease wanted to buy a block of stills for Britain, and that the Navy and the Canadians were interested. Both Col. Brentnall and Col. Bradbury thought the contract had been let since Col. Volandt, Proc. Br. (Wash), had authorized a jump in price from $10.00 to $15.00 per unit, subject to renegotiation at the end of 7500. Mfg. Meth. (WF) claimed the stills could be built for $4.50 each.

29. (U) TT 18 May 1943
Fr: E.Proc.Dist. New York,N.Y.
To: Chief,Proc.Div.,WF
(File: Aero.Equip.Br., Prod.Div.)

E. Proc. Dist., New York, had been advised that Col. Volandt (Wash) had orally approved a price readjustment clause due to experimental nature of the articles. Contractor agreed to accept upward renegotiation provision in place of standard price readjustment clause.

30. (U) Ltr. 22 May 1943
Fr: Brig.Gen.A.E.Jones Chief,Proc.Div.,WF
To: Dist.Supv., E.Proc.Dist.,New York
(File: Proc.Div.)

Proc. Div. (WF) advised E. Proc. Dist. that since all items were commercially procurable and the contractor was an assembler of components, a redetermination of price specified in contract for 30,000 sun stills was inapplicable. A flat fixed price was suggested as result of negotiations. Maximum price referred to on authority for Dist. Purchase #656 was considered above a fair and reasonable price.

31. (U) Contract W 2620 ac-278 12 June 1943
(File: MR&D)

Contract W 2620 ac-278, approved 12 June 1943, was placed with Gallowhur for 30,000 Sun Stills at a total cost of $360,000.00.

32. (U) Ltr. 13 July 1943
Fr: Col.C.V.Holloman Chief,Equip.Lab.,Eng.Div.WF
To: Gallowhur Chemical Corp.
(File:Survival Unit,Eng.Div.)

Eng. Div. (WF) informed Gallowhur on 13 July 1943 of results of tests conducted on four sample sun stills. These stills failed to pass the tests and several recommendations were made for their improvement. Requ was made for additional stills for testing.

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33. (U) TT 21 May 1943
Fr: Supply & Services Div. Wash.
To: CG,ASC Patterson Field,Ohio
(File: MM&D)

On 21 May 1943 Supply & Services Div. (Wash) requested procurement of 150 Gallowhur Solar Stills before 15 July 1943 for use by the First Sea Search Attack Group, Langley Field, Va.

34. (U) Ltr. 22 July 1943
Fr: Lt.Col.H.B.Benedict Chief,Distribution Sect. AC/AS,MM&D,Wash.
To: Overseas Supply Sect. ASC,Patterson Field,Ohio
(File: Aero.Equip.Br., Prod.Div.)

Lt. Col. H. B. Benedict, Chief, Distribution Sect., (Wash) informed Patterson Field 22 July 1943 that immediate action was desired to supply the First Sea Search Attack Group at Langley Field with 75 Solar Stills on experimental basis for service test.

35. (U) R&R-1, 22 July 1943
Fr: ASC,Patterson Field,Ohio
To: Supply & Services Div. Wash.
(File: Aero.Equip.Br., Prod.Div.)

150 Solar Stills originally requested to be procured and shipped to Langley Field was reduced to 75, 22 July 1943, on basis of telephone conversation with Col. Benedict on 21 July 1943. Stills were to arrive no later than 1 Aug. 1943.

36. (U) TT 24 July 1943
Fr: Prod.Div.,WF
To: Gallowhur Chemical Corp.
(File: Aero.Equip.Br. Prod.Div.)

WF advised Gallowhur 24 July 1943 that Mat. Com. (WF) would waive inspection requirements and accept the 75 Sun Stills to be shipped to Langley Field.

37. (U) 1st Ind. 29 July 1943
Fr: Col.S.R.Brentnall Chief,Prod.Eng.Sect.,WF
To: CG,ASC,Patterson Field
(File: Aero.Equip.Br. Prod.Div.)

Patterson Field was advised by WF 29 July 1943 that 75 Sun Stills, on contract W 2620 ac-278, had been converted from Fairfield Air Depot to Langley Field.

38. (U) Ltr. 30 Aug. 1943
Fr: Gallowhur Chemical Corp.
To: Equip.Lab.,WF
(File: Central Files)

On 30 Aug. 1943 Gallowhur forwarded to Mat. Com. (WF) for examination and comment, sample directions for operation of their Sun Still.

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39. (U) Ltr. 2 Sept. 1943
Fr: Col.G.V.Holloman
Chief,Equip.Lab.
Eng.Div.,WF
To: Gallowhur Chemical Corp.
(File: Central Files)

Contractor was advised by WF on 2 Sept. 1943 that as a result of extensive tests conducted 13 Aug. 1943 on a Delano Sun Still, an effort should be made to increase its efficiency and several recommendations were included to effect this improvement. Request made to have improved samples submitted for further tests.

40. (U) Ltr. 13 Sept. 1943
Fr: Col.G.V.Holloman
Chief,Equip.Lab.,
Eng.Div.,WF
To: Gallowhur Chemical Corp.
(File: Central Files)

WF submitted 13 Sept. 1943 to Gallowhur revised instructions for operation of the Delano Sun Still. These were considered more satisfactory in arrangement and wording than those submitted by Gallowhur.

41. (U) IOM 16 Sept. 1943
Fr: Col.G.V.Holloman
Chief,Equip.Lab.
Eng.Div.,WF
To: Chief,Prod.Div.,WF
Attn: Prod.Eng.Sect.
(File:SurvivalUnit,Eng.Div.)

Eng. Div. (WF) requested Prod. Eng. Sect. (WF), 16 Sept. 1943, to start production of the stills as soon as possible. This request was made as a result of tests in which the Eng. Div. found the Solar Stills to be reasonably satisfactory and because of the great urgency that existed for this equipment.

42. (U) Ltr. 18 Sept. 1943
Fr: Col.W.M.Morgan
Actg.Chief,
Prod.Eng.Sect.,WF
To: Gallowhur Chemical Corp.
(File: Central Files)

Tentative approval for production was given by Prod. Eng. Sect. (WF) to Gallowhur for a period of 60 days from date of this letter (18 Sept. 1943) on contract W 2620 ac-278 covering sun stills. WF requested that data necessary to issue a permanent production release be forwarded as soon as possible. A few essential minor changes to be incorporated in still were listed.

43. (U) Navy Performance Test
11 Oct. 1943
(File: MM&D)

Report, 11 Oct. 1943, of test of performance of Delano Sunstill on land made by the Navy at Bethesda, Md., showed the improved model was calculated to produce about 525 cc. of water per day. This still was more rugged and performed better than the earlier model. No consideration was to be given to the use of this equipment in a one-man parachute raft as it was too bulky. The still was not to be standard equipment for the Navy until it had been tested at sea.

44. (U) TT 1 Nov. 1943
Fr: Eng.Div.,WF
To: Mat.Div.,AC/AS,
MM&D,Wash.
(File: MM&D)

Eng. Div. (WF) informed Mat. Div. (Wash) that production of 30,000 Delano Sunstills would start as of this date(1 Nov. 1943). Higgins and Minnesota stills were also under active development.

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45. (U) R&R-1, 2 Nov. 1943
Fr: Col.R.C.Wilson
Chief,Dev.Eng.Br.
Mat.Div.,MM&D,Wash.
To: Req.Div.,OC&R,Wash.
(File: MM&D)

Dev. Eng. Br., Mat. Div., MM&D (Wash), recommended in an R&R to Req. Div., OC&R (Wash), 2 Nov. 1943 that, as Gallowhur had been given authority to proceed with the production of sunstills, three should be issued for each multi-place raft. The usefulness of this still was limited to "latitudes and climates where the sun shines with considerable frequency."

46. (U) Memo Rpt. 18 Dec. 1943
ENG-54-671-152K
(File: Survival Unit,Eng.Div.)

Memo report dated 18 Dec. 1943 reported the development progress of the Higgins Industries, Inc., New Orleans, La., (hereinafter referred to as Higgins) still. Still was submitted to Mat. Com. (WF) on 7 Sept. 1943 but tests proved it did not operate properly. This still operated on practically the same principle as Delano and Massachusetts Institute of Technology (hereinafter referred to as MIT) stills. Suggestions for improvement were offered Higgins and on 28 Sept. 1943 a new model was submitted. This model proved more satisfactory than the first although only 10% was converted into distilled water. After a representative of Mat. Com. (WF) assisted Higgins for a month the model became about 60% efficient. It was recommended that Mat. Com. should assist Higgins further in the development of this still.

47. (U) Statement 11 Aug. 1944
Covering period
8 Dec. 1943 - Feb. 1944
By: Edwin S. Fetcher, Jr.
Survival Unit,Eng.Div.,WF
(File: Historical Office)

Statement made by E. S. Fetcher, Survival Unit, Eng. Div. (WF) covering period 8 Dec. 1943 to Feb. 1944. On 8 Dec. 1943 test samples of inflated type, wick fed, floating solar still (Model B-3) were submitted to WF by Gallowhur. Test completed 11 Dec. 1943 on first production Delano "Sunstills" proved satisfactory. Tests were made by Eglin Field, 31 Dec. 1943 thru 4 Jan. 1944, on Gallowhur Model B-3 still, MIT inflated floating still and Higgins spherical, inflated floating still. All stills operated only fairly satisfactory with an efficiency of only 8 to 13%. After receiving results of test representatives of Gallowhur visited WF and inquired whether they should continue development work. Dr. Fetcher advised them to continue, possibly on an experimental contract.

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J.	(U) Trip Rpt. 4 March 1944 By: Edwin S. Fetcher, Jr. Survival Unit, Eng.Div.,WF (File:Survival Unit,Eng.Div.)	E. S. Fetcher, Survival Unit, Eng. Div. (WF) reported on 4 March 1944 of results of tests conducted at Boca Raton 20 Feb. thru 23 Feb. 1944 on Gallowhur, MIT and Higgins stills. Tests showed: Gallowhur type B were easiest to operate but least efficient; MIT Still more efficient but troublesome to operate; Higgins Still very efficient but difficult to operate and nor very reliable; Modified Delano Still unsatisfactory. All had good points and bad points. As yet no still was sufficiently satisfactory for a recommendation for standardization to be made.
49.	(U) TG 4 March 1944 Fr: Col.G.V.Holloman Eng.Div.,WF To: Gallowhur Chemical Corp. (File:Survival Unit,Eng.Div.)	Telegram dated 4 March 1944 requested Gallowhur to send a technical representative to WF 8 March 1944 to attend a conference concerning the design of a still for life rafts. [This same telegram was sent to Higgins and MIT.]
50.	(U) R&R-1, 6 March 1944 Fr: Col.R.A.Legg Actg.Chief,Dev.Eng.Br. Mat.Div.,M&D,Wash. To: Air Services Div. M&D,Wash. (File: M&D)	R&R dated 6 March 1944 from Dev. Eng. Br. (Wash) to Air Services Div. (Wash) stated that 10,348 stills had been delivered to ASC. Request was made that stills be issued on a basis of three for each five man life raft. [ASC was advised of this basis of issue on 9 March 1944.]
51.	(U) TG 7 March 1944 Fr: Maj.S.C.Mayne Eng.Div.,WF To: Higgins Industries (File:Survival Unit,Eng.Div.)	Maj. S. C. Mayne, Eng. Div. (WF) informed Higgins in a telegram dated 7 March 1944 that the purpose of 8 March conference was to combine best features of the three stills - Higgins, Gallowhur and MIT. No information concerning one company's design was to be given to another company without permission.
52.	(U) TG 7 March 1944 Fr: Higgins Industries To: Mat.Com.,WF Attn: Dr. E. S. Fetcher (File:Survival Unit,Eng.Div.)	Higgins wired Dr. E. S. Fetcher, Eng. Div. (WF) that a representative would not attend the conference (8 March 1944) as no assurance had been given that development rights would be protected.
53.	(U) TG 7 March 1943 Fr: Higgins Industries To: Dr. E. S. Fetcher Eng.Div.,WF (File:Survival Unit,Eng.Div.)	Higgins informed Dr. Fetcher that the three stills at WF were to be returned to Higgins representative as "these stills are now obsolete and we desire their return for our own further development and tests."

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54. (U) Memo Rpt. 25 March 1944
ENG-54-671-189
(File:Survival Unit,Eng.Div.)

Memo report dated 25 March 1944 reported on conference held 9 March 1944 at Equip. Lab., Eng. Div. (WF). Personnel attending conference included representatives of Judge Advocate's Office, Prod. Div., NDRC, Equip. Lab., BAGR, MIT, Gallowhur. The purpose of the meeting was to pool the different companies ideas for building stills for which all concerned stated they were willing to cooperate. It was agreed the inflated type was the nearest to meeting the requirements. Conclusion was reached that a sufficiently satisfactory still could be developed by incorporating the best features of MIT and Gallowhur after a few modifications were made. It was recommended that necessary steps be taken to "provide sufficiently adequate inflation type solar still, based on types already tested, in the shortest possible time."

55. (U) ICM 13 March 1944
Fr: Brig.Gen.F.O.Carroll
Chief,Eng.Div.,WF
To: Chief,Proc.Div.,WF
(File:Survival Unit,Eng.Div.)

Gen. Carroll, Chief, Eng. Div. (WF) informed Proc. Div. (WF) that on APP #387056 Gallowhur was to be made sole source for this procurement as they had "partially perfected" a still. This was an experimental order for the combined MIT-Gallowhur still.

56. (U) 1st Ind. 17 March 1944
Fr: Dev.Eng.Br.,
Mat.Div.,Wash.
To: Eng.Div.,WF
(File: MM&D)

Dev. Eng. Br. (Wash) instructed ASC 17 March 1944 to immediately allocate to the 5th, 7th, 10th, 13th Air Forces (for use in A-3 life rafts), and Morrison Field (for ferrying planes) the 10,384 Delano sunstills they had stored. The remainder of the 30,000 were to be allocated at a later date.

57. (U) Ltr. 25 March 1944
Fr: Higgins Industries
To: Equip.Lab.,Eng.Div.,WF
(File:Survival Unit,Eng.Div.)

Higgins informed WF 25 March 1944 that further changes in their still had been stopped and twelve of the new stills would be completed by 25 April 1944.

58. (U) Ltr. 31 March 1944
Fr: Brig.Gen.F.O.Carroll
Chief,Eng.Div.,WF
To: Dev.Eng.Br.,
MM&D,Wash.
(File: MM&D)

Eng. Div. (WF) informed Dev. Eng. Br. (Wash) 31 March 1944 that the production of Delano Sunstills was limited to 30,000 as it was far too bulky. A more compact solar still was in development stage and would be ready for testing at Orlando, Fla., in a few weeks.

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59. (U) Ltr. 15 April 1944
Fr: Brig.Gen.F.O.Carroll
Chief,Eng.Div.,WF
To: AAF Board
AAF Tactical Center
Orlando, Florida
(File:Survival Unit,Eng.Div.)

Eng. Div. (WF) on 15 April 1944 requested AAF Tactical Center, Orlando, Florida, to conduct tests on inflated type solar stills. Models were to be available about 27 April 1944 and test was to be run not later than 1 May 1944.

60. (U) TG 9 May 1944
Fr: Higgins Industries
To: Dr.E.S.Fetcher
Survival Unit,Eng.Div.,WF
(File:Survival Unit,Eng.Div.)

Dr. Fetcher, Survival Unit, Eng. Div. (WF) was informed by Higgins 9 May 1944 that the demonstration of their solar still would be postponed until the next week because of poor testing weather.

61. (U) R&R-3, 9 May 1944
Fr: Brig.Gen.M.E.Gross
Req.Div.,OC&R,Wash.
To: AC/AS,MMSD,Wash.
(File: MMSD)

Brig. Gen. M. E. Gross, Req. Div., OC&R (Wash), in an R&R dated 9 May 1944 requested AC/AS, MMSD (Wash), to investigate, preferably by a comparative test, the development progress of the Gallowhur and Higgins stills.

62. (U) TG 10 May 1944
Fr: Col.J.F.Fraim,Jr.
Eng.Div.,WF
To: Gallowhur Chemical Corp.
(File:Survival Unit,Eng.Div.)

Gallowhur was advised by Eng. Div. (WF) 10 May 1944 that tests of stills by Proving Ground Command were to be further delayed but as soon as new date was set the company would be notified.

63. (U) Ltr. 11 May 1944
Fr: Gallowhur Chemical Corp.
To: Equip.Lab.,Eng.Div.,WF
(File: Survival Unit,Eng.Div.)

On 11 May 1944 Gallowhur forwarded to WF a brief summary of their invention and its development. Experimental contract, on a cost-reimbursible basis covering the still which combined features of MIT and Gallowhur, was to take effect 9 March 1944 although it was not received for signature until 1 May 1944. The contract had not yet been returned to WF.

64. (U) Ltr. 15 May 1944
Fr: Brig.Gen.F.O.Carroll
Chief,Eng.Div.,WF
To: AAF Board
AAF Tactical Center
Orlando, Florida
(File:Survival Unit,Eng.Div.)

Eng. Div. (WF) on 15 May 1944 requested AAF Tactical Center, Orlando, Florida, to include the still developed by Higgins in the testing of other stills. This test was to be made 24 May 1944.

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65. (U) TG 19 May 1944
Fr: George Gallowhur
Gallowhur Chemical Corp.
To: Gen.H.H.Arnold
CG,AAF,Wash.
(File: M&D)

George Gallowhur, Pres. of Gallowhur, wired Gen. Arnold 19 May 1944 requesting he expedite the testing of the Gallowhur and Higgins stills. Added no further orders had been placed after the 30,000 had been delivered without any rejections. Stated the tests had been postponed by WF on grounds of a better model eventually being developed by Higgins.

66. (U) Ltr. 20 May 1944
Fr: Col.R.C.Wilson
Chief,Dev.Eng.Br.
Mat.Div.,M&D,Wash.
To: Eng.Div.,Mat.Com.,WF
(File: M&D)

Dev. Eng. Br. (Wash) directed Eng. Div. (WF) 20 May 1944 to furnish them with status of development of Gallowhur solar still and Higgins sun still. Information obtained from a comparative test was to be included. By attached 1st Ind. dated 1 June 1944 WF replied that the development of these stills was practically complete and that comparative tests were to be run by Proving Ground Command starting 5 June 1944. The present Gallowhur still resulted from suggestions made, at conference of 9 March 1944, by representatives of MIT, Gallowhur, Mat. Com. (WF) and Proving Ground Command. "More properly" the still could be called "MIT-Gallowhur or Gallowhur-MIT Stills."

67. (U) TG 23 May 1944
Fr: Col.R.C.Wilson
Chief,Dev.Eng.Br.
Mat.Div.,M&D,Wash.
To: George Gallowhur
Gallowhur Chemical Corp.
(File: M&D)

Dev. Eng. Br. (Wash) on 23 May 1944 answered George Gallowhur's telegram of 19 May 1944 stating action was being taken to have comparative test of stills made on 5 June 1944. If tests proved a suitable still was available, requirements would be set up.

68. (U) Ltr. 26 May 1944
Fr: George Gallowhur
Gallowhur Chemical Corp.
To: Gen. H. H. Arnold
CG,AAF,Wash.
(File: M&D)

Gallowhur wrote Gen. Arnold 26 May 1944 stating there had been inexcusable delay in searching for an "ideal model" solar still. He felt the delay in testing stills was due to the "apparent willingness" of WF "to bend over backwards" to cooperate with Higgins. As example he stated that tests had just gotten underway at Eglin Field 26 April when representatives of WF and Proving Ground Command went to New Orleans to see a Higgins model. "In other words, Higgins influence over the Army Air Force is so great that his phone call stops official tests scheduled far in advance." Mr. Gallowhur further stated that Dr. Fetcher, Eng. Div.(WF) had divulged information concerning Gallowhur Still to Higgins and had referred to the Higgins model as "his model".

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69. (U) Ltr. 31 May 1944
Fr: George Gallowhur
Gallowhur Chemical Corp.
To: Gen.H.H.Arnold
CG,AAF,Wash.
(Files: MM&D)

On 31 May 1944 Gallowhur again wrote to Gen.Arnold registering further protest against the delay to 5 June 1944 in testing the Gallowhur and Higgins stills.

70. (U) Ltr. 1 June 1944
Fr: Col.R.C.Wilson
Chief,Dev.Eng.Br.
Mat.Div.,MM&D,Wash.
To: Eng.Div.,Mat.Com.,WF
(File: MM&D)

Eng. Div. (WF) was directed, 1 June 1944, by Col. R. C Wilson, Chief, Dev. Eng. Br. (Wash), to investigate charges made by Gallowhur. This information was to be furnished Wash. not later than 10 June 1944.

71. (U) Memo 3 June 1944
Fr: Maj.Gen.O.P.Echols
AC/AS,MM&D,Wash.
To: CG,AAF,Wash.
(File: MM&D)

Maj. Gen. O.P. Echols, AC/AS, MM&D (Wash), in a memo 3 June 1944 to Gen. Arnold stated the accusations made by Gallowhur were being investigated and as soon as the information was available George Gallowhur would be informed of the outcome.

72. (U) Ltr. 7 June 1944
Fr: Gen.H.H.Arnold
CG,AAF,Wash.
To: George Gallowhur
Gallowhur Chemical Corp.
(File: MS)

Gen. Arnold on 7 June 1944 advised Gallowhur that, in view of the changes made by this company, he was having an investigation made.

73. (U) R&R-1, 8 June 1944
Fr: Emer.Res.Br.
Pers.Equip.Lab.
Eng.Div.,WF
To: Chief,Eng.Div.,WF
(File:Survival Unit,Eng.Div.)

Emer. Res.Br., Eng. Div. (WF) in an R&R 8 June 1944 to Chief, Eng.Div. (WF) answered the charges made by Gallowhur as follows: (1) delay of a satisfactory solar still was due to engineering difficulties; (2) service tests at Eglin Field on 1 May 1944 were delayed for two weeks so that a solar still already developed by Higgins could be submitted in a competitive test with Gallowhur; (3) Gallowhur Solar Still was reported unsatisfactory at that time as the water it produced was not palatable. Modifications had to be made by Gallowhur at their plant to correct this. (4) Engineering difficulties had delayed tests of both articles since 1 May 1944; (5) no partiality or favoritism had been shown either company since it was the policy of Mat. Com. (WF) to obtain the best possible equipment regardless of the company; (6) no information was given to Higgins that belonged to Gallowhur. It was felt by Emer. Res. Br. that, due to keep competition between Higgins and Gallowhur, Gallowhur was using any means to force their product on the AAF.

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74.	(U) 1st Ind.9 June 1944 Fr: Col.H.Z.Bogart Actg.Chief,Eng.Div.,WF To: AC/AS,WWRD,Wash. (File: WWRD)	Eng.Div.(WF) on 9 June 1944 forwarded the above information to AC/AS,WWRD (Wash).
75.	(U) Ltr.22 June 1944 Fr: Lt.Gen.B.M.Giles Dep.Comdr.,AAF,Wash. To: George Gallowhur Gallowhur Chemical Corp. (File: WWRD)	On 22 June 1944 George Gallowhur was informed of the majority of the information contained in Item 72 by Lt.Gen.B.M.Giles,Dep.Comdr.,AAF (Wash).
76.	(U)Ltr.20 June 1944 Fr: George Gallowhur Gallowhur Chemical Corp. To: Gen.H.H.Arnold CG,AAF,Wash. (File: WWRD)	George Gallowhur wrote to Gen.Arnold again on 20 June 1944 expressing his opinion further as he had received no answer to his letters of 26 and 31 May.
77.	(U) Ltr.29 June 1944 Fr: Clifford F.Raye,V.P. Gallowhur Chemical Corp. To: CG,AAF,Wash. Attn: Lt.Gen.B.M.Giles Dep.Comdr. (File:WWRD)	In reply to letter from Gen.Giles,Clifford F.Raye,V.P., Gallowhur stated on 29 June 1944 that the unpleasant taste did not come from the still but from the vinylite that was used although this unpleasant taste would not delay the test since 26 April. Further, they had not been advised up to this date the results of tests that were started 7 June 1944.
78.	(U) Ltr.9 July 1944 Fr: Lt.Gen.B.M.Giles C/AS,Wash. To: Clifford F.Raye Gallowhur Chemical Corp. (File:WWRD)	Gen.Giles wrote to Gallowhur 9 July 1944 stating that test of solar stills was started 7 June 1944 by AAF Board which first indicated that the still submitted by Gallowhur first gave off palatable water. After eight days it produced unpalatable water which gave a stinging feeling in a man's stomach. However,analysis showed that this taste was caused by the Saran carrier for the pad. Four weeks more were required to complete tests as additional stills had been received.
79.	(U) TOM 5 July 1944 Fr: Capt.W.R.Lane Patents & Royalties Office,WF To: File (File:Survival Unit,Eng.Div.)	Memo dated 5 July 1944 by Capt.W.R.Lane,Patents & Royalties Office (WF) reported on conference held with Dr. Fetcher and Maj.Butts,Emer.Res.Br.,Eng.Div.,Capt.Smith, Proc.Div.,Capt.Lane and later Mr.Raye and Mr.Brown of Gallowhur. Dr.Fetcher stated it had been assumed, in dealing with Gallowhur regarding data etc. for the perfection and testing of their still, that the development contract had been signed. This was not so as Gallowhur had refused to sign it feeling WF was leaning toward the Higgins model.

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80.	(U) Ltr.12 July 1944 Fr: Gallowhur Chemical Corp. To: Lt.Gen.B.M.Giles Dep.Comdr., AAF,Wash. (File: MES)	Gallowhur acknowledged receipt of 1 July letter from Gen. Giles. They took issue with his statement that the Gallowhur still incorporated designs and ideas of the MIT still, and claimed their still did not use any basic ideas of the other still. Gallowhur again referred to the fact that an AAF representative had told Mr. Gallowhur "information had been given to the Higgins Corporation".
81.	(U) Ltr. 12 July 1944 Fr: Col.D.C.Swatland Chief,Proc.Div.,WF To: Sea Rescue Unit Pers.Equip.Lab.,WF (File:Survival Unit,Eng.Div.)	AFP #387056 was returned to Pers. Equip. Lab. (WF) by Proc. Div. (WF) on 12 July 1944 as it had been returned by contractor unsigned.
82.	(U) TOM 13 July 1944 Fr: Brig.Gen.F.O.Carroll Chief,Eng.Div.,WF To: Misc.Unit Prod.Eng.Sect.,WF (File: Central Files)	Eng. Div. (WF) notified Prod. Div. (WF) that information had been received indicating the AAF Board, Orlando, Fla. intended to recommend the use of either of two types of stills (Higgins, Model-24 or Gallowhur, Model B-6) for life rafts. The AAF did not own any samples of either type still, nor did it have reproduction rights; therefore, it was not feasible to prepare specifications for release. In lieu of specifications, a detailed set of requirements, which included changes and provisions on both types of stills, were discussed in this communication.
83.	(U) Ltr. 14 July 1944 Fr: Hugh Fulton, Chief Counsel, U.S. Senate, Special Committee Investigating The National Defense Program To: J.M.Amberg, Sp. Asst. to Secy.War.,Wash. (File: MES)	Mr. Fulton, Chief Counsel, U.S. Senate, Special Committee Investigating the National Defense Program (hereinafter referred to as the Truman Committee) advised Mr. Amberg, Special Asst. to Secy. War (Wash.) that the Committee had received a complaint from Gallowhur as to the alleged delays in procurement of solar stills. The Committee requested information regarding this matter. Mr. Amberg forwarded to Col. Ege, Legislative Services, AAF (Wash), by Memo (attached), Mr. Fulton's request.
84.	(U) AFP #386992 21 July 1944 (File: Contract Files)	AFP #386992 dated 21 July 1944, authorized Procurement of 30 solar stills for testing and experimental purposes. This AFP resulted in P.O. 45-1547-E with Higgins for 15 stills at $60 per unit, total cost $900; and P.O. 45-1588-E with Gallowhur for 15 stills at $25 per unit, total cost $375.

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85. (U) IOM 29 July 1944
Fr: Capt.N.E.Smith
Proc.Div.,WF
To: Chief,Eng.Div.,WF
Attn: Maj.J.S.Butts
(File: Survival Unit,Eng.Div.)

Proc. Div.(WF) informed Eng.Div.(WF) 29 July 1944 that no further action was being taken by them on Gallowhur contract. Attached letter from Gallowhur dated 18 July 1944 stated they did not sign the contract because of information they felt had been divulged which would have a bearing on their patent position.

86. (U) TT 28 July 1944
Fr: Proof Div.
AAF Proving Ground Command
Eglin Field, Florida
To: AC/AS, M&S, Wash.
(File: Survival Unit, Eng.Div.)

Teletype 28 July 1944 from Proving Ground Command, Eglin Field to AC/AS, M&S(Wash) submitted the recommendations and conclusions of tests conducted on Gallowhur and Higgins stills. Conclusions were: (1) Both stills were valuable in that they produced a sufficient amount of palatable water for the survival of a man; (2) Gallowhur produced approximately three times as much water per unit as Higgins; (3) Gallowhur still produced a peppery tasting water when left for 3 days deflated and wet with salt water. This could be remedied; (4) Gallowhur showed less sea water contamination than Higgins on a rough sea. (5)Some structural and other weaknesses, which could be remedied, were shown by both stills. Recommended the Gallowhur type be manufactured at once in limited numbers after defects corrected. Both companies were to continue working on improvements of their stills.

87. (U) R&R-1, 1 Aug.1944
Fr: Col.K.P.Bergquist
Exec.,OC&R,Wash.
To: Mat.Div.,M&S
Wash.
(File: M&S)

OC&R (Wash) notified Mat.Div.(Wash) that the AAF Proving Ground Command teletype had been reviewed and the conclusions and recommendations contained therein were approved with two exceptions. Life rafts, Type A-3 and E-2 should be equipped with 2 and 3 stills respectively per raft instead of one as recommended. One man liferafts should not include a still but should be equipped with the "Permutit Process" desalting kit.

88. (U) Ltr. 3 Aug.1944
Fr: Col.R.C.Wilson
Chief,Dev.Eng.Br.
Mat.Div.,M&S,Wash.
To: Eng.Div.,WF
(File: Survival Unit, Eng.Div.)

Col. Wilson, Chief, Dev. Eng. Br.(Wash) informed Eng. Div.(WF) on 3 Aug.1944 that the recommendations made in teletype 28 July 1944 were approved with the two exceptions as set forth above by OC&R (Wash). It was directed that necessary action be taken for providing Gallowhur type stills in quantities as stated above.

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89. (U) Memo 3 Aug.1944
Fr: J.H.Amberg
Sp.Asst.to Secy War,
Wash.
To: Col.W.S.Ege
Legislative Services,
AAF,Wash.
(File: M&S)

Mr. Fulton again wrote office of Asst.Secy War regarding slowness of Govt. in adopting the solar stills (document attached). The Truman Committee had now received complaints from Higgins as well Gallowhur and Mr. Amberg suggested that both cases be covered in one communication to the committee.

90. (U) Memo 8 Aug.1944
Fr: Lt.Col.A.M.Hanson
Asst.Exec., Office
Asst.Secy.War for Air,Wash.
To: Col.J.W.Sessums
Exec. M & S,Wash.
(File: M&S)

Following a visit of the counsel for Gallowhur to office of Asst. Secy. War for Air, Mr. Lovett was of the opinion that the situation should be investigated.Further, for the information of Mr. Lovett, disposition of the 30,000 stills previously purchased from Gallowhur and steps that were being taken to meet present and future requirements for stills should be reported.

91. (U) TG 11 Aug.1944
Fr: Col.J.P.Fraim,Jr.
Pers.Equip.Lab.,WF
To: Gallowhur Chemical Corp.
(File:Survival Unit,
Pers.Equip.Lab.)

Pers.Equip.Lab. (WF)notified Gallowhur that stills submitted by subject company had been tested and approved provided certain changes were effected satisfactorily. Suggested that Gallowhur representatives visit Mat. Com. (WF) as soon as possible to discuss necessary changes.

92. (U) TG 11 Aug.1944
Fr: Col.J.P.Fraim,Jr.
Pers.Equip.Lab.,WF
To: Higgins Industries,Inc.
(File:Survival Unit
Pers.Equip.Lab.)

As a result of tests accomplished on the Higgins still, this company was informed by Pers.Equip. Lab. (WF) that their still had not been approved for AAF. Higgins was encouraged to continue development especially in line with reducing the still's packed bulk, and the assistance of Mat. Com. (WF) was offered.

93. (U) TT 16 Aug.1944
Fr: Capt.J.H.Ober
Asst.Tech.Exec.
Mat.Com.,WF
To: Chief,Dev.Eng.Br.
Mat.Div.,Wash.
(File:Survival Unit
Pers.Equip.Lab.)

Asst. Tech. Exec.,Mat.Com. (WF) recommended a basis of issue of accessories as follows; (1) Accessories supplied for types E-2 and A-3 life rafts be kept alike. (2) These were to include; 6 solar stills, 5 desalting kits and 2 water cans; or 6 stills,6 desalting kits and 1 can of water. Mock-ups of this equipment had been successfully packed in a mock-up of a B-17 compartment.

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94. (U) Ltr. 16 Aug.1944
Fr: Brig.Gen.F.O.Carroll
Chief,Eng.Div.,WF
To: AC/AS.M&S
Wash.
(File:Survival Unit
Pers.Equip.Lab.)

Survival Unit,Eng.Div.(WF) confirmed recommendations made in above teletype by supplying substantiating proof They pointed out that a different basis of issue of solar stills for Types E-2 and A-3 Life Rafts as decided, was unsatisfactory for following reasons: (1)Production, supply and distribution would be facilitated by having one set of standard accessories for multi-place rafts. (2) While rated capacity of life rafts was different (4 and 6 man) basis of issue was the same in most cases; e.g. a heavy bomber then equipped with two Type A-3 rafts would eventually be equipped with two Type E-2 rafts with no increase in crew. (3) Current number of accessories would permit the weight-space ratio of the Type E-2 Raft to remain more efficient. Basis of issue was also unsatisfactory since it had been proven by office of Scientific Research and Development that human water requirements were two to four pints per day at temperatures encountered on the oceans. Survival Unit recommended that in order to approach actual minimal water requirements, at least six stills would be necessary and in case space limitations made it impossible, they suggested removal of one or two water cans or one or two cans of rations.

95. (U) 1st Ind. 8 Sept.1944
Fr: Col.R.C.Wilson
Chief,Dev.Eng.Br.
Mat.Div.,Wash.
To: Eng.Div.,Mat.
Com.,WF
(File:Survival Unit
Pers.Equip.Lab.)

Dev.Eng.Br.(Wash) replied to above recommendations of Mat.Com.(WF) regarding proposed allocations of water equipment for Types A-3 and E-2 life rafts approving: 6 solar stills, 6 desalting kits and 1 can of water per raft.

96. (U) Ltr. 17 Aug.1944
Fr: Col.W.D.Burnside
Air Inspector,Mat.
Command
WF
To: Col.J.W.Sessums
Exec.,M&S,Wash.
(File: Survival Unit
Pers.Equip.Lab.)

Following the complaint from Gallowhur claiming unfair treatment by Mat.Com.(WF), a detailed report by the Air Inspector, Mat.Com. was forwarded to M&S (Wash). An outline of the history of the Solar still was presented from which following conclusions were drawn: (1) The best interests of the Government were protected. (2) No representatives of Mat.Com. had acted improperly. (3) Gallowhur was not discriminated against. (4) Favoritism was not shown Higgins. Present and future requirements for solar stills were subject of current inquiry and discussion between OC&R (Wash) and Mat.Com. On basis of issue recommended by Mat. Com.(6 stills for each type of multi-place rafts.) present and future requirements aggregate approximately 1,090,000 stills.

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97. (U) Ltr. 21 Aug. 1944
Fr: Lt.Col.C.D.Seftenberg
Tech.Exec.,Mat.Con.,WF
To: Col.J.W.Sessums
Exec.,MAS,Wash.
(File: MAS)

In reply to a request from Exec.,MAS (Wash),Tech. Exec., Mat.Con. (WF) supplied information concerning procurement of equipment for life rafts to provide drinking water. He suggested that all information on stills be pooled and the best possible still be developed and made available to Govt. Tech.Exec. recommended that Gallowhur be requested to grant Govt., for the duration, a royalty-free license right to their still and Mat.Con., (WF) had been informally notified that Gallowhur would be agreeable provided this company received a substantial part of the procurement of stills by Govt. Situation regarding patents for the still was not clear as Dr. Telkes had intimated that some suggestions for improvements from MIT and Govt. personnel might have been incorporated in the Gallowhur still, in which case Govt. would be entitled to a royalty-free license in the improvements which had been made.

98. (U) Ltr. 24 Aug.1944
Fr: A.J.Higgins,Pres.
Higgins Industries,Inc.
To: Contracting Office
Mat.Con.,WF
(File:Survival Unit
Pers.Equip.Lab.)

Higgins advised that the bid price of $60.00 each for their stills represented a close estimate of the actual cost of labor and included a relatively small proportionate amount for materials used. Higgins stated that their total investment in development of these stills amounted to $74,000, if this amount were amortized over the 15 stills ordered, resulting price would be in excess of $6,000 each. However, they felt quantity production could be accomplished for approximately $15 or $16 each.

99. (U) R&R-5, 24 Aug.1944
Fr: Col.J.W.Sessums
Exec.,MAS, Wash.
To: Chief, Legislative
Services, Wash.
(File: MAS)

In comment 1 to this R&R dated 17 July 1944, Col. Ege requested that, if the AAF was agency responsible for procurement of stills, his office be furnished necessary information to be forwarded to the Truman Committee. Exec. MAS (Wash) by comment 2, dated 22 July 1944, stated that these stills had been developed at request of AAF for possible use in life rafts. These stills were undergoing field tests by AAF Board and AAF Board Control Office should furnish information as to the completion date. Comment 3, dated 2 Aug. 1944 from AAF Board Control Office notified office of Legislative Services (Wash) that tests of subject stills had been completed. Col.Ege by comment 4, requested Col.Sessums to furnish a file and complete explanation of the delay in procurement of solar stills. Exec. MAS (Wash) replied that Mat.Con.(WF) letter of 17 Aug.1944 included a chronological outline of all phases of procurement of solar stills and appeared to satisfactorily refute the claims of delay on part of AAF in procurement of these stills.

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100. (U) TI-1628 Add.1
31 Aug.1944
Fr: Col.T.A.Sims
Dep.C/S.,WF
To: Prod.Div.,WF
(File: Central Files)

TI-1628, Add.No.1 dated 31 Aug.1944, initiated action by authority of attached Ltr.3 Aug.1944 from Dev.Eng. Br.,Mat.Div.(Wash), to procure the Gallowhur solar still in order to equip multi-place life rafts, Types A-3 and E-2, on basis of two and three stills respectively per raft.

101. (U) Memo 4 Sept.1944
Fr: Brig.Gen.R.L.Owens
Dep.C/AS,Wash.
To: J.H.Amberg
Sp.Asst.to Secy.War,Wash.
(File: MES)

Dep.C/AS (Wash) forwarded a detailed report to Mr.Amberg including all the pertinent facts regarding negotiations "looking toward procurement of solar stills". Again the conclusion was reached on basis of the investigation made that (1) representatives of AAF had acted in best interest of the Govt. and (2) there had been no discrimination against Gallowhur. Delays in procurement could be explained by the need for developing a satisfactory still and this development had proceeded as fast as possible considering the degree of cooperation on part of both Gallowhur and Higgins.

102. (U) TI-1628,Add.2
13 Sept.1944
Fr: Col.T.A.Sims
Chief of Admin.,
ATSC,WF
To: Proc.Div.,WF
(File: Misc.Br.
Prod.Sect.)

TI-1628, Add.2, dated 13 Sept.1944, initiated action to procure the necessary water equipment to accomplish allocation of water producing equipment for Types A-3 and E-2 life rafts as approved by Chief,Dev.Eng.Br. (Wash) on 8 Sept.1944. Add. 2 superseded TI-1628 and TI-1628, Add. 1.

103. (U) R&R-1,19 Sept.1944
Fr: Col.J.P.Frain,Jr.
Chief,Pers.Equip.Lab.,
WF
To: T.J.Kincaid
Misc.Unit,Aero.Equip.Br.
Prod.Sect.,WF
(File: Survival Unit
Pers.Equip.Lab.)

In reply to an inquiry from Misc.Unit,Prod.Sect.(WF) Dr.Fetcher advised that TI-1628, Add.1,was based on the Gallowhur still, Model B-6. An experimental order, P.O. No.45-1588E, had been issued to subject company for 15 of these stills.

104. (U) IOM 21 Sept.1944
Fr: Maj.R.R.Clarkson
Chief,Misc.Br.Prod.Sect.
WF
To: Lt.Col.O.E.Mohler
Aero.Equip.Sub-Sect.
Prod.Sect.,WF
(File: Survival Unit
Pers.Equip.Lab.)

A GFE Committee meeting was held 20 Sept.to discuss the proposed procurement of Gallowhur stills as directed by TI-1628,Add.1. Add.2 to this TI, directed installation of six stills in each A-3 and E-2 life raft. It was the unanimous decision of the committee to procure 100,000 stills in order to fullfil urgent current requirements although the new Addendum to subject TI would necessitate the procurement of approximately 600,000 stills. To protect the interests of the Government a patent licensing agreement would be requested from Gallowhur with first quantity procurement.

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A tentative delivery schedule of 25,000 stills per month beginning 30 days after receipt of contract by Gallowhur was set up. Further procurement would be initiated as soon as definite requirements were received from Supply Div.(WF).

105. (U) Ltr.27 Sept.1944
Fr: Gallowhur Chemical Corp.
To: Survival Unit
Pers.Equip.Lab.,WF
(File: Survival Unit
Pers.Equip.Lab.)

In view of shortage of Vinylite, a material used to fabricate the envelope of Gallowhur B-6 still, Pers.Equip. Lab.(WF) recommended, on 22 Sept.1944, use of a Goodrich product, Koroseal. Gallowhur, on 27 Sept.1944, notified WF that tests would be made on Koroseal as soon as samples could be obtained from Goodrich.

106. (U) TG 27 Sept.1944
Fr: Col.J.P.Fraim,Jr.
Chief,Pers.Equip.Lab.
WF
To: Gallowhur Chemical Corp.
(File: Survival Unit
Pers.Equip.Lab.)

Pers.Equip.Lab.(WF) notified Gallowhur that taste results on whole Still No.134 and on parts heated with water for 48 hrs. at 160°F were still unsatisfactory. Washing process did not reduce the plastic or the peppery taste from Vinylite. Packed stills were all badly discolored and bonded after 48 hours at 160°F. WF requested that immediate action be taken to remedy these serious defects.

107. (U) AFP #211534
29 Sept.1944
(File: Contract Files)

AFP #211534, dated 29 Sept.1944, authorized procurement of 33, 334 solar still kits from Gallowhur at a cost of $33 per kit (3 stills packed in aluminum container), total cost $1,100,022.00. Procurement was to be made expressly contingent upon execution by the contractor of a contract containing patent licensing rights to the government.

108. (U) Ltr.11 Oct.1944
Fr: Gallowhur Chemical Corp.
To: Survival Unit,
Pers.Equip.Lab.,WF
(File: Survival Unit
Pers.Equip.Lab.)

Gallowhur advised Pers.Equip.Lab.(WF)of progress being made by their company in correcting defects in certain parts of their stills. These improvements would involve: (1) Taste of water (2) Construction of the pad (3) Method of feeding the still (4) Envelope Material (5) Method of packing (6) Screen material (7) Sponge.

109. (U) R&R-2,19 Oct.1944
Fr: Col.J.F.Phillips
Chief,Mat.Div.,Wash.
To: Chief,Legislative
Services,
Wash.
(File: MSS)

In reply to an inquiry from Col.Ege concerning devices of any type currently used for rendering sea water potable, Mat.Div.(Wash) advised that the early type Delano solar still was only thing presently in use. As of 19 Oct.1944, 18,000 of these had been shipped and 12,000 were still on hand. Deliveries on procurement of 1,100, 000 sea water desalting kits were expected to start 15 Nov.1944 and would be added to life raft equipment.

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As rain water was considered the most important source of water for life rafts a rain catching paulin was provided in each multi-pace raft. In addition to the above equipment, seven eleven-ounce cans of water were provided in each multi-place raft.

110. (U) PSF-4, 26 Oct. 1944
Fr: Col.J.F.Philips
Chief,Mat.Div.,Wash.
To: Chief,Legislative Service, Wash.
(File: WSS)

Chief, Mat.Div.(Wash), in view of questions raised by Col. Ege, advised that: (1) The 30,000 Delano solar stills did render sea water potable, " Peppery tasting undrinkable water" referred to in Mat. Com. (WF) letter of 17 Aug. 1944 was produced by a new type of Gallowhur still which was in the process of development (2) Still currently under procurement had been improved to the extent that it produced potable drinking water;however, considerable difficulty had been encountered in wholly over coming a certain plastic taste.

111. (U) Ltr. 27 Oct.1944
Fr: Lt.Col.W.C.Warner
Chief,Pers.Equip.Lab., WF
To: Higgins Industries,Inc.
(File: Survival Unit
Pers.Equip.Lab.)

In response to attached letter, 13 Oct. 1944, from Higgins pointing out improvements in their still among which was the capacity to p roduce 30% more water, Pers. Equip.Lab.(WF) advised that the Higgins still No.8 had been received and had undergone limited performance tests. WF notified Higgins that the program outlined in their letter for production of experimental stills was satisfactory, and that the new model appeared to be a great improvement over previous samples. Several recommendations for further improvement in the Higgins still were made by Survival Unit, Pers. Equip. Lab. (WF.

112. (U) Ltr. 27 Oct. 1944
Fr: Gallowhur Chemical Corp.
To: E.S.Fetcher, Jr.
Survival Unit,
Pers. Equip. Lab.,WF
(File: Survival Unit
Pers. Equip. Lab.)

Gallowhur stated that they had received a sample of water claimed to have an objectionable peppery taste which was obtained from a still after being subjected to 160° for 48 hours. Analysis of this sample disclosed that no cyclohexanone was present but an oily or waxy residue was extracted. Gallowhur believed this residue was responsible for the peppery taste and they were attempting to establish its origin.

113. (U) Ltr. 3 Nov.1944
Fr: Lt.Col.W.C.Warner
Chief,Pers.Equip.Lab.,WF
To: Gallowhur Chemical Corp.
(File: Survival Unit
Pers.Equip.Lab.)

WF requested delivery from Gallowhur of at least six experimental stills as nearly like production models as possible. Of the first four delivered, two were unserviceable and unacceptable because of poor workmanship. No stills yet produced were considered by ATSC (WF) as satisfactory for production, incorporating the recommendations of the AAF Board, Orlando, Fla.

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114. (U) Ltr. 4 Nov.1944
Fr: Higgins Industries, Inc.
To: Pers.Equip.Lab.
WF
(File: Survival Unit
Pers.Equip.Lab.)

Higgins replied to letter, 27 Oct.1944, from Survival Unit, Pers. Equip. Lab. (WF) and stated they would take steps to make the suggested improvements in the stills. WF had recommended use of a plug in the still as they had had difficulty in draining the ballast tube; however, Higgins pointed our that draining could easily be accomplished by inverting the inflated still. Higgins requested that they be notified as soon as possible of the exact date tests were to be conducted at Eglin Field, Fla. They, further, advised that a date set after 15 Dec. would be convenient for subject company.

115. (U) Ltr. 22 Nov.1944
Fr: Gallowhur Chemical Corp.
To: E.S.Fetcher, Jr.
Survival Unit
Pers.Equip.Lab., WF
(File:Survival Unit
Pers.Equip.Lab.)

Gallowhur informed WF that to have experimental model stills, to be delivered in the near future, as nearly like production models as possible, they had ordered production molds, jigs and fixtures. Subject company objected to ATSC's statement that no significantly different stills had been developed to a point suitable for service testing and they stated work was continuing at their plant on an improved model. They were investigating the use of the wick or self-feed and also a combined pressure and gravity feed model.

116. (U) Ltr.11 Nov.1944
Fr: Brig.Gen.F.O.Carroll
Chief,Eng.Div., WF
To: President,AAF Board
AAF Tactical Center
Orlando,Fla.
(File:Survival Unit
Pers.Equip.Lab.)

Following the recommendation of the AAF Proving Ground, Eglin Field, Fla., Survival Unit,Pers.Equip.Lab.(WF) had continued development of the solar still. Higgins had developed the only still which was considered a signal improvement over models previously tested and WF recommended that this company's still be tested in accordance with established procedures.

117. (U) Ltr. 25 Nov.1944
Fr: Lt.Col.W.C.Warner
Chief,Pers.Equip.Lab.
WF
To: Gallowhur Chemical Corp.
(File:Survival Unit
Pers.Equip.Lab.)

WF notified Gallowhur that additional service tests of solar stills would be conducted and stills should be forwarded to Pers.Equip.Lab.(WF) not later than 20 Dec. 1944. Although representative of Gallowhur had stated this company's new models were not sufficiently developed for test, Pers.Equip.Lab. invited submission of any available new models. Gallowhur should furnish at least 6 production model B-6 stills. A similar letter was sent Higgins.

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118. (U) Ltr. 2 Dec.1944
Fr: Lt.Col.W.C.Warner
Chief,Pers.Equip.Lab.
WF
To: Gallowhur Chemical Corp.
(File:Survival Unit
Pers.Equip.Lab.)

Packed stills which were badly discolored and bonded after 48 hours at 160° F. did not meet the high temperature requirements. During a visit of an ATSC (WF) representative to Gallowhur, methods of preventing this bonding were discussed. Pers. Equip.Lab. (WF) pointed out that although the four stills received 15 Sept.1944 on the experimental order showed improvements over models tested by AAF Board, Orlando, Fla., they could not be considered as finished, professional articles. Water from Higgins stills did not have a peppery taste after same treatment undergone by the Gallowhur still. This had been the case at the time of the AAF Board tests and continued with most recent samples.

119. (U) IOM 12 Dec.1944
Fr: Lt.Col.A.F.Ferguson,Jr.
Acting Chief,Fiscal Br.
Proc.Div.,WF
To: Chief,Aero.Equip.Sub-Sect.
Proc.Div.,WF
(File: Contract Files)

Contract ac-6264 with Gallowhur for solar stills was being held up pending approval of contractor's financial condition by Fiscal Br., Proc. Div. (WF). Gallowhur showed a deficit in net working capital of $317,000.00 as of 30 June 1944. Contributing primarily to this deficit was a renegotiation refund of $ 174,000.00 and federal income taxes amounting to $ 180,000. Fiscal Br. felt that the contractor's financial standing was such that amounts advanced might not be recouped and, therefore, approval could not be given the award on a sound financial basis. During a meeting held 12 Dec. 1944, Prod. Sect. (WF) advised that procurement of solar stills would probably run to approximately one million items. Gallowhur had been the sole source but Patents and Royalties Br. (WF) stated drawings on the stills could be released for the purpose of obtaining additional sources as soon as letter contract ac-6264 was approved inasmuch as it contained necessary license right forms. In view of these facts, Fiscal Br. would, subject to the approval of Chief, Proc. Div. (WF) authorize advance payments of 40 to 50% to Gallowhur. Eastern District, New York, N.Y. would be notified to give the Gallowhur. account careful supervision. Ability of Gallowhur to fully perform subject contract was doubtful and additional sources should be investigated immediately.

120. (U) 2nd. Wrapper Ind.
18 Dec.1944
Fr: Col.H.A.Shepard
Acting Chief,Prod.Sect.
WF
To: Chief, Aero.Equip.
Sub-Sect.,Proc.Div.
WF
(File: Contract Files)

Prod. Sect. (WF) concurred in the recommendation contained in 1st. Ind. from Col. Scarff, Proc. Exec., Prod. Sect. (WF). Therefore necessary action should be taken to provide for advance payments of 40 to 50% to Gallowhur on contract ac-6264. Col. Scarff had pointed out that although subject company was over extended, it was thought to be entirely solvent.

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121. (U) Ltr. 15 Dec.1944
Fr: Gallowhur Chemical Corp.
To: E.S.Fetcher,Jr.
Survival Unit
Pers.Equip.Lab.,WF
(File:Survival Unit
Pers.Equip.Lab.)

In reply to the invitation of ATSC (WF) to submit latest solar still models for testing, Gallowhur notified the Command that their new models were not sufficiently developed for service tests but were expected to be available in about thirty days. These new models were expected to provide increased production of water and yet be packed in a smaller container. Subject company could not supply the 6 production models requested by Pers. Equip. Lab. (WF) on 25 Nov. until the latter part of January 1945 as sufficient materials had not been received and production molds, jigs and fixtures were not complete and set up.

122. (U) Ltr. 15 Dec.1944
Fr: A.J.Higgins, Pres.
Higgins Industries,Inc.
To: Lt.Col.J.B.Martin
ATSC Liaison Officer
Eglin Field, Fla.
(File: Survival Unit
Pers.Equip.Lab.)

Mr. Higgins wrote Col. Martin ATSC Liaison Officer, Eglin Field, Fla. pointing our that the research, development and manufacturing costs on the solar still had amounted to more than $ 100,000.00. He stated that this could be considered cheap if these stills " ever got in use"; however, "it is damn aggravating to know that we have had this still developed for such a long time" and then to hear of men dying for want of drinking water. He vigorously protested against the waste of time and money and stated that unless a decision was made soon the subject company would terminate all work on the stills, discontinuing the expense "as being frivolous thing" Mr. Higgins stated that for 6 months he had been hearing there were to be some final tests "in the next thirty days" and he inquired whether any conclusion had been reached regarding final tests.

123. (U) Ltr. 23 Dec.1944
Fr: Lt.Col.J.B.Martin
ATSC Liaison Officer
Eglin Field, Fla.
To: A.J.Higgins
Higgins Industries, Inc.
(File:Survival Unit
Pers.Equip.Lab.)

In reply to above letter, Col. Martin indicated that, after investigating testing plans for the improved solar still, it appeared Pers. Equip. Lab.,WF would test some features of the Higgins #8 still. Following completion of WF tests, the AAF Board at Orlando, Fla. would be notified and they in turn would notify AAF Proving Ground Command, Eglin Field, Fla. When army agencies were prepared for the tests, all interested companies would then be notified. Col. Martin expected "re-activation of tests on Solar Stills within the next few days".

124. (U) Ltr. Contract
ac-6264
21 Dec.1944
(File: Contract Files)

Letter Contract ac-6264 entered into with Gallowhur and approved 21 Dec. 1944, provided for the procurement of 33,334 solar stills kits at a total estimated cost of $1,222,564.45. Contractor granted patent licensing rights to the government under this Letter Contract.

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125. (U) TG 6 Jan.1945
Fr: Lt.Col.W.C.Warner
Chief,Pers.Equip.Lab.
WF
To: Higgins Industries,Inc.
(File: Survival Unit
Pers.Equip.Lab.)

Pers. Equip.Lab.(WF) requested that Higgins have solar stills at Eglin Field, Fla. for service test by 8 Jan. 1945. A Higgins representative could be present during the first days of tests.

126. (U) R&R-1, 20 Jan.1945
Fr: Maj.F.R.Clarkson
Chief,Misc.Br.,Prod.Sect.
WF
To: Chief,Prod.Sect.,WF
(File: Aero-Equip.Sub-
Section,Prod.Sect.)

Maj. Clarkson, Chief,Misc.Br.,Prod.Sect.(WF) stated that, in accordance with verbal instructions on 20 Jan. 1945 from Col.D.C.Swatland,Dep.Chief,Proc.Div.(WF), procurement action on new AFP 411648 was being withheld until a report was received on tests of the Higgins still. This AFP covered total present requirements and provided for purchase of 347,678 kits of 3 stills each, to be made in accordance with specifications for the Gallowhur still. Invitations to bid on this procurement had been mailed on 19 Jan.1945 to 21 recommended sources.

127. (U) Ltr.24 Jan.1945
Fr: Lt.Col.H.Y.Smith
Chief,Eng.Standards
Service Eng.Sect.,WF
To: Lt.Col.J.M.Roth
Equip.Sect.
AAF Board
Orlando, Fla.
(File: Central Files)

Engineering Standards, Eng.Div.(WF) supplied AAF Board, Orlando, Fla. with further information regarding Higgins stills. Construction of the new still was lighter and and simpler, allowing a packed bulk of 50 to 55 cubic inches instead of 180 cubic inches for earlier models. This reduction in bulk brought these stills within the usable range, especially since the yield was expected to be 25 to 50% greater than the Gallowhur still. Certain minor faults of the service test models received at WF were listed. Manufacturer had been advised of these and correction might have been accomplished before models were forwarded to Eglin Field, Fla. WF had made "every effort" to provide production models of Gallowhur stills for subject test but these were not available.

128. (U) R&R-1, 6 Feb.1945
Fr: Lt.Col.O.E.Mohler
Chief,Aero.Equip.Sub-Sect.
Prod.Sect.,WF
To: Maj.F.R.Clarkson
Chief,Misc.Br.,Prod.
Sect.,WF
(File: Aero-Equip.
Sub-Sect.,Prod.Sect.)

In view of the information contained in R&R, dated 20 Jan.1945, from Maj. Clarkson, Col. Mohler, Chief, Aero-Equip.Sub-Sect.,Prod.Sect.(WF) requested that any further information or recommendations concerning the delay in the procurement of stills be submitted to him. Maj. Clarkson replied by comment 2. dated 10 Feb. and stated that tests on the Higgins still, in process at Eglin Field, were expected to be completed within 20 days. He recommended that at least half the procurement on AFP 411648 be placed for the Gallowhur still as soon as sources other than Gallowhur were established since the time element involved in testing of the Higgins still was indefinite.

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If the Higgins still was approved the remainder of procurement could be placed for this still, and if this still proved superior to Gallowhur still, it would be possible to convert contracts already placed for Gallowhur type to the Higgins still.

129. (U) R&R-3, 12 Feb. 1945
Fr: Lt. Col. O. E. Mohler, Chief, Aero-Equip. Sub-Sect., Prod. Sect., WF
To: Maj. R. R. Clarkson, Chief, Misc. Br., Prod. Sect., WF
(File: Aero. Equip. Sub-Sect., Prod. Sect.)

Colonel Mohler stated that he had discussed the partial release of procurement of stills on AFP 411648 with Colonel Swatland, and it was agreed that a part of the procurement should be placed. Both offices considered it desirable to withhold procurement on a reasonable quantity pending results of tests on the Higgins still.

130. (U) Ltr., 12 Feb. 1945
Fr: Lt. Col. H. Y. Smith, Chief, Eng. Standards Service, Eng. Sect., WF
To: Proof Div., AAF Proving Ground Command, Eglin Field, Fla.
(File: Central Files)

The Test Officer from AAF Proving Ground Command, Eglin Field, Fla. had consulted with interested parties at WF concerning the tests of the Higgins still. At time of re-activation of tests on solar stills, WF personnel expected to have complete production models of Gallowhur still to be used as a basis of comparison with Higgins still. Gallowhur production models were not available, and as a substitute older, hand-made samples were to be used. Few of these older stills were available, and testing personnel desired a more fully developed still; therefore, six Gallowhur stills were procured from the Navy to meet the emergency. The Navy still differed in some respects from the AAF specifications, and these differences were listed. In the case of these service tests, the Higgins experimental still was being compared with an approved still, purpose being to determine whether the experimental still was superior to the present standard. Decision reached by AAF Proving Ground Command and by higher echelons would determine relative numbers of each type to be procured.

131. (U) TT, 21 Feb. 1945
Fr: AAF Proving Ground Command, Eglin Field, Fla.
To: Eng. Div., ATSC, WF
(File: Survival Unit Pers. Equip. Lab.)

Summary of tests on Higgins and Gallowhur stills indicated that Higgins still produced 2.5 times as much potable water per unit. Further, the Higgins still was simpler to keep in operation; therefore, this still was considered suitable for use on basis of one still per man for life rafts. By attached ICM, 26 Feb., Airc. & Phys. Req. Subdiv., Eng. Div. (WF), advised that the Higgins still had been approved from an engineering standpoint.

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132. (U) Minutes 24 Feb. 1945
GFE Committee Meeting
(File: Aero. Equip. Sub-Sect. Prod. Sect.)

Minutes of a GFE Committee Meeting disclosed that in response to 29 invitations to bid on AFP 411648, four bids were received (1) Gallowhur Chemical Corp.. (2) Robert Vincent, Inc., N.Y., N.Y. (3) S. Buchsbaum & Co. Chicago, Ill. (4) Watertight Slide Fastener Corp., N.Y., N.Y. Gallowhur bid was not considered for recommendation of award in view of company's poor financial condition and their inability to deliver until Sept. 1945. Awards were recommended as follows: 50,000 kits to S. Buchsbaum & Co., 50,000 kits to Watertight Slide Fastener Co. This would leave a quantity of 247,678 kits unprocured on AFP 411648.

133. (U) Routing Slip, 3 March 1945
Fr: Lt. Col. C. E. Mohler
Chief, Aero. Equip. Sub-Sect., Prod. Sect., WF
To: Lt. Col. R. B. Clevering
Exec. for Prod. Control
Prod. Sect., WF
(File: Aero. Equip. Sub-Sect. Prod. Sect.)

Informal reports from Eglin Field, following completion of tests, had indicated that the Higgins still was a better piece of equipment than Gallowhur. As soon as Pers. Equip. Lab. (WF) had received reports from Eglin Field, the Higgins still would be released for production. Approval of this item should be accomplished during March 1945.

134. (U) Ltr., 12 Mar. 1945
Fr: Lt. Col. W. C. Warner,
Chief, Pers. Equip. Lab.,
Eng. Div., WF
To: Higgins Industries, Inc.,
New Orleans, La.,
Attn: Mr. A. E. Ushakoff
(File: Sea Survival Unit,
Pers. Equip. Lab.)

Pers. Equip. Lab., Eng. Div. (WF), wrote Higgins asking whether that company was interested in conducting further development of solar stills with ATSC help. If so, proposed course of development, physical and structural characteristics of proposed stills, and estimate of unit cost on basis of 20 experimental stills were to be submitted to ATSC. Proprietary information would be confidential with respect to other manufacturers unless permission was given to disclose it. [Identical letter sent to Gallowhur Chem. Corp. on same date.]

135. (U) Ltr., 14 Mar. 1945
Fr: Lt. Col. W. C. Warner,
Chief, Pers. Equip. Lab.,
Eng. Div., WF
To: Higgins Industries, Inc.,
New Orleans, La.,
Attn: Mr. A. E. Ushakoff
(File: Sea Survival Unit,
Pers. Equip. Lab.)

At a solar still conference held in New Orleans on 6 and 7 Mar., an ATSC representative stated "it is the policy of the Command to coordinate requirements and tests for new equipment with organizations concerned with development of that equipment and potential manufacturers of it." The only directive received by ATSC had been for procurement of the LL-1 type sea water distillation kit; however, there was a possibility that if the Higgins still was selected, procurement could be expedited by present coordination of the still's requirements and tests. Higgins' representatives suggested that their company would want

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to control quality of stills made by other manufacturers, but it was pointed out that the procuring agency would be responsible for such control.

136. (U) Ltr., 16 Mar. 1945
Fr: Col. D. C. Doubleday, Chief, Eng. Br., M&S, Wash.
To: Dir., ATSC, WF, Attn: Chief of Admin.
(File: Historical Office)

Teletype containing Eglin Field conclusions and recommendations after testing the vinylite bag type solar still was attached to letter from Eng. Br. (Wash.) to Chief of Admin. (WF). Wash. approved the conclusions and recommendations in part. Instead of 6 stills, 12 desalting kits, and 1 rain catching device per each multiplace raft, there would be 6 Higgins stills, 6 desalting kits, 1 rain catching device, and 1 can of water; the can of water would be removed, if space became critical, to compensate for the 26 inches of additional space needed by the Higgins still. In one-man rafts, one solar still and one desalting kit would be installed, if feasible; otherwise, the still would be omitted until the raft was redesigned to accommodate all standard equipment. Attached teletype, 15 March, directed WF to standardize the Higgins still and to place the Gallowhur still in substandard classification.

137. (U) IOM, 20 Mar. 1945
Prepared by: Test Control Br., Pers. Equip. Lab., WF
To: Emergency Rescue Br., Pers. Equip. Lab., WF, Attn: Dr. E. S. Fetcher
(File: Sea Survival Unit, Pers. Equip. Lab.)

Gallowhur had submitted three type LL-1 sea water distillation kits and one still without accessories which were tested to determine (1) effect of exposure to various temperatures, (2) amount of air leakage, (3) tensile strength of plastic, tow tabs, and seams, (4) rate of distillation and palatability of water, (5) weight of assembly, (6) capacity of reservoir to trap, and (7) function of outlet tube, spring clamp, and mending tape. Data obtained on each of above were given. With exception of two stills having too many patches and too large tears and the objectionable taste of the distilled water, it was concluded that the tested articles complied with AAF Specification 40897.

138. (U) RAR-1, 20 Mar. 1945
Fr: Lt. Col. W. G. Warner, Chief, Pers. Equip. Lab., Eng. Div., WF
To: Misc. Br., Aero. Equip. Sub-Sect., Proc. Div., WF
(File: Contract Files)

After inspection of first seven solar stills, Pers. Equip. Lab. (WF) granted approval for production release, provided the manufacturer and AAF Inspector took precautions to correct the listed failures, and then submitted four complete kits for final approval.

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139. (U) Ltr., 26 Mar. 1945
Fr: Higgins Industries, Inc., New Orleans, La.
To: Proc. Div., ATSC, WF, Attn: Contr. Officer
(File: Sea Survival Unit, Pers. Equip. Lab.)

Higgins requested modification of P. O. 45-1547-E to cover delivery of 21 stills over and above the number (15) on original contract. Since the contract price for first 15 was $60 each, the cost increase would amount to $1,260 for the additional 21 stills. The additional units had been requested by AAF representatives because the original quantity was inadequate for all test requirements. Proc. Div. (WF) referred the request of Higgins to Pers. Equip. Lab. (WF) for action. By Comment #2 dated 20 April, Pers. Equip. Lab. stated that up to 23 Dec., nine Higgins stills had been accepted, and these, plus six to be delivered to Eglin Field for service tests, completed the original contract. It was pointed out that no direct request had been made for the 25 stills received at Eglin Field; part of those had been unsatisfactory and were returned to Higgins for reworking. Pers. Equip. Lab. had initiated an AFP for 18 stills instead of 21 because two of those delivered had been inoperable and a third had never been returned from Higgins. The additional stills were being purchased by the Govt. because only those samples owned by the Govt. could be used as basis of information to possible production sources--approximately 35 manufacturers would be invited to submit bids for solar stills.

140. (U) Ltr., 29 Mar. 1945
Fr: Maj. F. W. Dunn, Dist. Financial Officer, Eastern Dist., New York, N. Y.
To: Dir., ATSC, WF, Attn: Fiscal Br., Services Sub-Sect., Proc. Div.
(File: Contract Files)

ATSC was notified that solar still prototypes had been approved and that there were 10,000 units ready for delivery as soon as containers were available. Shipments were expected to start within a month.

141. (U) Memo. Rpt., 30 March 1945
(File: Misc. Br., Aero. Equip. Sub-Sect.)

The procurement of type LL-2 sea water distillation kits was subject of a conference held 23-25 March at Higgins plant in New Orleans. The extent of facilities to get Higgins into production, manpower, time required for quantity production, and tentative deliveries were all discussed. It was believed that the production of 4,000 stills a day was an optimistic estimate. Higgins expected to start deliveries within four months after a contract was received; all required stills would be delivered in a little over a year, provided schedule of 250 kits a day for first month, 750 a day for second month, 1,500 a day the third month, 3,500 a day the fourth month, and 4,000

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a day from fifth month on was met. Higgins facilities list, which called for no subcontracting, was considered by WF Resources Control Sect. representatives; they succeeded in reducing the $1,500,000 worth of facilities requested by Higgins to $600,000 by eliminating the cost of injection molding and fabric sewing machines which subcontractors already owned. By verbal agreement, Patent Royalties Office secured full patent rights for the still; therefore, the Buchsbaum and Water tight contracts, each for 50,000 Gallowhur stills, could be converted to the Higgins type. Gallowhur would continue manufacture of their own type still for use during time that Higgins, Water tight, and Buchsbaum were getting into production.

142. (U) RAR-1, 5 Apr. 1945
Fr: 1st Lt. T. H. Lehman, Chief, Drop Tank Unit, Misc. Br., Prod. Sect., WF
To: Misc. Br., Prod. Sect., WF
(File: Contract Files)

Chief, Drop Tank Unit, Misc. Br. (WF), reported that Add. #21 to TI-2022 directed standardisation of the Higgins Model 26 solar still and reduction of Gallowhur still to limited standard classification. The remainder of contract AC-11407 (247,678 stills) were to be converted from Gallowhur to Higgins kits.

143. (U) Ltr., 6 Apr. 1945
Fr: Mr. P. O. Higgins, Vice Pres. & Gen. Mgr. of Higgins Plastics Corps., New Orleans, La.
To: Dir., ATSC, WF, Attn: Maj. R. R. Clarkson, Prod. Sect.
(File: Historical Office)

Higgins submitted their proposal to manufacture and deliver to AAF 750,000 solar stills at rate of 4,000 a day at a total cost of $9,068,125.50 ($12.09 each) plus $679,584 tooling costs. The above estimate was made without volume production experience, so Higgins suggested that a clause providing for upward or downward retroactive price adjustment based on actual performance costs be inserted when and if a contract for the above stills was written.

144. (U) Ltr., 10 Apr. 1945
Fr: Gallowhur Chem. Corp., Windsor, Vt.
To: AAF Hq., ATSC, WF, Attn: Lt. Col. W. C. Warner, Chief, Pers. Equip. Lab., Eng. Div.
(File: Sea Survival Unit, Pers. Equip. Lab.)

Gallowhur advised Pers. Equip. Lab. (WF) that they were interested in further research and development on solar stills for life rafts. Details of proposed course of development, were to be forwarded to ATSC within a few days.

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145. (U) Ltr., 12 Apr. 1945
Fr: 1st Lt. J. E. Kennedy, Contr. Officer, WF
To: B. F. Goodrich Co., Akron, Ohio
Attn: Mr. N. P. Singleton
(File: Central Files)

WF Contr. Officer informed Goodrich Co. (Akron) that Model B-6 solar stills were not sub-standard with AAF and that no further procurement was to be made. The standard still was a new one developed by Higgins.

146. (U) RAR-1, 12 Apr. 1945
Fr: Col. J. C. Burton, Chief, Patents & Royalties Sect., Judge Advocate's Office, WF
To: Misc. Br., Aero. Equip. Sub-Sect., WF
Attn: Maj. R. R. Clarkson
(File: Misc. Br., Aero. Equip. Sub-Sect.)

In answer to Major R. R. Clarkson's request, the Judge Advocate's Office (WF) prepared a resume of the solar still patent situation. It was pointed out that Judge Advocate's Office intended to recommend provisions protecting Govt. interests; however, the matter of patents was not to stand in the way of expeditious procurement of solar stills. In explaining the involved patent situation, it was stated that there had been a number of related patents, but many had become public property through expiration. Govt. had sponsored OSRD solar still development and purchased both Higgins and Gallowhur stills. All three of the mentioned solar stills were similarly constructed. There was some question as to whether Govt. was indebted to Messrs. Delano and Miller of the Gallowhur Co. for patent royalties. A Higgins employee, who was credited with development of a solar still, had disagreed with Higgins about patent royalties; the employee's discharge from Higgins and resignation of most of technical staff were believed to be result of the disagreement. Higgins had asked for $680,000 worth of equipment for manufacture of the stills, but other companies were in a position to manufacture the same type with existing equipment. Judge Advocate's Office said care should be taken to keep information which, through agreement, was not to be disclosed.

147. (U) Memo. Rpt., (Approx. 15) Apr. 1945
(File: Misc. Br., Aero. Equip. Sub-Sect.)

Representatives of WF, Midcentral Proc. Dist., S. Buchsbaum Co., Batavia Metal Prod. Co., Cruver Mfg. Co., Parfait Powder Puff Co., and DuPage Plastics Co. conferred concerning procurement of sea water distillation kits. Buchsbaum had contract for 50,000 Gallowhur stills which were to be converted to the standardized Higgins type. The company planned to manufacture one still by its newly developed process known as Vinyl Dip method and another by an experimental method also developed by Buchsbaum; both were expected to be ready for WF approval by 23 April 1945. Several other concerns had been contacted as possible sources of Higgins type stills. Both Cruver and Batavia Metal

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felt they could handle the job and were interested in an opportunity to bid; DuPage was interested but did not have necessary personnel and floor space to handle the job.

148. (U) Ltr., 24 Apr. 1945
Fr: (Lt. T. H. Lehman, Misc. Br., Aero. Equip. Sub-Sect., WF)
To: CG, AAF, Wash., Attn: Chief, Eng. Br., Mat. Div., MAS
(File: Sea Survival Unit, Pers. Equip. Lab.)

Gallowhur had contract for 33,334 solar stills at time that type (LL-1) was relegated to limited standard classification and Higgins still was standardized. While other sources were getting into production of the Higgins still, it was decided to accept all the Gallowhur stills then on order for using agencies. The Buchsbaum and Watertight companies each had a contract for 50,000 Gallowhur type stills, but neither contractor had yet started procurement of raw materials so the contracts could be easily converted to procurement of the standard type still. The patent situation presented a difficult problem; so a survey was being made to determine to whom the patents belonged. However, this situation was not to interfere with procurement of vital equipment. Due to the extensive facilities required, loss of engineering personnel, and lack of experience with vinyl film fabrication at Higgins, it was decided to place contracts for 247,678 kits on basis of competitive bidding; an intensive search for potential manufacturers of the stills had been conducted.

149. (U) Ltr., 30 Apr. 1945
Fr: Col. R. W. Propst, Chief, Pers. Equip. Lab., Eng. Div., WF
To: Gallowhur Chem. Corp., New York, N. Y., Attn: Mr. Bage
(File: Sea Survival Unit, Pers. Equip. Lab.)

Gallowhur was advised that tests of stills were official service tests. Originally, the tests were to be made to compare experimental articles with AAF approved or standard stills. In Dec. 1944, it was reported that production models would be ready the last of Jan. 1945. Initial tests were discounted because there were only several models similar to Serial No. 127 and few of the double sponge type available on date tests were scheduled; Navy stills delivered 2 Feb. were tested from 8 to 13 Feb. with average yield of 210 ml. per still for three hours without correction for contamination.

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150. (U) R&R-2, 1 May 1945
Fr: Col. J. C. Burton, Chief, Patents & Royalties Sect., Judge Advocate's Office, WF
To: Emer. Rescue Br., Pers. Equip. Lab., Eng. Div., WF, Attn: Dr. E. S. Fetcher, Jr.
(File: Sea Survival Unit, Pers. Equip. Lab.)

Chief, Patent & Royalties Sect. (WF), suggested that Government-owned drawings of the Higgins solar still be released for standardization purposes. Two reasons for the above action were: (1) The stills were urgently needed, and (2) the existing patent situation was quite confused.

151. (U) Ltr., 10 May 1945
Fr: Higgins Industries, Inc., New Orleans, La.
To: Dir., ATSC, WF
(File: Contract Files)

Higgins explained that their proposal quoted prices only on the three largest production quantities of solar stills because necessary tooling costs, preparation time, and constant rate of delivery would make quotation too high on the lesser increments. Answering question contained in invitation letter, Higgins stated that "the Higgins Solar Still has been designed, engineered and developed on the initiative of this company, patents have been applied for and prices quoted in attached bid do not include any charge for such engineering and development or any royalties or other fees payable by us to others." A new technique to fabricate stills by a simpler method than molding had been developed by Higgins; the method produced stills with performance superior to that of molded types and also required less tooling and fewer facilities and manhours. A new price, $24.33 instead of $39.00 per kit, was submitted. A clause to provide for redetermination of price, based on actual production costs, was requested for incorporation in the contract.

152. (U) Minutes of Meeting, 12 May 1945
(File: Contract Files)

A meeting to discuss procurement of 247,678 type LL-2 sea water distillation kits was held on 12 May 1945 with WF representatives of the GFE Committee, Aero. Equip. Sub-Sect., Fiscal Br., Smaller War Plants, Special Proj. Br., Royalty Adjustment Bd., Mfg. Methods Br., Pers. Equip. Lab., and Fac. Eng. Br. in attendance. It was pointed out that Thermold Corp. (New Orleans), Horni Signal Mfg. Co. (New York), Higgins Industries (New Orleans), Gruver Mfg. Co. (Chicago), Gemloid Corp. (New York), Batavia Metal Prod. Co. (Chicago), and DuPage Plastics Co. (Chicago) were the only seven bids received in response to 22 invitations sent out. It was decided that contracts should be placed with Higgins for 172,678 kits ($26.07 each), plus facilities, in total amount of

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$4,501,715.46, subject to redetermination, and with DuPage for 75,000 kits ($37.16 each) for total amount of $2,787,000, also subject to redetermination. Reasons for rejecting the other five bids were given. The four solar still sources--DuPage, Higgins, Buchsbaum (50,000 kits), and Watertight (50,000 kits)--were believed to be adequate to cover Army, Navy, and British needs.

153. (U) RAR-2, 17 May 1945
Fr: Maj. R. R. Clarkson, Chief, Misc. Br., Prod. Sect., WF
To: Chief, Fiscal Br., Prod. Sect., WF
(File: Contract Files)

Chief, Misc. Br., Prod. Sect. (WF), replied to Fiscal Br., Prod. Sect., inquiry by stating that Gallowhur solar stills on Contract W33-038 ac-6264 were urgently required by AAF.

154. (U) Ltr., 20 May 1945
Fr: Mrs. Kathryn G. Amos, New Orleans, La.
To: Maj. Gen. K. B. Wolfe, [Chief, Eng. & Proc.] WF
(File: Historical Office)

Mrs. K. G. Amos, a resident of New Orleans, wrote Maj. Gen. K. B. Wolfe, Chief, Eng. & Proc. (WF), asking that an investigation be made to determine whether Higgins could produce, without delay, the solar stills so vitally needed by our men stranded on life rafts. Mrs. Amos cited five instances in which contracts had been cancelled due to failure of Higgins to produce; she felt the same thing would happen with the solar still contract because Higgins did not have the necessary technicians for the job since Dr. Ushakoff's discharge and resignations of other technicians acquainted with the project. General Wolfe acknowledged the above letter and then thanked Mrs. Amos for her interest in the project.

155. (U) Ltr., 21 May 1945
Fr: 1st Lt. L. A. Landeau, Asst. Dist. Financial Officer, Eastern Dist., New York, N.Y.
To: Dir., ATSC, WF, Attn: Chief, Fiscal Br., Proc. Div.
(File: Contract Files)

The Gallowhur plant was visited to find out why solar still deliveries were delayed. It was found that 15,000 units were awaiting AAF inspection. Stills for the Army were being produced at rate of 320 a day, with contemplated rate of 1,000 per day by last of June. The packaging difficulty had been overcome, but air tests presented quite a problem. A delivery of 15,000 per month would probably be attained from June on; payments for those stills into a special account would cover working capital requirements of Contract W33-038 ac-6264.

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156. (U) TT, 25 May 1945
Fr: Col. H. A. Shepard, Actg. Chief, Prod. Sect., Proc. Div., WF
To: CG, ATSC Midwestern Dist., Wichita, Kans.
(File: Contract Files)

Prod. Sect. (WF) advised Midwestern Dist. (Wichita) that "Increased tempo of war in the Pacific necessitates accelerating to the utmost deliveries of seawater distillation kits on subject contract (AS-11407)." Prod. Sect. asked that every effort be made to expedite the solar still production at Higgins.

157. (U) Ltr., 1 June 1945
Fr: A. J. Higgins, Pres., Higgins Industries, Inc., New Orleans, La.
To: Brig. Gen. F. H. Hopkins, Jr., Chief, Resources Div., MAS, Wash.
(File: AC/AS-4)

Higgins wrote Chief, Resources Div. (Wash.), to report the successful use of their airborne life boat in the Adriatic. While discussing the rescue business Higgins stated: "We are gratified that after two years, the 'powers that be' at Wright Field have awarded us a contract for what is a considerable number of the water purification plants, that is, the solar still we will make up in a small pack." He expressed a desire to produce and supply enough solar stills in time to save the lives of some of our men.

158. (U) Ltr. (1 June 1945)
Fr: Maj. Gen. K. B. Wolfe, Chief, Eng. & Proc., WF
To: Dr. A. E. Ushakoff, New Orleans, La.
(File: Sea Survival Unit, Pers. Equip. Lab.)

In reply to attached letter dated 19 May from Dr. Ushakoff, General Wolfe, Chief, Eng. & Proc. (WF), stated that ability to produce was not the only factor considered in placing the solar still contract. Reasons for rejection of the Thermold Corp. bid were as follows: (1) The company was unable to produce the stills without a VT loan ($750,000) and an advance payment ($475,000); (2) the plant was located in a Group I labor area,; and (3) their bid was higher than that of other bidders. General Wolfe stated that evidently Dr. Ushakoff misunderstood origin of the still and purpose of AAF Specification 40957. He was of the opinion that awarding the solar still contract to Higgins was to the best interests of the Govt.

159. (U) Ltr., 11 June 1945
Fr: Dr. A. E. Ushakoff, New Orleans, La.
To: Maj. Gen. K. B. Wolfe, Chief, Eng. & Proc., WF
(File: Central Files)

Dr. Ushakoff wrote General Wolfe, Chief, Eng. & Proc. (WF), that he didn't think Higgins was capable of producing AL-2 type stills in quantities, or in the quality desired by AAF. He said that final cost for number of units produced at time needed would determine whether factors were properly weighed at time contracts were awarded. Dr. Ushakoff explained his connection with the solar still development and offered to assist the Govt. in any way possible.

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160. (U) Rpt. of Visit to Higgins Plant in New Orleans, La., 11 June 1945
(File: Sea Survival Unit, Pers. Equip. Lab.)

Prod. Supvr., Resources Control Sect. (WF), travelled to the Higgins plant in New Orleans to discuss the facilities necessary for solar still production. After careful study of the whole situation, it was concluded that a big saving would result if manufacturing methods were changed and production area was relocated in another part of the plant. Use of available DPC equipment would also be much cheaper than new equipment. Higgins agreed to the recommendation to reduce total cost of facilities from $385,720.07 to $219,572.08.

161. (U) Rpt., 15 June 1945
By: 1st Lt. T. H. Lehman, Misc. Br., Proc. Div., WF
(File: Misc. Br., Aero. Equip. Sub-Sect.)

A solar still conference attended by Higgins and WF personnel was held in New Orleans. Subjects discussed were Higgins' request to deviate from AAF Specification 40957, facilities requested by the contractor, and proposed production. It seems that Higgins made above requests because they had changed method of manufacture of stills from molded type to one fabricated from Vinylite Film stock; the facilities were reviewed, and WF decided the list was excessive, particularly since manufacturing method had been changed; Higgins' original production estimate of 21,000 stills per month was unrealistic and could not be met. Higgins was directed to remedy the above situations immediately.

162. (R) Ltr., 19 June 1945
Fr: Brig. Gen. D. C. Swatland, Chief, Prod. Div., WF
To: CG, AAF, Wash., Attn: AC/AS, M&S, Resources Div.
(File: Contract Files)

Proc. Div. (WF) advised Resources Div., M&S (Wash.), that facilities in amount of $258,456 were required in order that Higgins could produce the 172,678 solar stills on contract. Funds in DPC lease agreement, Plancor 1569, were to be used for above purpose. Since Higgins solar still was the best type available, and the company had engineering "know-how" and available manufacturing space, it was proposed that Higgins undertake the solar still production. After careful consideration from all angles, Proc. Div. recommended that all agencies concerned approve use of $258,456 available funds to expand Higgins for production of solar stills.

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163. (U) Ltr., 29 June 1945
Fr: Col. P. H. Kemmer, Chief, Airc. & Phys. Req. Subdivision, Eng. Div., WF
To: CG, AAF, Wash., Attn: AC/AS, OC&R, Thru: AC/AS, M&S
(File: AC/AS-4)

Airc. & Phys. Req. Subdivision (WF) advised both OC&R and M&S (Wash.) of general policy in regard to water supplies for those stranded on life rafts. It was stated that (1) sea water desalting of kit JJ-1 should be provided as an expendable source of water; one kit would yield 7.5 times as much water as was contained in an emergency drinking water can; (2) a sea water distillation kit with a yield of one to two pints of water per sunshiny day should be provided as a non-expendable source; (3) rain water should be collected by means of paulin, then stored in containers provided for that purpose; and (4) a can of emergency drinking water should be carried for immediate use of injured personnel.

164. (U) TT, 2 Aug. 1945
Fr: Col. H. A. Shepard, Chief, Prod. Sect., WF
To: CG, ATSC Eastern Dist., New York, N. Y., Attn: Lt. Weinstein, Prod. Sect.
(File: Contract Files)

Prod. Sect. (WF) was disturbed over Gallowhur's constant failure to meet estimated solar still production. July production had been estimated at 6,000; however, only 2,340 (672 less than June) were shipped that month. Prod. Sect. stated: "These items are urgently needed for immediate use in the Pacific Area." A survey of estimated production and a realistic schedule of delivery were requested. ATSC Eastern Dist. (New York) replied that Gallowhur's failure to deliver was because the stills did not meet specifications, and AAF inspection rejected many of the articles. No realistic delivery schedule could be given at that time.

165. (U) Ltr., 3 Aug. 1945
Fr: Maj. C. W. Happ, Regional Contr. Officer, Central Dist., Chicago, Ill.
To: CG, ATSC, WF, Attn: Misc. Br., Prod. Sect., Proc. Div.
(File: Contract Files)

A major design change took place when solar stills were converted from the LL-1 to the LL-2 types. The Purchase Inspector, after study of original design and its changes, considered the increase in unit price from $34.89 to $41.31 fair and reasonable. This made cost of the 50,000 units under procurement at Buchsbaum rise to $321,000 over the old price. By 1st Ind., Prod. Sect. (WF) thought the quoted price too high in comparison with other contractors' prices for the same equipment. They suggested that Buchsbaum submit a new quotation. By 2nd Ind. dated 17 Sept., Contr. Officer of the Central Dist. (Chicago) said redetermination clause would take care of reduction of the unit cost. It was stated that no solar stills had been produced at time of contract's termination on 15 Aug. 1945.

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166. (U) R&R-1, 13 Aug. 1945
Fr: Col. M. L. Haskin, Chief, Pers. Equip. Lab., Eng. Div., WF
To: Misc. Br., Aero. Equip. Sub-Sect., Proc. Div., WF, Attn: Lt. T. H. Lehman
(File: Sea Survival Unit, Pers. Equip. Lab.)

Misc. Br., Proc. Div. (WF), was informed that poor workmanship had always been a source of trouble at Gallowhur; the specification had been written with that in mind. Inspection trouble had also occurred in the plant where strictest control should have been maintained. Pers. Equip. Lab. (WF) felt they could not recommend acceptance of 7,500 stills which violated specifications, yet there was a possibility that most of the stills would be functional, and because of urgent need for that type of equipment, the Lab. didn't want to recommend non-acceptance of the items. The production and distribution picture would determine whether or not the stills would be accepted. It was pointed out that the Govt. should get a discount if the stills were accepted.

167. (U) R&R-1, 27 Aug. 1945
Fr: Lt. Col. J. T. Prentice, Chief, Misc. Br., Prod. Sect., WF
To: Lt. Col. Cunningham, Exec. for Proc., Prod. Sect., WF
(File: Contract Files)

Chief, Misc. Br. (WF), notified Exec. for Proc., Prod. Sect. (WF), that about 6,000 solar stills had been delivered before contract ac-6264 was terminated. No deliveries had been made on the Higgins contract ac-11407, Buchsbaum contract ac-9132, Watertight contract ac-9800, and DuPage contract ac-11412 at time they were terminated.

168. (U) Rpt., 18 Sept. 1945
Prepared by: Capt. T. H. Lehman, Misc. Br., Proc. Div., WF
(File: Historical Office)

Captain T. H. Lehman, Misc. Br., Proc. Div. (WF), prepared a case history summarizing procurement of the sea water desalting kits and sea water distillation kits, types LL-1 and LL-2. Contracts for the solar stills had been placed in the specified quantities as follows:

Gallowhur Chem. Corp.	33,334
Watertight Slide Fastener Co.	50,000
S. Buchsbaum & Co.	50,000
Higgins Industries, Inc.	172,678
DuPage Plastics Co.	75,000

Gallowhur was to continue making the LL-1 type until the LL-2 type manufactured by the other companies became available. Gallowhur shipped 6,146 kits before contract was terminated at end of war; other companies had shipped only first articles at that time.

169. (U) Memo. Rpt., TSEAL-5E3-10-383, 22 Oct. 1945
(File: Sea Survival Unit, Pers. Equip. Lab.)

Memo. Rpt., TSEAL-5E3-10-383, prepared by Dr. E. S. Fetcher of Pers. Equip. Lab. (WF), suggested changes which would either improve operation of the type LL-2 sea water distillation kit or make easier its manufacture.

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170. (U) Ltr., 27 Oct. 1945
Fr: Col. M. L. Haskin, Chief, Pers. Equip. Lab., Eng. Div., WF
To: S. Buchsbaum & Co., Chicago, Ill.
(File: Central Files)

In answer to Buchsbaum's inquiry about tests of their sample solar stills, Pers. Equip. Lab. (WF) wrote that one still was not usable and another had to be repaired prior to tests. The two stills tested produced suitable water, and the salt water reservoir could be drained at satisfactory rate; however, the following unsatisfactory conditions existed: (1) The envelope material was too soft and did not compare with Bakelite VU-1900. (2) The equatorial diameter of the still was greater than the vertical diameter. Such a shape was undesirable. (3) The baffle in sea water reservoir and the reservoir itself were both too thick. (4) The envelope marking was poor, and graduation markings on fresh water reservoir were inaccurate. (5) The Ballast tube capacity was too great. (6) It was difficult to drain fresh water from the still; exact cause was undetermined. (7) The Evaporator cloth not sufficiently wettable. (8) The distilled water was not acceptable due to its strong plastic taste. (9) The Quality of workmanship was too low to be acceptable. One point in favor of the Buchsbaum still was that the envelope was not as clouded when water vapor condensed as was that of stills submitted by other manufacturers.

171. (U) R&R-2, 14 Nov. 1945
Fr: 1st Lt. J. J. Meyer, Chief, Misc. Unit, Misc. Br., Prod. Sect., Proc. Div., WF
To: Misc. Br., Prod. Sect., Proc. Div., WF
(File: Contract Files)

Misc. Br., Prod. Sect. (WF), stated there was an urgent need for solar stills; therefore, it was requested that action be taken to reinstate, or reprocure, 26,460 of those items.

172. (U) TT, 15 Nov. 1945
Fr: Capt. C. Randall Jones, Jr., Contr. Officer, WF
To: Higgins Industries, Inc., New Orleans, La., Attn: Mr. A. J. Higgins, Jr.
(File: Contract Files)

WF Contr. Officer wired Higgins to find out whether contract for procurement of 25,000 type LL-2 stills could be reinstated at no cost to the Govt. Higgins replied, by attached teletype dated 16 Nov., that they could not accept any new business at that time but that their subsidiary would accept a contract for the 25,000 stills. Then Higgins Plastics Corp., the subsidiary, advised Central Dist. (Chicago) that it was not interested in the new procurement nor in retaining the special solar still tooling then on hand at their plant.

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173. (U) TT, 21 Nov. 1945
Fr: 1st Lt. H. H. O'Connor, Contr. Officer, WF
To: Higgins Industries, Inc., New Orleans, La., Attn: Mr. A. J. Higgins, Jr.
(File: Contract Files)

WF Contr. Officer notified Higgins that reinstatement of 25,000 solar stills could not be handled by cancelling claim and applying such costs to reinstated quantity. He suggested that the claim stand as was and a new price be given for the 25,000 stills. He further stated that since original contract was with Higgins Industries, it could not be reinstated with Higgins Plastic Corp.

174. (U) Memo., 10 Dec. 1945
Fr: Maj. F. K. Rhodes, Chief, Misc. Br., Aero. Equip. Sect., WF
(File: Contract Files)

Misc. Br., Aero. Equip. Sect. (WF), recommended reinstatement of 26,460 type LL-2 solar still kits on the Watertight contract, at original price of $36.20 per unit. It was not considered necessary to reinstate the entire 50,000, as the smaller quantity was sufficient and would also help conserve AAF funds. Two other companies, whose solar still contracts had been terminated on VJ-Day, also agreed to reinstatement on following conditions: (1) Higgins asked $36.24 per unit instead of former $23.46. It would be necessary to reinstate Appendix A for facilities and equipment. Higgins would reassign contract to Higgins Plastic because of their own liquidation and wanted their still accepted in its present design. (2) Buchsbaum quoted cost of $46 per unit instead of original $41.31. The fourth solar still manufacturer—DuPage—could not reinstate the Army contract because of new commitments, and because the Navy still contracts required all available facilities until April 1946.

175. (U) TT, 14 Dec. 1945
Fr: H. G. Morner, Pres., Watertight Slide Fastener Corp., New York, N. Y.
To: Proc. Div., WF
(File: Contract Files)

Watertight wired Proc. Div. (WF) that they would accept reinstatement of 26,460 sea water distillation kits on Contract W33-038 ac-9800 at same unit price as originally indicated and at no reinstatement cost to the Govt.

176. (U) Ltr., 15 Feb. 1946
Fr: Lt. Col. P. C. Potenciano, Office of Air Surgeon, Hq. Philippine Air Forces, APO 75
To: Dr. E. S. Fetcher, Sea Survival Unit, Pers. Equip. Lab., WF
(File: Central Files)

Lt. Col. P. C. Potenciano, Philippine Air Forces, requested that Pers. Equip. Lab. (WF) furnish them with six solar stills. On 1 Mar. 1946, Pers. Equip. Lab. informed Colonel Potenciano that the action on his request had been recommended. The LL-1 type still was the only available one at that time, but the improved LL-2 type would be ready in May. WF asked that experiences with subject equipment be reported by the using agency.

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177. (U) Ltr., 3 May 1946
Fr: Mr. J. B. Johnson, Chief, Mat. Lab., Eng. Div., WF
To: Office of Surgeon General, Occupational Health Div., Wash.
(File: Central Files)

A sample of black evaporator cloth, which had been treated with DuPont's Shirlan, was sent from Mat. Lab. (WF) to Office of Surgeon General (Wash.) for tests to determine suitability of the mildew proofing agent with regard to toxicity. The contractor proposed using that particular type cloth on the LL-2 solar still. By 3rd Ind., 18 June 1946, Dir. of Army Industrial Hygiene Lab. (Wash.) stated that it had previously approved the use of salicylanilide (DuPont's Shirlan) for the subject cloth.

178. (U) Ltr., 6 June 1946
Fr: T. H. Orndoff, Contr. Officer, WF
To: Watertight Slide Fastener Corp., New York, N. Y., Attn: Mr. H. G. Morner
(File: Contract Files)

Contr. Officer (WF) asked whether Watertight could meet the delivery schedule for reinstated quantity of solar still kits. Deliveries were to be at rate of 4,500 per month from June through Oct. 1946, and the remainder of 3,960 in Nov. 1946. Watertight advised on 21 June that 1,500 kits could be delivered in July, 2,500 in Aug., 3,000 in Sept., 4,000 each in Oct., Nov., Dec. 1946, and Jan. 1947, and 3,460 in Feb. 1947.

179. (U) Ltr., 8 July 1946
Fr: Watertight Slide Fastener Corp., New York, N. Y.
To: AMC, WF, Attn: Mr. Dan Murphy [Sea Survival Unit, Pers. Equip. Lab.]
(File: Central Files)

In order that production of solar stills would not be retarded due to lack of satisfactory evaporator bags, Watertight requested WF approval of material having shirlan content not in excess of 1%. Both Pers. Equip. Lab. of Eng. Div. and Aero. Equip. Sect. of Proc. Div. (WF) approved the above material.

180. (U) Ltr., 16 July 1946
Fr: Gallowhur Chem. Corp., Reading, Vt.
To: Proc. Br., ATSC, WF
(File: Contract Files)

Gallowhur stated that model B-6 solar still production had been stopped on VJ-Day; however, the company wanted to get back into production so requested the last acceptable bid price which would be used in estimating approximate cost of a new procurement. Contr. Officer (WF) replied that an authorized Gallowhur representative could at any time review the solar still price information on file at WF.

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181. (U) Ltr., 2 Aug. 1946
Fr: Col. M. L. Haskin, Chief, Pers. Equip. Lab., Eng. Div., WF
To: Bakelite Corp., New York, N. Y., Attn: Mr. Interman
(File: Central Files)

Pers. Equip. Lab. (WF) reported difficulties which rendered useless solar stills made from Bakelite's VU-1900 vinylite film. Deterioration of the vinylite appeared as small holes singly and in groups when stills were exposed to sunlight, salt or fresh water. Probable causes of deterioration were requested.

182. (U) Ltr., 20 Aug. 1946
Fr: M. N. Marshall, Chief, Contract Br., AAF Proc. Field Office, AMC, New York, N. Y.
To: CG, AMC, WF, Attn: Aero. Equip. Sect.
(File: Contract Files)

Aero. Equip. Sect. (WF) was informed that up to 20 Aug. only 1,097 solar still kits had been shipped; this proved the delinquency of the Watertight company because according to schedule 1,500 should have been produced in July and 2,500 in Aug. Investigation to determine why deliveries were behind schedule and what the contractor intended to do about it was made on 20 Aug. Watertight, the prime contractor, conducted steaming of top and bottom sections of the vinylite filter bag and final inspection of the kits; Heat Sealed Products Corp., the subcontractor, performed all assembly operations and heat sealed the filter bags. It was pointed out that delay was not caused by raw material shortage but rather by the two plants trying to find satisfactory methods and type of equipment for efficient manufacturing. Addition of more personnel had helped eliminate delay caused by a slow steaming operation. Many stills had been rejected because the vinylite bags were torn or the components improperly sealed. An effort was to be made by both companies to achieve a production rate of 7,000 kits per week by last of Aug.

183. (U) Ltr., 29 Aug. 1946
Fr: Col. M. L. Haskin, Chief, Pers. Equip. Lab., Eng. Div., WF
To: E. I. DuPont De Nemours & Co., Arlington, N. J., Attn: Mr. J. W. Shackleton
(File: Central Files)

Pers. Equip. Lab. (WF) wrote DuPont that the VU-1900 vinylite film then being used in solar stills was unsatisfactory because the plasticizer gave an unpleasant taste to the distilled water. Information on properties and wearability of polyethelene, which had been considered for use in solar stills, was requested. [Similar letter sent to Bakelite.]

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184. (U) Ltr., 4 Sept. 1946
Fr: Bakelite Corp.,
New York, N. Y.
To: Mat. Com., WF,
Attn: Col. M. L. Haskin,
Chief, Pers. Equip. Lab.,
Eng. Div.
(File: Central Files)

Bakelite disagreed with Pers. Equip. Lab. (WF) concerning the statement that VU-1900 vinylite film was unsatisfactory for use in solar stills because, under normal operating conditions, the plasticizer imparted an unpleasant taste to the water. It was believed the odor from the plasticizer might be responsible for the bad taste. Bakelite was of the opinion that polyethylene film would not be as efficient as vinylite because it was not as clear; also, it would be harder to construct a still from polyethylene.

185. (U) Ltr., 10 Sept. 1946
Fr: Bakelite Corp.,
New York, N. Y.
To: Hq., AMC, WF,
Attn: Col. M. L. Haskin,
[Chief, Pers. Equip. Lab.,
Eng. Div.]
(File: Central Files)

In an attempt to find cause of holes which appeared in vinylite film, Bakelite contacted the prime contractor of solar stills. After careful examination of three samples submitted by AMC (WF), Bakelite was certain the holes had not resulted from deterioration of material. The Armed Forces had used both VU-1900 clear and VU-1940 clear during the war and had never encountered any plasticizer trouble. Bakelite acknowledged the fact that VU-1900 clear had some pinholes in it which would be hard to eliminate, but on the other hand, specifications allowed three such holes per square yard. Failures of two samples were blamed on improper sealing of seams at contractor's plant, and the third sample appeared to have been cut or snagged by some sharp object.

186. (U) Ltr., 13 Sept. 1946
Fr: Col. M. L. Haskin,
Chief, Pers. Equip. Lab.,
Eng. Div., WF
To: Bakelite Corp.,
New York, N. Y.,
Attn: Mr. Pomeroy
(File: Central Files)

Water submersion tests indicated that deterioration of solar stills was due to loss of plasticizer from the VU-1900 vinylite of which the stills were made. Pers. Equip. Lab. (WF) said any information Bakelite could furnish concerning the above problem would be very helpful to the solar still research program then in progress at AMC.

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HEADQUARTERS ARMY AIR FORCES

ROUTING AND RECORD SHEET

FILED P #12

TALLY NO.	170
FILE NO.	

SUBJECT: New Developments for Use by the AAF.

TO: Asst. Chief of Air Staff, A-4. Attention: Col. Ballard. DATE 1/8/43

FROM: Deputy Chief of Air Staff. COMMENT NO. #1

TJH/cmc/6371

X360.2

1. Mr. Lovett reported to General Arnold this morning that there has been developed a solar still. This still has a weight of about two pounds and a capacity of about one pint of fresh water a day. The details of it are known by Colonel Dorio (?) and John Beta, telephone - 4086. The Navy has ordered 1,500; the Army is still investigating. General Arnold desires that we immediately procure some of these for isolated stations and for installation in our boats.

(3) 452.16

2. Mr. Lovett also reported that three Air Force agencies are working on a crash manual. One of these is Wright Field, one the Proving Ground and one is an unnamed agency in North Carolina. All of them have contacted Dr. Coolidge and Dr. Field who seem to be authorities on the matter. It is directed that the responsibility for this activity be centralized under one agency which is believed to be Proving Ground.

3. It is also requested that a check be run on the present status of our fishing kits to see if they are satisfactory in every way.

4. Attached hereto is a description of the use of a new signal mirror. I personally know that the Experimental Division at Dayton is familiar with this mirror. General Arnold and Mr. Lovett want to know if it has been incorporated in our kits with instructions for its use.

X413.77 Signal Mirror

Incl: U.S.Coast Guard paper containing description of the use of a new signal mirror.

T. J. HANLEY, JR.,
Brigadier General, U.S.A.,
Deputy Chief of Air Staff.

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HEADQUARTERS ARMY AIR FORCES

ROUTING AND RECORD SHEET

TALLY NO.	AES/170
FILE NO.	

SUBJECT: New Developments for Use by the AAF.

TO: The Director of Military Requirements.

DATE 1-11-43

FROM: The Assistant Chief of the Air Staff, A-4.

COMMENT NO. 2

RCC/hmh/71173

1. Reference preceding, it is desired that you establish requirements of the Army Air Forces for solar stills and issue the necessary instructions to the Materiel Command for the procurement of the quantities desired.

2. Reference to paragraph 2, comment 1, it is desired that you take necessary action to centralize the responsibility for compilation of the crash manual in the hands of the appropriate agency of the Army Air Forces.

3. Reference paragraph 3, comment 1, instructions should be issued the Proving Ground to make a check run on fishing kits to determine if they are wholly satisfactory for the purpose intended.

4. Reference paragraph 4, comment 1, furnish information on status of signal mirror.

RICHARD H. BALLARD
Colonel, G. S. C.

Incl. n/c

TO: Materiel Command

DATE 1/12/43

FROM: Director of Military Requirements

COMMENT NO. 3

MEG/br 3020

1. With reference to paragraph 1, item 1 the Materiel Center has already done much work in this connection. With reference to paragraph 3, item 1 you have adopted a new fishing kit recently. Will you prepare answers to paragraphs 1, 3 and 4 of item 1. With reference to paragraph 2, item 1 see copy of R&R sheet from this office to AFROM, this date, attached.

for DAVENPORT JOHNSON,
Major General, U. S. Army.

Incl.1n/c
2 added - Cc R&R #1, 1/12/43
to AFROM

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HEADQUARTERS ARMY AIR FORCES

ROUTING AND RECORD SHEET

TALLY NO.	ADS/170
FILE NO.	

SUBJECT: New Developments for Use by the AAF.

TO: Director of Military Requirements DATE 1/15/43

FROM: Materiel Command COMMENT NO. 4
Materiel Command - 944
RWJ/ah/3831
RWJ

1. Considerable investigation has been conducted on stills, including the solar type. The most promising type is one developed by the Galowher Chemical Company which weighs only one pound 3 ounches. An experimental quantity of this item is expected in about three weeks. If the experimental tests are satisfactory it is anticipated that quantity purchase can be initiated by February 15, 1943. The solar type still has not yet been dropped, but it is believed to be more bulky than the other.

2. On the advice of several of the outstanding fishing experts of this country, and after coordination with the Bureau of Aeronautics, a quantity of 15,000 of the Pinchot type fishing kits were ordered recently. This kit will be an Army-Navy standard type. No tests have yet been conducted at Wright Field as none of the kits have been delivered. A test is contemplated at Eglin Field of all items of life raft accessory equipment, in the near future.

3. Consideration is being given to the inclusion of a signalling mirror. There appears to be some doubt as to its value in comparison with other signalling means, due to the extremely narrow angle in which the reflected light signal is visible. The Chemical Warfare Service has been asked to develop a floating smoke candle. It is believed that a smoke signal would be best for day signalling. Due to the small size and weight of the mirror it might be included as an auxiliary device in spite of the above remarks. Action will be taken to include a signalling mirror if your office so directs.

for D. W. CHIDLAW
Brig. General, U.S.A.
Asst. Chief of Staff (E).

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HEADQUARTERS ARMY AIR FORCES

ROUTING AND RECORD SHEET

TALLY NO.	AD5/[illegible]
FILE NO.	

SUBJECT: New Developments for Use by the AAF

TO: Deputy Chief of Air Staff DATE 1-16-43

FROM: Dir. Military Requirements COMMENT NO. 5
MRR:vk 3020

1. Attention is invited to comment No. 4, which relates to paragraphs 1, 3, and 4 of Item 1.

2. The Director of War Organization and Movement is taking action to centralize activities concerned in the publication of the crash manual. (See copy MRR sheet, dated 1-12-43, attached hereto).

for DAVENPORT JOHNSON,
Major General, U. S. Army.

Incls. n/c

TO: Director of Military Requirements, THRU Assistant Chief of Air Staff, A-4. DATE 1/17/43

COMMENT NO. 6

FROM: Deputy Chief of Air Staff. TJH/eva/6371

1. Paragraph #1 of Item #1 contained a definite directive that the Army Air Forces procure the solar still, not something which the Materiel Command thinks may be better. This still is satisfactory to the Navy, and is in use and in production. Enough of them will be procured immediately to install a few at our isolated stations and in our rubber boats on ships being ferried overseas. If something better is developed in the future, it can be substituted therefor.

2. Please report action taken.

T. J. HANLEY, JR.,
Brigadier General, U.S.A.,
Deputy Chief of Air Staff.

Incls: n/c

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HEADQUARTERS ARMY AIR FORCES

ROUTING AND RECORD SHEET

TALLY NO. ADS/241

FILE NO.

5

SUBJECT: New Developments for Use by the AAF.

TO: The Director of Military Requirements

DATE 1/18/43

FROM: Assistant Chief of Air Staff, A-4.

COMMENT NO. 7
WMF/mhh/2879

Forwarded, inviting attention to comment No. 6 from the Deputy Chief of Air Staff.

RICHARD H. BALLARD,
Colonel, G. S. C.

Incl. n/c

TO: Materiel Command

DATE: 1-20-43

FROM: Dir. Military Requirements

COMMENT NO. 8
MEG:vk 3020

1. Action should be taken by the Materiel Command to comply with the directive of General Arnold, as contained in the last sentence of Paragraph 1, Item 1.

2. From information which has been received todate, it would appear that the Solar Still is still in the experimental stage. The Bureau of Aeronautics and the Quartermaster General's Office have been unable to indicate any production order for this particular Solar Still. Wright Field has a quantity of the Galloway Stills on order. General Arnold wishes to have in our life rafts the best type of water producing equipment possible. If the Solar Still is nearly as good as the Galloway still, but is more readily procurable, it should be procured. Time is essential. The Materiel Command and the Air Service Command, in collaboration, are in the best position for determining the quantity to be procured.

for DAVENPORT JOHNSON,
Major General, U. S. Army.

Incl. n/c

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HEADQUARTERS ARMY AIR FORCES

ROUTING AND RECORD SHEET

TALLY NO.	
FILE NO.	

SUBJECT: New Developments for Use by the AAF.

TO: Director of Military Requirements DATE 1/26/43

FROM: Materiel Command COMMENT NO. 9
Materiel Command - 944
RWJ/ah/3831
RWJ

1. The Gallowhur Chemical Company still is a solar type and is the same one referred to in Item 1 above. The Quartermaster General's Office is conducting the development of this still. According to the project engineer, Mr. Beta, a total of six stills has been made to date and the company has no production orders. As stated in Item 4, it is the most promising type known to this office.

2. As a result of the first experimental tests conducted at Miami on December 21st, some changes have been incorporated in an improved model which was received by Mr. Beta on January 25th. He plans to test it at Miami next week. A Materiel Center representative will be present to witness and to assist in the tests.

3. Due to wide interest by many Government agencies including the Navy Department, Merchant Marine and Lease-Lend Administration, the Quartermaster General's Office plans to hold a conference late this week with the manufacturer and all interested agencies, to discuss a consolidated procurement program. At that conference it is planned to state the present Army Air Forces requirements as 30,000 units. This is based on an estimate made by the Materiel Center in collaboration with the Air Service Command, that 10,000 five-man rafts should be supplied with three each of the stills.

4. It is felt that in view of the situation outlined above the Air Forces would lose by attempting to make a separate procurement before coordinating with other agencies. It is understood that the Lease-Lend Administration alone plans to procure 150,000 units. It is recommended that procurement of this item be made after agreement has been reached as to a single procuring agency, and after the manufacturer has obtained some idea of the size of production which he must prepare for. Both should be taken care of by the conference referred to in Paragraph 3.

B. M. CHIDLAW
Brig. General, U.S.A.
Asst. Chief of Staff (3).

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HEADQUARTERS ARMY AIR FORCES

ROUTING AND RECORD SHEET

TALLY NO.	
FILE NO.	

SUBJECT: New Developments for Use by the AAF

TO: Materiel Command

DATE Jan. 31, 1943

FROM: Military Requirements

COMMENT NO. 10
MEG:el 3020

1. The Chief of the Air Staff has twice directed the procurement of the solar still. This office has twice indicated that the best immediately available means for converting sea water into palatable drinking water should be procured, and that Materiel Command was in the best position to determine which device was best; and, in collaberation with the Air Service Command, in the best position for determining the quantity. This office cannot determine a requirement for one or three stills per life raft. Due to the urgent requirement of the Air Forces for this equipment, it would seem that the Air Forces should have taken the initiative, rather than leaving this matter up to the Quartermaster General's Office.

2. In view of the previous directives given, the answer to the recommendation contained in paragraph 4, comment 9, should be made by the Materiel Command.

M.E.G.
for DAVENPORT JOHNSON
Maj.Gen., U.S.A.

✓
2 Incls.
n/c

7

TO: Deputy Chief of the Air Staff - Room 3E 1031

DATE 2/12/43

FROM: Materiel Command - SC

COMMENT NO. 11
WWJ/ah/3831

1. Reference is made to your Comment No. 6 dated January 17, 1943.

2. This Command is pushing the procurement of the solar still referred to in Comments Nos. 1 and 4 as rapidly as possible. It has been unable to order a production quantity to date, however, as the manufacturer has only now reached the final stages of development on this still.

3. Representatives of the Materiel Center and the still manufacturer are at Eglin Field this week for the purpose of completing the development by giving a practical test in a life raft, to the latest versions of the still.

4. If the above tests are satisfactory, it is anticipated that production deliveries for the AAF will start early in April.

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HEADQUARTERS ARMY AIR FORCES

ROUTING AND RECORD SHEET

TALLY NO.	
FILE NO.	

SUBJECT: New Developments for Use by the AAF.

TO: Deputy Chief of the Air Staff - Room 3E 1031 DATE 2/12/43

FROM: Materiel Command - 5C COMMENT NO. 11 (cont.)
NWJ/ah/3831

5. For your information other stills which do not require sunlight and which are expected to give more satisfactory operation at higher latitudes are also under development. They are not so far along, however, as the present solar type.

B. W. CHIDLAW
Brig. General, U.S.A.
Asst. Chief of Staff (E).

2 Incls.
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TO: Materiel Command - General Chidlaw DATE 15, Feb. 43

FROM: Deputy Chief of the Air Staff COMMENT NO. 12
MAL/mac/5265

1. The Deputy Chief of the Air Staff desires information relative to the outcome of the tests referred to in Par. 3, preceding item.

2. A further report of present status of the project is likewise desired.

MILLARD A. LIBBY,
Lieut. Colonel, G. S. C.

Incl. n/c

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HEADQUARTERS ARMY AIR FORCES

ROUTING AND RECORD SHEET

TALLY NO.	
FILE NO.	

SUBJECT: New Developments for Use by the AAF.

TO: Deputy Chief of the Air Staff - Room 3E 1031 DATE 2/18/43

FROM: Materiel Command - 5C COMMENT NO. 13
MCJ/ah/3831

1. Materiel Center representatives were at Eglin Field on Friday, February 12, 1943, as agreed with the Callowhur Chemical Company. The manufacturer telephoned Wright Field the same day and requested an extension of the time agreed upon for conducting the tests, due to manufacturing difficulties. The Materiel Center was further advised by telephone on February 16, 1943 that ten (10) days more would be required before samples would be available for test.

2. Due to the delays experienced in dealing with this company it has been proposed that another source for procurement of the still be sought. However, the Materiel Center has not been able to obtain even one sample to date. Also, it is felt that the new source would have to go through the same difficulties, so that in the end no advantage would be gained.

3. Your office will be further advised as to the progress of this development just as soon as there is anything definite to report.

B. W. CHIDLAW
Brig. General, U.S.A.
Asst. Chief of Staff (5).

2 Incls.
n/c

TO: Air Adjutant General DATE 12 March 43

FROM: Deputy Chief of the Air Staff COMMENT NO. 14
MAL/rdg/5265

1. Noted by General Hanley.

2. For files.

RECEIVED MAR 12 1943 AIR CORPS CENTRAL FILES

WILLIAM A. LIMEY,
Lieutenant Colonel, A. S. C.

Incl. n/c

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HEADQUARTERS ARMY AIR FORCES

ROUTING AND RECORD SHEET

TALLY NO.	DMR-[illegible]-[illegible]
FILE NO.	280

SUBJECT: Water producing equipment

TO: Asst. Chief of the Air Staff, A-4

DATE 1-21-43

FROM: Dir. Military Requirements

COMMENT NO. 1
MR/:vk 3020

1. Attention is invited to the attached copy of R&R sheet, subject, New Developments for Use by the AAF, dated 1-20-43, which indicates action taken to comply with the directive of the Deputy Chief of the Air Staff.

2. Subsequent action taken by this office to determine the value of the Solar Still, and the opinion of the Navy Department as to its use, brings out the fact that no office in the Bureau of Ships, the Bureau of Aeronautics, or the Quartermaster General's Office has been found to have knowledge of any procurement, other than for an experimental order. So far, the quantity ordered by the Navy, according to contacts made, has been limited to two. These have been tested and found to produce approximately one pint of water a day.

for M.C.G.

DAVENPORT JOHNSON,
Major General, U. S. Army.

Incl. 1
cy R&R 1-20,
subj (see par. 1 abv)

HEADQUARTERS ARMY AIR FORCES — COORDINATION

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GALLOWHUR CHEMICAL CORP.

WINDSOR, VERMONT

SEND REPLY TO: NEW YORK OFFICE
250 EAST 43RD STREET
NEW YORK, N. Y.
MURRAY HILL 4-0890

January 22, 1943

Commanding General
Army Air Forces
Wright Field
Dayton, Ohio

Attention: Mr. T. J. Kincaid

Dear Sir:

In reply to your inquiry today regarding our producing for you 10,000 of our Sunstills for converting salt water into fresh water, we submit herewith the following horseback estimates. These are the best figures our Production Department could get together in the short time available.

For 10,000 units we estimate the following costs:

Chemicals	$ 1,000.00
Materials	43,000.00
Wastage, rejections, etc.	17,200.00
Labor	60,000.00
Tools and equipment	20,000.00
Laboratory testing, etc.	30,000.00
Overhead and contingencies	20,000.00
TOTAL	$191,200.00

On the above basis we estimate each unit would cost $19.12 for the first 10,000 units.

The priorities required to produce the above orders are:

200 lbs. Puratized chemicals
28,000 board feet Balsa wood
3,000 sq. yds. Vinylite fabric
2,500 board feet White pine
100,000 sq. feet Vinylite sheeting .008"
5,000 sq. yds. Vinylite fabric .04"

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2,500 yds. Turkish toweling 28"
40,000 feet 3/8" O.D.Rigid Plastic tubing 3/64"
1,500 lbs. 1-1/8" sq. Rigid Extruded Plastic tubing .02"
100 lbs. .02" " " " plugs
5,000 sq. ft. Acitate Butirate .06" Rigid Sheeting
7,500 feet 3/16" O.D.1/32" Rigid Plastic tubing
10,000 Rubber pumps (ball type)
100,000 feet 7/16" O.D. flexible rubber tubing
20,000 stainless steel or plastic (?) eylets
12,000 yards 3/16" cotton cord
20,000 plastic slide fasteners
5,000 yards 1/2" canvas strap and
10,000 slide fasteners for above (metal or plastic)
50 gallons spray lacquer
2,500 square yards canvas for 10,000 bags
pull cords for above
Various cements and glues
30,000 sq. ft. filter paper
Water proof gummed paper (for instructions)
Various chemicals
10 electric scissors
Heat ceiling equipment of our own design
The use of a multiple drill head
The use of a die press

On the Balsa wood and various plastics which you will notice are in small quantities in comparison to say the airplane industry we would require AAA priorities and we would also ask that you give us your assitance with an expeditor.

We estimate that, after receiving the required materials, we will be able to produce the entire 10,000 units within 100 days.

We have constantly been in touch with the leading chemical companies, as well as outstanding designers and engineers, but we must point out that this is a new type of apparatus and the technique of manufacturing it in quantities is as yet unknown. We propose to do most of this manufacturing by hand until special machinery can be designed to accomplish the purpose.

Please let me know if there is any further information which we can give you.

Very truly yours,
GALLOWHUR CHEMICAL CORP.

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George Gallowhur
George Gallowhur
President

GG:McC (AFR 11-30)

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SOLAR-STILL
PD-2
MAT. DIV.-MMSD-WASH

WAR DEPARTMENT
ARMY AIR FORCES
Form No. 96
(Rev. Dec. 10, 1942)

Address all correspondence regarding this order for attention of

[illegible]

WAR DEPARTMENT
ARMY AIR FORCES

PURCHASE ORDER

CONTRACT No.
ORDER No. [illegible]

To insure prompt payment, place this Order Number on all Packages, Bills, and Correspondence.

To [illegible]

Date [illegible]

Ship via

Ship to Supply Officer
Wright Field
Dayton, Ohio

Delivery within [illegible] days from date of receipt of this order.

Terms: days after receipt and acceptance of material.

ALL ARTICLES MUST BE DELIVERED F. O. B. [illegible]

In accordance with your informal (letter) proposal dated [illegible] and subject to all conditions and requirements hereof and to all advertisements, circulars, specifications, and samples pertaining hereto, award is hereby made you for furnishing the following articles at the prices shown and at the time, place, and in the manner herein specified.

Item No.	Quantity	Unit	ARTICLE	Unit Price	Total Price
	20	ea.	Still assembly, Galloway Chemical Company's Sun Type Delivery schedule - Two each by Feb. 15, 1943. Balance in units of five each to be completed by Feb. 28, 1943. A.F.P. [illegible], Authorized by - Wash. 30 (1-9-41), Expend. Order No., Misc. Charge No. [illegible] (2). Man No. [illegible] This Purchase Order was negotiated under the authority of the First War Powers Act, 1941, and Executive Order No. 9001, December 27, 1941.	$100.00	$2000.00

Acknowledge this order and state definitely when shipment will be made.

Final inspection and acceptance at Wright Field, Dayton, Ohio

WAR PREFERENCE RATING A-1

When ready for inspection, or, if practicable, ten days in advance thereof, notify

The supplies and/or services to be obtained by this instrument are authorized by, are for the purpose set forth in, and are chargeable to, AC 3010 P 611-49 & 0705-23

Procurement Authority to cover the cost of same. Procurement Agency

The Finance Officer, U. S. Army, Jersey City, N. J., is hereby designated to make payment for such supplies and/or services.

DEPT. No. CHARGE No.

REQ. No.

[illegible]
1st Lt. Air Corps
Purchasing & Contracting Officer

Contracting Officer

CONDITIONS ON REVERSE SIDE ARE MADE PART OF THIS ORDER TO WHICH VENDOR AGREES BY AN ACCEPTANCE OF THIS ORDER.

EPD-1-12-43

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JMQ:ial:49
Wright Field, Dayton, Ohio
February 1, 1943

COM. GEN.
TECH. EXC.
ADM. EXC.
C. O.
BUD. OFF.
EXP. ENG.
CONTRACT
INSP.
PROD. DIV.
PROD. ENG.
PROD. CONT.
I. P. S.
A. S. C.
TECH. DATA
CIV. PERS.
OTHERS

Testing of sea water stills.

Commanding General,
Air Forces Proving Ground Command,
Army Air Base,
Eglin Field, Florida.
Attention: Proof Department.

1. It is proposed that tests be carried out on sea water stills under actual life raft conditions. These stills are experimental models to be used for producing potable water from sea water in emergencies on life rafts. One type of still uses solar energy and, therefore, requires testing in a zone where adequate sunshine is available.

2. It will be necessary for the Proving Ground to provide a power boat with shore radio communication and sufficient personnel for its operation. A life raft will be provided by the Material Center, but in the event of equipment failure it will be necessary to obtain a five or seven man raft from the Proving Ground. A small amount of bench space, approximately 12 square feet, will be needed for setting up chemical analysis equipment.

3. The Material Center will provide a life raft and all the necessary apparatus which is directly connected with the testing. The Project Engineer and a non-commissioned officer will carry out the tests. The designer of the still, Mr. A. P. Delano, and his assistant, Mr. Weissmer, both of the Gallowhur Chemical Company of New York will be present during the tests. They will have the necessary credentials.

4. The testing will be carried out for approximately ten days, starting on or about February 9.

5. The Project Engineer is Capt. Jos. H. Ouellette, M. C., of the Aero Medical Laboratory, Engineering Division, Wright Field telephone extension 2-3245. Sgt. R. W. Stacy, who has been connected with work in water and nutrition will accompany the officer. A report of the test will be prepared as a Memorandum Report by the Project Engineer.

6. The testing equipment will be shipped to Eglin Field, then returned to the Material Center upon completion of the test.

For the Commanding General, Air Material Center:

CHIEF [illegible]
Major, Air Corps
Assistant

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AC-164-A-WF-3-4-42-75M

WAR DEPARTMENT
ARMY AIR FORCES, MATERIEL DIVISION
ENGINEERING DIVISION
MEMORANDUM REPORT ON

SCM:djs:54:692

Date February 8, 1943

SUBJECT: Solar Still for Life Rafts

Equipment Laboratory

Contract No.
Expenditure Order No. 671
Purchase Order No.

SERIAL No. EMCeM-54-671-134

A. Purpose.

1. To report on a visit to the Materiel Command in Washington, D.C. and to the Gallowhur Chemical Company in New York, New York to obtain information relative to a Solar Still for life rafts designed to convert salt water into drinkable water.

B. Factual Data.

1. Discussions were held in the office of the Assistant Chief of Staff (E) Materiel Command, Washington, D.C. relative to the development of a still fabricated by Gallowhur Chemical Company and submitted to the Special Forces Section of the Quartermaster Corps. Present at these discussions were:

Materiel Command	Materiel Center
Brig. General Benj. W. Chidlow	Major S. C. Mayne, Jr.
Mr. R. W. Jones	Mr. C. J. Brick

It was agreed that a Materiel Center representative accompany a group from the Special Forces Section of the Quartermaster Corps to Miami, Florida for the purpose of conducting tests on the subject still.

2. The Special Forces Section of the Quartermaster Corps was contacted for information concerning the still, however, the individual charged with the development of the still by the Quartermaster Corps was not available due to illness.

3. Lieut. J. R. Kiser of the Bureau of Aeronautics, Navy Department was contacted to determine what tests, if any, had been conducted on the Gallowhur Chemical Company's Solar Still by the Bureau of Aeronautics. It was learned that no tests had been conducted, however, action had been taken to obtain three sample stills for tests.

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(AR 11-30)

DATE
CHF. DIV.
TECH. EXC.
ADM. EXC.
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BUD. OFF.
EXP. ENG.
PROD. ENG.
CONTRACT
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S. C.
I. P. S.
OTHERS

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Engin. Div. Memo.Report No. ENG-M-54-671-134
February 8, 1943.

4. A visit was made to the Gallowhur Chemical Company, New York, New York. Conferences were held to determine the status of development of the solar still by this company. Present at the conference were:

Materiel Center	Gallowhur Chemical Company
Major S. C. Mayne, Jr.	Mr. W. A. Pearl
Mr. C. J. Brick	Mr. Richard Deleeme
	Mr. W. E. Gallowhur

A complete sample of the still was not available for examination, however, three types of partially completed samples were examined and the principals of operation were explained by Mr. Deleeme who was the inventor of the still.

5. In general, the still consisted of an insulation material which was faced on one side with a piece of black fabric similar to turkish toweling, approximately 12 inches square. A window, approximately 12 inches square made from a clear vinyl resin, is held in place approximately 1 inch in front of the black fabric. The salt water is slowly pumped into the still and the black fabric is saturated. The heat from the sun causes the water from the saturated fabric to condense on the vinylite window and run into a clear water manifold at the base of the still. The weight of the still is approximately 1 pound, 3 ounces and the dimensions folded are approximately 4 inches in diameter by 12 inches long. The capacity of the still is approximately 1 pint of drinkable water a day under normal fair weather conditions.

6. Mr. Gallowhur and Mr. Pearl of the Gallowhur Chemical Company stated that their company is proceeding with the development work as rapidly as possible, however, they do not consider the still to be sufficiently developed for production inasmuch as there are several problems connected with the efficient operation of this equipment which have not been solved.

C. Conclusions.

1. That the Gallowhur Chemical Company's solar still properly developed will provide a source of drinkable water for personnel stranded in life rafts.

2. That Materiel Center personnel accompany Mr. Gallowhur and Mr. Deleeme of the Gallowhur Chemical Company to the Army Air Forces Proving Ground, Eglin Field, Florida the week of February 8, 1943 to conduct practical tests on the solar still in life rafts at sea.

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Engin.Div. Memo. Report No. EMC-M-54-671-134
February 8, 1943.

Necessary arrangements have been made to accomplish this.

D. Recommendations.

1. That immediate procurement of a sufficient number of the subject stills for installation in Army Air Forces life rafts be delayed by the Materiel Center until the still is suitably developed for service use.

2. That upon completion of the development of the subject still, procurement be expedited by the Materiel Center to provide a sufficient quantity for installation in all Army Air Forces life rafts.

FEB 8 1943

S. C. MAINE, Jr., Major, A.C.

G. V. HOLLOMAN, Col., A.C.
Equip.Lab., Engr.Div.

F.C.CARROLL, Brig.General, U.S.A.
Chief Engr. Division

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Com.Gen.Mat.Com.Att:Chief of Staff
Director of Mil.Requirements, Wash.D.C.
Com.Gen.Air Transport Command Approved by _____
AAF (Asst Dep.Chief Of)
Com.Gen.A.A.F.(Command (2)) -3-
Com.Gen.A.A.F.(Air)
Com.Gen.A.A.F.(Intel)

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WAR DEPARTMENT
OFFICE OF THE QUARTERMASTER GENERAL
WASHINGTON

February 15, 1943

MEMORANDUM FOR THE HONORABLE ROBERT P. PATTERSON, OFFICE OF THE UNDER SECRETARY OF WAR.

15

W. H. MILLER
c/o American Consulate
Sydney, Australia

SUBJECT: Gallowhur Solar Still.

1. This memorandum is in reference to your phone call of Sunday afternoon, February 14, 1943 concerning a Mr. Miller, now in Australia, about whom Mr. Basil O'Connor phoned you on February 14, 1943.

2. On December 14, 1942 Mr. George Gallowhur, president of the Gallowhur Chemical Company of New York City, phoned me stating one of his employees, a Mr. Richard Delano, son of Mr. Delano, Architect of La Guardia Field, had just perfected a new type of solar still which would make potable drinking water from sea water. This solar still was light in weight, did not have any mechanical moving parts, could be folded so as to take up a minimum amount of space and was simple and positive in its operation.

3. Mr. Gallowhur asked me whether or not I would be interested in seeing this apparatus. I replied, "I was", and would meet him in the office at his earliest convenience.

4. On December 15, 1942 Mr. Gallowhur, Mr. Delano and Mr. Chapman arrived and presented the solar still with the reports of tests as made at Yale University. Evidence showed that about three years had gone into the still and its tests.

5. On December 17, this project was cleared through S.O.S. and the Special Forces Section of Military Planning Division, Office of The Quartermaster General was given this project to complete.

6. It was decided to run further tests to arrive at a standard basis for comparing various designs and to determine the efficiencies for the instrument and then to use these standards to predict the instrument's output of fresh water at various locations throughout the world and under various conditions.

7. On December 17, 1942 Mr. Gallowhur dispatched Mr. Delano and Mr. Chapman to Miami, Florida with the understanding that Mr. Gallowhur and I would follow on December 18, 1942.

8. Tests were run in Miami on the shortest days of the year, namely December 19, 20, 21 and 22 and the apparatus showed much promise. The still measured approximately 14" square, was 1" thick and weighed 1 lb. 1 oz. and on December 20, 1942 with 67% possible sunlight out of the total solar day, from 11:30 in the morning, to 5:00 in the afternoon produced 328 cc's. of potable drinking water. On December 21, 1942 there was 47% possible sunlight and this still produced 213 cc's. and on the

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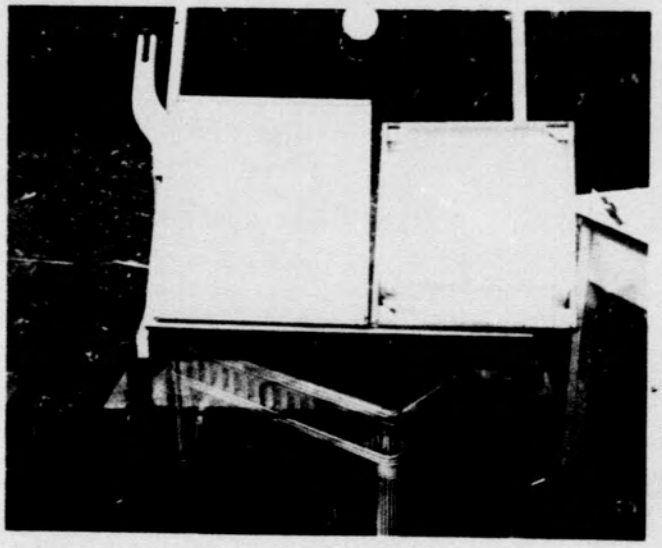

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22nd there was 57% possible sunlight and the still produced 217 cc's. There are approximately 29½ cc's. per one (1) United States liquid ounce.

9. A complete report was made and submitted to the Army Air Corps, Bureau of Aeronautics, U. S. Coast Guard, Special Devices Section of the Bureau of Yards and Docks and also to T.W.A. men concerned with the Air Ferry Command.

10. Upon submission of this report the Navy, through the Bureau of Aeronautics, have ordered two stills for testing and the Army Air Corps have placed an order for twenty stills for testing. International Division of T.W.A. is also interested in equiping their life rafts with this apparatus.

11. Mr. George Gallowhur informed me that he had had this Mr. Miller loaned to him by the U. S. Merchant Marine to work on two developments, namely, the solar still and a means of treating goggles for anti-fogging purposes. During Mr. Gallowhur's stay in Florida, while tests were being run on the solar still, a misunderstanding arose between Mr. Miller and the General Manager of the Gallowhur Chemical Company and Mr. Miller went back to the U. S. Maritime Commission and signed on for a trip.

12. In the meantime the Gallowhur Chemical Company has attempted to locate a man who was familiar with the necessary technique of making this solar still and treating plastic lenses for anti-fogging properties and I have been informed by Mr. Gallowhur that this search has been unsuccessful.

13. Mr. Gallowhur contacted Mr. McCaffery of the Merchant Marine asking whether or not this Mr. Miller could be secured from the Merchant Marine, either on a loan basis for 90 days to set up the production of these two articles or else resign from the Merchant Marine and become a full time employee of the Gallowhur Chemical Company. It is my understanding that Mr. McCaffery agreed to either of these plans.

14. At this point the Merchant Marine located Mr. Miller on a convoy which was on the high seas, but the Merchant Marine agreed to take this man off of the convoy at Freemantle, Australia and have him flown back to Sydney, Australia. It was my understanding that Mr. Gallowhur had made arrangements through Mr. Basil O'Connor that this Mr. Miller would then be brought back to the United States at the earliest possible time.

15. This light weight solar still has been examined by Captain Eddie Rickenbacker and it is his opinion that this still shows more promise for making potable drinking water from salt water than any other device which has ever been presented to the Armed Forces. Unofficially, Colonel J. S. Mills, Chief of the Development Branch, Materiel Section, Wright Field, has expressed the opinion that 30,000 of these articles should soon go under construction. Favorable comment has also been expressed by Mr. Lovett, Office of the Assistant Secretary of War and Colonel Couier of the same office.

FOR [redacted]

John P. Bader

JOHN P. BADER
Special Assistant.

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SECTION I TIME OF ARRIVAL AND DEPARTURE.

Left Washington, D. C.	December 18, 1942	11:00 A. M.
Arrived Miami, Florida	December 18, 1942	6:20 P. M.
Left Miami, Florida	December 23, 1942	8:00 A. M.
Arrived Washington, D. C.	December 23, 1942	5:20 P. M.

SECTION II PURPOSE OF VISIT

The purpose of the visit was to make test runs on the Delano Sunstill which is a device for procuring potable drinking water from sea water.

To arrive at a standard basis for comparing various designs and to determine efficiency co-efficients for the instrument.

To use the standards to predict the instrument's out-put of fresh water at various locations throughout the world.

SECTION III OBSERVATIONS

The instrument consisted of one square foot of vaporising surface, Vynalite or equal, insulated at the back and covered with one sheet of Vynalite. This was mounted in a knock-down frame but when assembled was kept normal to the sun's rays. The total weight of this instrument was 1 pound 3 ounces, no mechanical devices.

The sea water feed pipe was a rubber tube perforated every inch with small holes. This feed pipe was fed by a 6 ounce rubber ball. At the bottom of the vaporizer there was attached a gutter in such a way as to take off the concentrated liquor of salt.

The distilled water was caught in a container at the bottom of the condenser to which was connected a small tube leading into a glass reservoir which was used to measure the amount of distilled water.

After running this instrument for four consecutive days, the vaporizer was found to be free of salt, as was expected, proving that it does continually clean itself out.

SECTION IV CONCLUSIONS

For the test two models were used, a one square foot and a four square foot vaporizer model. The latter had a little more than 1/8 of the vaporising surface dry due to improper feeding from the feed tube. The wind was 5 to 6 miles per hour and the air temperature 78° F. Model #1 (one squre foot) produced 270 c.c.'s of fresh water from 11:30 to 5:00 o'clock. It also produced 58 c.c.'s before the test began making a total solar day of 328 c.c.'s. Model #2 (four square feet) produced 895 c.c.'s of fresh water during the same period.

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Gr. Cal.	C.C.'s	Gr. Cal.	C.C.'s	[redacted]	C.C.'s
50	61	300	365	550	670
100	122	350	426	600	730
150	183	400	487	650	792
200	243	450	548	700	852
250	305	500	608	750	913

Corrections.

Wind.

There have not been enough tests run to accurately determine the wind effect. However, it can be said from the 3 days runs that the wind increases efficiency roughly 1% 1 mile an hour of wind up to 15 miles an hour. From there on up, this effect diminishes. Hence, the December 20th run was 5 to 6% above what it would have been on a still day.

Temperature.

The effect of air temperature can only be roughly stated now. It appears to be a hyperbola that is nearly flat at 0° to 32° F. with an increasing slope reaching near vertical at 212° F., i.e. taking our test as 100%, the low temperatures of 0° to 32° would yield (with the same sunlight) about 50% or 185 c.c.'s. If the air temperature were 100° F. instead of 78°, the out-put would be about 432 c.c.'s, or 60% greater. At 120° F., the increase is about 100% or an out-put of 540 c.c.'s for the period from 11:30 to 5:00.

Amount of Sunlight.

These tests were run during the three shortest days of the year. The 40 year average sunlight for Miami for December is 60% (U. S. Weather Bureau "Annual Meteorological Summary with Comparative Data, 1940"). December 20, 1942 was 63%, - 21st, 47% - 22nd, 57%.

The Miami Weather Bureau's sun recording Machine does not record variations in the sunlight's intensity. It only registers "Cloudless" (stepped line) above a certain intensity and "Cloudy" (straight line) below that intensity. It can therefore only be used comparatively and is of little help in finding the actual B.T.U.'s of sun energy.

Possible sun energy in December, with average cloudiness, is 250 Gr. Cal., or 930 B.T.U.'s. December 20th measured by pyroheliometer and photoelectric cell was 222 Gr. Cal., or 828 B.T.U.'s.

The accompanying chart, photostated from a Weather Bureau publication, shows the amount of Gram Calories per sq. Cm., with average cloudiness for all parts of the world at the longest and shortest days of the year.

These figures can be approximately taken as the minimum number of c.c.'s of fresh water that the Sunstill will produce. In the hotter climates the production will be materially increased depending on air temperature and wind velocity

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This is only 3.32 times as much as model #1 and was caused by uneven feeding.

A phrheliometer, loaned by the Smithsonian Institute, and a photo-electric cell were used and recorded 828 B.T.U.'s per square foot of sunenergy for the same period, 11:30 to 5:00 o'clock, or 222 gram calories per square centimeter.

It takes 1024 B.T.U.'s to vaporize 500 c.c.'s of water and this test showed a 67% use of the recorded available B.T.U.'s.

The daily production of fresh water by the one square foot model follows:

December 20, 1942	328 c.c.'s
December 21, 1942	213 c.c.'s
December 22, 1942	217 c.c.'s

The attached recapitulation chart designates the following:

a. The solid line shows the sun heat in B.T.U.'s per square foot per hour. The out-put of the two Sunstills is also plotted and designated. The fourth line (dash dot dash) is the out-put of the one square foot model multiplied by 3.5 to make it fall in with the others for comparison.

Water Analysis - In parts per Million.

The resultant samples of water were submitted to Mr. Allen T. Hill Jr., Analytical Chemist, Room 914, County Courthouse, Miami, Florida for analysis. Following are his reports:

Material ..... Distilled water
Submitted by ..... Mr. Bader
Date submitted ..... December 21, 1942
Date reported ..... December 22, 1942
Reported to ..... Mr. Bader

#1. Distilled water ... 9 p.p.m. chloride
#2. Concentrated sea water 20350 p.p.m. chloride

This is to certify that Mr. Bader submitted to me a sample of distilled water for chemical analysis for salt (chloride) content.

The analysis showed the water contained 9 p.p.m. (parts per million) chloride. Water containing less than 250 p.p.m. chloride is considered potable by the American Water Works Association.

Respectfully submitted,

(s) Allen T. Hill Jr.

Allen T. Hill Jr.
Chemist
914 County Courthouse

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The following table gives the number of c.c.'s of water to be expected in an area with the Gram Calories/sq.Cm. indicated, (without corrections):

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Still pictures and 100 feet of Motion Pictures were taken of the Melano Sunstill while the tests were being conducted in Miami, Florida. These pictures are available in the Research and Development Branch of Military Planning Division, O.C.M.L., Temporary Building "A", Room 2332, 2nd & T Streets, S.W., Washington, D. C.

SECTION V RECOMMENDATIONS

A conference be called to acquaint the different using arms and forces with this "Solar Still".

The following is a suggestion of the forces which should be represented.

Ground Forces.
Air Corps, Bureau of Aeronautics U.S.N. - U.S.Navy on life boat equipment, Bureau of Ships.
Merchant Marine, U.S.Coast Guard, Signal Corps.
The Signal Corps should be shown this device for making distilled water for their storage batteries when located in the tropics.
A representative of the British Army.
A representative of the Air Ferry Command.
Mr. Harry C. Coakes, chief Flight Dispatcher of T.W.A. has suggested his company purchase 300 of these stills for immediate use in their crash kits.
Commander Louis De F'lorez, U.S.N., Special Devices, extension 5338 is interested in this device.

This development should be continued because this device will make drinkable water in the tropics.

At present the National Academy of Science, Dr. Cushing has a device which is more efficient in the North Temperate and Arctic zones, but does not produce much water, (20 c.c.'s per hour) in the tropics and temperate zones.

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HEADQUARTERS ARMY AIR FORCES

ROUTING AND RECORD SHEET

TALLY NO.

FILE NO.

SUBJECT: Mr. W. H. Miller.

TO: Commanding General, Air Transport Command
Attention: General George

DATE 2/17/43

FROM: General Stratemeyer

COMMENT NO. 1

There is a Mr. W. H. Miller now in Australia, his address being: c/o War Shipping Administration, Sydney, Australia, who is thoroughly familar with the Gallowhur Solar Still.

The Honorable Robert P. Patterson, Under Secretary of War, is very anxious to have Mr. Miller returned to Washington to assist in the manufacture of this Still.

You will issue the necessary instructions to your Wing Commander concerned and have him inform Mr. W. H. Miller that air transportation is available for his return to Washington where the Honorable Robert P. Patterson desires his services.

When you have issued these instructions please advise me hereon and return all of the attached papers.

H. H. S.

Incl: Memo for the Under Sec. of War, 2/15/43 from Mr. J. P. Rader, re Gallowhur Solar Still /w/ cpy of Conf. report made on tests of above subj.

TO: Chief of the Air Staff, Headquarters Army Air Forces

DATE 2/22/43

FROM: Commanding General, Air Transport Command

COMMENT No. 2

AFATC/PRI/CAF/mcs 74133

Priority has been granted for the air travel of Mr. W. H. Miller from Sydney, Australia, to Washington, D. C., and a cablegram was sent to the Commander-in-Chief, Southwest Pacific Area, Brisbane, on February 19. He was requested to inform Mr. Miller of the Priority and instruct him to contact the United Airlines upon his arrival at San Francisco for domestic transportation, which had been arranged.

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H. L. GEORGE
Major General, U.S.A.
Commanding

Incl. n/c

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SOLAR-STILLS
MISC. FILE
OASW-L.

Mar. 5, 1943

Phoned to Lt. Feissenner of Foreign Air Relations who said he would send another cable and ask for a receipt. Advised Basil O'Connor and Mr. McCaffrey of this.

Col. Greenbaum

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Re: process for making saltwater potable.

MR

Colonel Greenbaum

WAR DEPARTMENT
OFFICE OF THE UNDER SECRETARY
WASHINGTON, D. C.

Basil O'Conor telephoned long distance (rather excited) said he could not reach you. Said the boy is still sitting on the docks of Brisbane and nothing happening. It seems the Army down there has not received any wire of authorization for Miller's return to the US. Asks to send a wire and he will pay for it if necessary. Lew Douglas Office, Maritime Commission, simply says that the Army down there has not received the wire that was supposed to have been sent.

Asks that this please be attended to -- and let him know by wire or telephone.

3/5/43 ER

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WAR DEPARTMENT
OFFICE OF THE UNDER SECRETARY
WASHINGTON, D. C.

3/2/43

[illegible] called [illegible]
[illegible] Foreign Liaison Div
[illegible] Branch 74133,
regarding a telegram
reporting H H Miller.
[illegible] sent February 19,
1943 [illegible]
H [illegible] Lalor Still

Above info communicated to Mr.
McCaffrey of Maritime Comm.
(Ext. 656.) 3/2/43

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WAR DEPARTMENT
HEADQUARTERS ARMY AIR FORCES

Date 23 Feb. 1943

MEMORANDUM FOR: MR. LOVETT.

Judge Patterson's office has been advised of the contents of Comment No. 2.

The Air Transport Command will keep Judge Patterson's office advised as to the date of arrival in the United States and probable date of arrival in Washington.

GES

FEB 24 43

WAR DEPARTMENT

GEORGE E. STRATEMEYER
Major General, U. S. Army
Chief of the Air Staff

3-6313, AF

[redacted]

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5-124 3-11-43

CHIEF, ENGINEERING DIVISION

REFERENCE IS MADE TO TELEPHONE CONVERSATION WITH MAJOR S. C. MAYNE OF YOUR OFFICE REGARDING THE PROCUREMENT OF SOLAR STILLS FOR LIFE RAFTS. THE FOLLOWING DIRECTIVE HAS BEEN RECEIVED FROM THE DEPUTY CHIEF, AIR STAFF: "ENOUGH OF THESE SOLAR STILLS WILL BE PROCURED IMMEDIATELY TO INSTALL A PAIR AT OUR ISOLATED STATIONS AND IN OUR RUBBER BOATS ON SHIPS BEING FERRIED OVERSEAS." THE DIRECTOR OF MILITARY REQUIREMENTS WHEN REQUESTED FOR A BASIS OF ISSUE STATED. "THE MATERIEL COMMAND IS IN THE BEST POSITION TO DETERMINE WHICH DEVICE IS BEST, AND, IN COLLABORATION WITH THE AIR SERVICE COMMAND, IN THE BEST POSITION FOR DETERMINING THE QUANTITY".

IF IN YOUR OPINION THE PROCUREMENT OF THIRTY THOUSAND 30,000 SOLAR STILLS MEETS THE ABOVE QUOTED GENERAL REQUIREMENTS, THE PROCUREMENT OF THAT QUANTITY IS RECOMMENDED. IN ANY EVENT ACTION SHOULD BE EXPEDITED TO PROCURE A SUBSTANTIAL QUANTITY IN VIEW OF THE FAVORABLE TEST RESULTS OBTAINED AT ..GLIN FIELD.

ASST. CHIEF OF STAFF E

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AAFMC-105-WF-4-4-43-400M

Authority for Purchase

346991
Ref: TJK:reh-70-5

VENDOR | CONTRACT No.

PURCHASE ORDER No.

DELIVERY | VIA | TERMS | METHOD | PROPOSAL

☞ THE ABOVE SPACE TO BE USED BY THE PURCHASE BRANCH ONLY ☜

Item	Quantity	Unit	Estimated Unit Price	DESCRIPTION OF MATERIAL OR SERVICES TO BE PURCHASED.	Unit Price	Total Price
1.	30,000	ea.	$ 25.00	"Delano" Sun Still per sample submitted. This procurement is requested by Ass't. Chief of Staff (E). Confirmed by Teletype #5-124. No A. E. Ref. No. necessary.		

20

Total Estimated Cost $750,000.00 | CLASSIFICATION 03-F | Total Actual Cost

B—FUNDS			A—FUNDS		C—FUNDS			Increase of Funds to Actual Cost Approved
EXPEND. ORDER No. / MISCL. CHARGE No.	Project No.	Item No.	Project No.	Item No.	Project No. 411-03	Class No.	Item No.	

MATERIAL TO BE OBLIGATED FOR F.Y. 43 Program | WANTED NOT LATER THAN May 1943. (Date) | Section Chief

DELIVER TO Accountable Officer, Fairfield Air Depot. | Accounting Branch

Procurement Data / Number of Sets 5 sets according to Table 5. DATE FURNISHED | Budget Officer

Remarks on the following matter marked with "X" appear in the space below:

1. Recommended Sources of Supply X | 2. Government furnished material ____ | 3. Tools, patterns, etc., loaned by Government ____
4. Should Serial Number be assigned ____ | 5. Point of inspection X | 6. Increase Existing Orders ____ | 7. General Remarks X

1. Gallowhur Chemical Company,
Windsor Vermont. (Sole source.)

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5. Certificate Inspection.

7. a. Distribution of Funds:

Item	Quantity	Program	Cost	Project
1	30,000	F.Y. 43	$ 750,000.00	411-03.

b. Delivery. Start May 1st, 1943 at rate of 200 completed articles per day.

Proc. Auth. No.	AAF	P	A
Proc. Auth. No.	AAF	P	A
Proc. Auth. No.	AAF	P	A

Upon due inquiry made it was found that the articles enumerated hereon could not be procured from any other branch of the Government without [illegible] of funds, or the immediate need of these supplies or the remoteness of this station from point of supply precludes their purchase from any other [illegible] of the Government.

Date	Initiated by	Signed—Branch Chief	Signed—Section Chief
2/13/43	M.D. BURNSIDE, Col., AC, Chief, Aero. Equip. Branch	JAMES P. EARLY, Col., AC, Chief, Equip. Sect., ASC	C.P. HAWK, Col., AC, Supply Div.

Coordinated by Production Engineering Div. — S.R. BUENTHALL, Col., AC, Chief, Prod. Eng. Sect.

Coordinated by Chief, Contract Sec. — [illegible]

Approved by Accounting Br. — [illegible]

Approved Budget Officer — [illegible], Lt. Col., AC, Budget Officer

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MC-482-WF-3-14-43-10M

19

ARMY AIR FORCES
HEADQUARTERS OF THE MATERIEL COMMAND (AFAMC-6)
WASHINGTON, D. C.

March 19, 1943. 4/1/43

TECHNICAL INSTRUCTIONS

Serial No.: TI-1475.

Subject: Procurement of Solar Stills.

To: Technical Executive,
Wright Field, Dayton, Ohio.

Aero Equip Br
See Actn
Quantity to be
in accordance
with Emg Div memo
3/24/43 as appd
by Col Krentzman

1. Problem Presented:

a. To establish the requirements of the Army Air Forces for solar stills.

b. To immediately initiate necessary action for the procurement of the quantity desired.

2. Factual Data:

a. Under date of January 8, 1943, the Deputy Chief of the Air Staff stated that General Arnold desires that we immediately procure some of the solar stills for use at isolated stations and for installation in our rubber boats on ships being ferried overseas.

b. Under date of January 20, 1943, by Routing & Record Sheet, the Director of Military Requirements informed the Materiel Command as follows:

"2. From information which has been received to date, it would appear that the Solar Still is still in the experimental stage. The Bureau of Aeronautics and the Quartermaster General's Office have been unable to indicate any production order for this particular Solar Still. Wright Field has a quantity of the Galloway Stills on order. General Arnold wishes to have in our life rafts the best type of water producing equipment possible. If the Solar Still is nearly as good as the Galloway still, but is more readily procurable, it should be procured. Time is essential. The Materiel Command and the Air Service Command, in collaboration, are in the best position for determining the quantity to be procured."

3. Authority:

a. Commanding General, Army Air Forces.

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ORIGINAL
L79.--SOLAR STILL
C.EAAF3(1P)

HEADQUARTERS ARMY AIR FORCES

ROUTING AND RECORD SHEET

TALLY SHEET NO.

X700112

SUBJECT: New Developments for Use by the A.A.F.

TO: Deputy Chief of the Air Staff - Room 3E 1031 DATE 3/11/43

FROM: Materiel Command - 5C COMMENT NO. 1
RNJ/ah/3831

RWJ

1. Reference is made to R & R Sheet, Item 13, dated February 18, 1943, to your office.

2. Tests of the Gallowhur solar still have been completed by Materiel Center personnel at Eglin Field, with excellent results. Exposure of the still to sunlight for four hours with air temperatures between 75 and 85 degrees F. produced 175 cubic centimeters of drinking water.

3. Action is being initiated this week to procure a quantity of 30,000 of these stills for use with life rafts.

J. W. Gilbert, Col, A.C.
J. W. CHIDLAW
Brig. General, U.S.A.
Asst. Chief of Staff (E).

TO: Air Adjutant General DATE 12 March 43

FROM: Deputy Chief of the Air Staff COMMENT NO. 2
MAL/mdg/5265

1. Noted by General Hanley.

2. For files.

mal.
MILLARD A. LIBBY,
Lieut. Colonel, G. S.C.

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MC-432-WF-8-24 [illegible]M

ARMY AIR FORCES
HEADQUARTERS OF THE MATERIEL COMMAND
WASHINGTON, D. C.

TECHNICAL INSTRUCTIONS

Serial No.: TI-1475 (Cont'd)

Subject: Procurement of Solar Stills.

To: Technical Executive,
Wright Field, Dayton, Ohio.

4. Action Desired:

a. That action necessary, in collaboration with the Air Service Command, to determine the Army Air Forces requirements and the quantity to be immediately procured.

b. Necessary action to immediately negotiate for the procurement of the quantity determined under a, above.

By Command of Brigadier General MEYERS:

J. W. Sessums, Jr.,
Colonel, Air Corps,
Assistant Chief of Staff (P).

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AAF-266-WF-S--12-200M

ARMY AIR FORCES
MATERIEL CENTER
ENGINEERING DIVISION
MEMORANDUM REPORT ON

SCM:mao:54
Date March 20, 1943

SUBJECT: Solar Still for Life Rafts.

SECTION: Equipment Laboratory

SERIAL No. ENG-M-54-671-142

Contract No.
Expenditure Order No. 671
Purchase Order No.

A. Purpose:

1. To report on a trip to Coral Gables, Florida, to witness tests on the Delano Sun Still developed by the Gallowhur Chemical Company, New York, New York.

B. Factual Data:

1. The Delano Sun Still consists of an insulating material faced with a black fabric similar to turkish toweling. The fabric is saturated with sea water which seeps through openings underneath the sea water reservoir. The heat of the sun causes the water to evaporate from the fabric and condensate on a clear plastic window located approximately one inch in front of the fabric. The condensation is collected in the fresh water reservoir at the base of the instrument. The Delano Sun Still is approximately 12 inches by 14 inches by 1-1/2 inches thick. It may be folded into a bundle approximately 4 inches in diameter by 14 inches long, weighing approximately 1-1/4 pounds.

2. Tests were conducted and a series of conferences held on February 24 and 25, 1943. Present at the conferences were:

Materiel Center	Gallowhur Chemical Company
Major S. C. Mayne, Jr., Equipment Laboratory, Engineering Division.	Mr. Richard Delano
	Mr. W. E. Meissner

3. The Delano Sun Still was tested for eight hours February 24, 1943, from 9:00 a.m. till 5:00 p.m., in a rocking boat on the ocean. The air temperature ranged from 73°F to 83°F. The sky was clear until noon and slightly smoky in the afternoon. The total yield was 356 cc's of fresh water, or an average of 44.5 cc's per hour. The still was tested again February 25, 1943, for 3-1/2 hours, from 10:30 a.m. till 2:00 p.m., in a small boat on the ocean. The air temperature ranged from 75° to 85°F. The sky was clear. The total yield was 175 cc's

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Engin. Div. Memo. Report No. EMB-W-WL-671-1142
March 20, 1943

of fresh water, or an average of 50 cc's per hour.

4. A sample of the fresh water was brought back to the Materiel Center and was analyzed by the Aero Medical Laboratory. The water contained .007% salt which indicated it to be absolutely safe for drinking purposes.

5. A Delano Sun Still was brought back to the Materiel Center for further tests.

6. Discussions were held relative to adapting the still for life raft use.

C. Conclusions:

1. The Delano Sun Still is considered to provide a practical means of converting sea water into drinking water for use by personnel stranded in life rafts.

D. Recommendations:

1. It is recommended that the following action be taken by the organization designated below:

a. Engineering Division, Materiel Center, Equipment Laboratory:

(1) That action be initiated to procure a sufficient number of Delano Sun Stills for installation in multi-place life rafts now in Service. (action initiated).

Concurrence:

Prepared by S. C. WAYNE, Major, A. C.

Approved by G.V.H[illegible], Colonel, A.C.
Comd. Equipment Lab.
Engineering Division

Approved by [illegible], Brig.Gen., U.S.A.
Chief, Engineering Division

Distribution:
C.I., U.S.Com. Att: Chief of Staff
C.G., ASC (2)
Ch., Prod. Engr. Sec.
Chief, Procurement Division
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MDAC-265-WF-12-24-41-800M

INTER-OFFICE MEMORANDUM

WAR DEPARTMENT, AIR CORPS
Office, Assistant Chief
Materiel Division

FOC:lmf:50
Wright Field, Dayton, Ohio
Date March 24, 1943

4/5/43
A.E.B.
For action in connection with TI 1475

TO: Chief, Production Division, Wright Field.

SUBJECT: Solar Stills for Life Rafts.

1. Reference is made to TI-1475 dated March 19, 1943, subject "Procurement of Solar Stills".

2. It is the opinion of the Engineering Division that the Solar Still is the best of all stills submitted to the Materiel Center for test to date in that it will produce approximately one pint of water per day. It is simple in construction, simple to operate and takes up very little additional space in the life raft.

3. Considerable discussion and coordination has been carried on with the Production Division and Air Service Command regarding the quantities required to meet the requirements set up in Materiel Command teletype 5-124 dated March 11, 1943 wherein it is stated that a "substantial quantity" should be procured. It is the recommendation of the Engineering Division that 30,000 Solar Stills should be procured. It is also our recommendation that the allocation of stills should be on the following basis:

** ~~One per one-man raft~~
Two per four-man raft
Three per seven-man raft

Priority of installation should be on multi-place rafts.

4. This memorandum supplements memorandum from the Equipment Laboratory, Engineering Division, to the Chief, Production Engineering Section, dated March 16, 1943.

F. O. Carroll

F. O. CARROLL,
Brig. General, U.S.A.,
Chief, Engineering Division.

Copy to Equipment Lab.

** No stills are to be installed in one-man rafts, per verbal Colonel G. V. Holloman to Colonel Brentnall on March 24, 1943.

Concurred in

Signature

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AAF[illegible] WT-9-2-42-500M

INTER-OFFICE MEMORANDUM

ARMY AIR FORCES
MATERIEL CENTER
Office of The Commanding General

Ref: TJK:reh-70-5M

Wright Field, Dayton, Ohio
Date April 2, 1943.

Procurement Section
Dept. 70

TO: Production Division,
Administrative Unit.
Attn: Mr. W. E. Donnelly.

SUBJECT: Authority For Purchase # 346991,
"Delano" Sun Stills.

1. In accordance with a telephone conversation between your office and a representative of the Aero Equipment Branch, we have held up subject Authority For Purchase until clarification of purchase authority is furnished to us by your office.

2. Attached hereto is subject Authority For Purchase and it is requested that your office retain the original copies until such time as you see fit to release it for procurement.

for K. P. Royce Maj A C
M. D. BURNSIDE,
Colonel, Air Corps,
Chief, Aeronautical
Equipment Branch.

Incl.
Orig. and Copies of
AFP # 346991.

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Signature

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Telephone conversation between Major L. [illegible]bury, Material Command, Washington, D. C., and Mr. [illegible] Connelly, Material Center, Wright Field, Dayton, Ohio.

SUBJECT: Solar Stills

(This connects with TI-1475 dated 3/19/43)

CC: Aero. Equip. Br. (Att: Major Royce)

Mr. D: Our Manufacturing Methods Branch will look at it the very first thing Monday.

Maj. B: Here's the story, the reason I'm calling you. General Arnold requests that I get it on a TI, wanted our - - - - - - to check with these solar stills, to get in touch (not clear). And these people are bothering Mr. Lovett daily.

Mr. D: Of course they would.

Maj. B: Now the story is of course, we left the matter up to you people to decide the quantity and the type that you would buy. Now it still holds.

Mr. D: That's right. We went along with this type as far as being the better one of the two. I understand that the other one is not very efficient, and we do go along with it, but there is a big difference as expressed here unofficially here today as to whether the article is a five dollar one, or a twenty-five dollar one, and also if they are setting up a lot of facilities that need machinery, we've been prohibited from doing that. Maybe this office is somewhat at fault in not having checked through to find that before, but we haven't done so, and we have to pick up the loose ends. But we will know a lot of that by Monday morning, and I'll give you a call sometime Monday afternoon, and tell you just what's going to happen on it.

Maj. B: Okeh, fine. They told me, that - the Representative of the Gallaher and Company that was in here, and they were greatly satisfactory on this thing, that their estimated cost was around twenty dollars, but that was subject to review, and reduction, after they get into their contract far enough to be able to tell what their costs should be on it.

Mr. D: Of course that's true, and we ought to pick up some of that over all by checking on the auditing etc., but General Cole didn't feel that he should give this A for E on a twenty-five dollar article if our people can just look at it and say that he can put it for ten.

Maj. B: That's right.

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Telephone conversation between Major Bradbury, and Mr. Donnelly.

4/5/43 4:08 PM

Mr. D: General Bolton has asked me to have Colonel Grantnall to get hold of it Monday morning, the first thing, and present some sort of a recommendation to him by noon, so we will tell you something definite on it Monday afternoon.

Maj. B: Well, I'll call Mr. Lovett, Air Service and tell him to sign it today.

Mr. D: I would suggest sir, that you not go too much into the fact of the facilities etc., but tell him that we're just making that usual check with respect to facilities, equipment machinery etc., and we'll have something to offer on it Monday.

Maj. B: Yeah. Of course another way to look at it, between you and I, a lot of our boys go down and lose their lives just because they haven't got a twenty-five dollar item in the ship, that's going to be (Not clear)

Mr. D: That's right, but if you can make that same twenty-five dollar item for ten dollars here in Dayton, or some other small place, we should do it, no matter who it belongs to.

Maj. B: That's right. The main thing is to get the article.

Mr. D: We what along on this 30,000 quantity that was recommended. Engineering recommended that initially. We don't know their basis for it, but Air Service Command have agreed, and we have agreed on the difference between twenty and thirty. We're not going to argue on that at all, as we are in agreement on quantity.

Maj. B: Yeah, fine. I'll tell Colonel that you will be able to get some kind of a definite answer Monday afternoon.

Mr. D: All right sir, and I'll call you then.

Maj. B: You can call and tell me then whether the A for P is being written.

Mr. D: The A for P is written. I have it, but - it's been written for a couple of weeks, and then we had this conference that General Bolton, and frankly for the last few days I did let the thing drift along until we got some more information on this setup, and the General will have this people up here Monday, and we'll get you something Monday afternoon.

Maj. B: It will be Monday afternoon when the A for P will be released.

Mr. D: Yes, I'll be able to do that.

Maj. B: Yeah, fine. Thank you.

Mr. D: Thank you.

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E. E. DONNELLY
Chief, Administrative Branch
Production Division

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AAFMC-185-WP-4-4-43-200M

Authority for Purchase (# 347300

Ref: TJK:reh-70-5M

VENDOR

CONTRACT No.

PURCHASE ORDER No.

DELIVERY | VIA | TERMS | METHOD | PROPOSAL

THE ABOVE SPACE TO BE USED BY THE PURCHASE BRANCH ONLY

Item	Quantity	Unit	Estimated Unit Price	DESCRIPTION OF MATERIAL OR SERVICES TO BE PURCHASED.	Unit Price	Total Price
1.	30,000	ea.	$10.00	Sunstill in accordance with Exhibit "A" attached hereto and made a part hereof. This Authority For Purchase is initiated in accordance with T.I. # 1475. This Authority For Purchase cancels and supersedes Authority For Purchase # 346991. 6/1/43 Budget Item # 7. No Aero. Equip. Ref. Number necessary.		

AOP-656
W262 Ac 278

Total Estimated Cost $ 300,000.00 CLASSIFICATION 03-P

Total Actual Cost

B—FUNDS			A—FUNDS		C—FUNDS		
EXPEND. ORDER No. MISCL. CHARGE No.	Project No.	Item No.	Project No.	Item No.	Project No. 411-03	Class No.	Item No.

Increase of Funds to Actual Cost Approved

Section Chief

MATERIAL TO BE OBLIGATED FOR F.Y. 43 Program "I" WANTED NOT LATER THAN June 1, 1943. (Date)

DELIVER TO Accountable Officer, Fairfield Air Depot, Fairfield, Ohio.

Accounting Branch

Procurement Data Number of Sets 5 sets according to Table V. DATE FURNISHED

Budget Officer

Remarks on the following matter marked with "X" appear in the space below:

1. Recommended Sources of Supply X 2. Government furnished material ____ 3. Tools, patterns, etc., loaned by Government ____
4. Should Serial Number be assigned ____ 5. Point of Inspection X 6. Increase Existing Orders ____ 7. General Remarks: X

1. Gallowhur Chemical Company,
Windsor, Vermont (Sole source).

5. Contractor's Plant.

7. See Exhibit "A".

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(AFR 11-30)

Distribution of Funds:

Item	Quantity	Program	Cost	Project
1	30,000	F.Y. 43	$ 300,000.00	411-03.

Delivery:
Start June 1, 1943, at rate of 200 completed articles per day.

Proc. Auth. No.	AAF	P	A
Proc. Auth. No.	AAF	P	A
Proc. Auth. No.	AAF	P	A

Upon due inquiry made it was found that the articles enumerated hereon could not be procured from any other branch of the Government without transfer of funds, or the immediate need of these supplies or the remoteness of this station from point of supply precludes their purchase from any other branch of the Government.

Date	Initiated by	Signed—Branch Chief	Signed—Section Chief
4/2/43	M.D.BURNSIDE, Col.,AC Chief, Aero. Equip. Br.	I.R.SELBY, Col.,AC Chief, Aircraft Section, ASC	J.F.EARLY, Col.,AC Chief, Supply Div., ASC

Coordinated by Production Engineering Div.	Coordinated by Chief, Contract Sec.	Approved—Accounting Br.	Approved—Budget Officer
S.R.BUENTHALL, Col.,AC Chief, Prod.Eng.Sect.	A.E.ENEBO, Col.,AC Chief, Procurement Div.		KOHLRIESER, Lt.Co Budget Officer.

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Ref: TJK:reh-70-5M
April 8, 1943.

EXHIBIT "A"

To: Chief, Procurement Division.
Thru: Air Service Command.
Subject: Sun Stills.

7. a. This Authority For Purchase is written on the basis that articles on Purchase Order # 43-2389-E are delivered and accepted.

b. After acceptance of all the articles on Purchase Order # 43-2389-E, the Contractor will deliver ten completed production models for test and approval on this procurement before a production release will be granted by the Production Division.

c. No facilities may be purchased or acquired as a part of the equipment necessary to manufacture subject articles or in any way connected with this procurement.

d. The article must conform to the description below:

(1) Size approximately 15 1/2" x 15 1/2" x 1 3/8".
(2) Weight not to exceed 22 ounces.
(3) All characteristics of the sample submitted shall be retained except that the plastic strap at the top of the assembly shall be eliminated and a length of 1/4" cotton rope 30" long be substituted. Metal snaps are not required.

e. Instructions shall be printed or stamped on the back of still assembly. Instructions for operation, handling shall be submitted to Production Division for approval. Ink to be used shall conform to AAF Specification # 3-50.

f. The assembly shall be subject to cold test - 65° F. for one hour and Heat test 160° F. for one hour and function satisfactorily at the conclusion of the two tests.

g. The assembly shall be rolled up in a closed position and unrolled to the operating position, 150 times. At the conclusion of this test, the assembly shall function properly and no cemented or heat seal seams shall have opened. Failure of any material in the assembly after being tested in this manner is cause for rejection.

h. Performance Test. The sunstill shall be filled with sea water and placed at an angle of 45°. An R-40 bulb reflector 115 volt 250 watt heat lamp shall be placed approximately 18" from the sunstill with the center of the reflector in line with the center of the still. Using this procedure, fresh water shall be produced at the minimum rate of 75 cc per hour continuously.

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Ref: TJK:reh-70-5M
April 8, 1943.

EXHIBIT "A" (Cont.)

To: Chief, Procurement Division.
Thru: Air Service Command.
Subject: Sun Stills.

i. One complete assembly of each one hundred shall be tested as specified under sub-paragraphs j. to k. inclusive. Failure of the test sample to meet the tests required will cause the entire lot to be tested and inspected.

j. The article shall be subjected to a weatherometer test of 200 hours continuously and function properly at the end of such test.

k. Pure Water Test. The sunstill shall be operated for six days or for a total of 2,000 c.c: of H_2O distillation in an environment corresponding to the ocean in the tropics, 30°C. Temperature and at least 85% Relative Humidity. At the end the water produced shall contain not more than .01% total salts and shall not contain soluble toxic products of the still.

l. All material and workmanship shall be of the highest quality.

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April 10, 1943

Delano Sun Still

1. The following is a brief summary of proposed procurement above subject to date:

a. Idea originally presented to Equipment Laboratory late in 1942 by Mr. Delano, now of the Gallowhur Chemical Corp.

b. Sample Still was tested at Miami, Florida in presence of Major Mayne, of Equipment Laboratory.

c. Sample Still was later submitted to Equipment Laboratory.

d. Results of test were of sufficient interest to warrant possible inclusion of Stills as supplementary equipment for life rafts.

2. A conference was held March 9 with the following present:

Lt. Colonel C. M. McGrath, General Procurement Branch
Major Jack Cunningham, General Procurement Branch
Major Mayne, Equipment Laboratory
Captain Clarkson, Production Division, Aero Equipment Branch
Mr. Gallowhur, President, Gallowhur Chemical Corporation
Mr. Delano, Gallowhur Chemical Corporation

3. At this meeting a sample Still was displayed, and Production Engineering Section stated an urgent need of these stills for life rafts already procured. Quantity discussed 75,000, later reduced to 30,000. Mr. Gallowhur estimated price of $25.00 each. Forms were furnished Gallowhur Chemical Corporation for quotation. This request was predicated on advance copy of A.F.P. 346991, which was initiated following the date of March 9. Price quoted was $20.15 each plus facilities of approximately $12,000.00.

4. Major Royce, Production Engineering Section advised that A.F.P. 346991 would be held in abeyance because of lack of initiating authority. Mr. Pearl of Gallowhur Chemical Corp., and Mr. Raye of Skol Company were so advised.

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5. During such preliminary negotiations no specifications of the Still were available.

6. On April 5, 1943 a meeting was held in General Wolfe's office with the following present:

Colonel Brentnall, Production Engineering
Major Royce, Production Engineering, Aero Equipment Branch
Mr. Donnelly, Production Division
Colonel Holloman, Equipment Laboratory
Mr. Trimback, Manufacturing Methods
Colonel McGrath, General Procurement Branch
Major Cunningham, General Procurement Branch
Captain Work, General Procurement Branch

7. Mr. Trimback estimated top price would not exceed $5.00 per Still, and stated that many of the parts could be made by Smaller War Plants eliminating necessitating of facilities. The consensus of opinion was in full accord with Mr. Trimback.

8. The following conclusions were reached:

a. New A.F.P. would be initiated with a top estimated price of $10.00 per unit.

b. Specifications would be written and include certain minor revisions.

c. First articles would be submitted for inspection and test to insure correct production articles.

d. Contract would include redetermination clause to protect Government interest.

9. Production Engineering Section advised General Procurement Branch on April 9, 1943 that specifications were being written and A.F.P. had been initiated. This A.F.P. has not as yet been received in General Procurement Branch.

10. Talked on telephone on April 9 with Major A. P. Tappan, Assist. Chief of Air Staff, Material Maintenance and Distribution, Production Branch, requesting status of this proposed procurement.

CHARLES H. McGRATH,
Lt. Col., Air Corps,
Chief, General Procurement Branch

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Telephone conversation between Lt. Col. Bradbury, Washington, D. C., and Colonel S. R. Brentnall, Wright Field, Dayton, Ohio.

File: Solar Stills 671 May 13, 1943 2:45 P.M.

Subject: Further information on Gallaher stills.

Col. Brad: What do you hear from our old friend Gallaher?

Col. Brent: Not a thing. I was just asking Orval Cook what he'd heard and apparently it's cooled off a little bit. You see they - the Procurement Division as I understand sent that A.F.P. to the Eastern Procurement District to do the buying and I haven't heard any more from it.

Col. Brad: That's the reason I called you because that Mr. Ray is bouncing around Washington. They're hollering to the Quartermaster General's office now on it and they claim that Lend-Lease want to buy a block of them for Britain and the Navy are interested and the Canadians are interested and I guess wants a couple hundred.

Col. Brent: Well, let them buy them.

Col. Brad: I agree with that. What they're squawking about now is the latest specification particularly in regard to the recording pyro heliometer test. They claim there is no such animal as a pyro heliometer.

Col. Brent: I don't know about that. The boys over here wrote the spec. in the Engineering Department. That's something like a light meter that you take pictures with a camera with.

Col. Brad: That's what I thought it probably was.

Col. Brent: Only it's pyro. That means instead of measuring light intensity in candle power it measures light intensity in calories.

Col. Brad: There were several other things pertaining to it - relative humidity and things of that nature. My main purpose in calling you, Colonel, is to find out if you had anything new on it so I could expect the blitz from Mr. Lovett's office.

Col. Brent: No, I haven't had a thing since we changed the spec. that time. He said 75 cc an hour was too high and we went down to 60 cc although his actual product did around 75. He still wanted that fancy suspender strap across the top and we still said no, cotton rope was plenty fine but after they sent it to the Eastern District I don't know what happened to it. I thought that the contract had been let; I hadn't heard any reverberations for such a long time.

Col. Brad: I thought so too, particularly in view of the fact that Col. Volandt in here authorized them to jump the price from $10 to $15, subject to renegotiation at the end of 7500.

Col. Brent: Our boys out here in Manufacturing Methods say that they'll resign their positions and quit [illegible] I haven't heard a thing on it at all but if this Navy [illegible] with the Navy

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Col. Brent: and the Quartermaster tell him to hop to it. If they get so busy they can't build them we can give them to any novelty company that can make them.

Col. Brad: There's one other thing too. They claim someone from Wright Field sent somebody from the Prophylactic Tooth Brush Company up to find out how they made them.

Col. Brent: You've got me there. I wouldn't know. I know I didn't. The fact of the matter is I have talked to no one except our own crowd about this and unless the Eastern District sent them out there that anybody was even looking for any capacity. I thought this lad Delano had the necessary wherewith to go right to work on them. I didn't know we were looking for any capacity for them at all.

Col. Brad: You don't happen to know who in the Eastern District might be handling that do you?

Col. Brent: No, I don't but you might call Colonel Nichols. He would know who's handling it. I don't think he's doing it but he might know who's doing it.

Col. Brad: If you do happen to hear anything about it, Colonel, I'd appreciate a teletype on it.

Col. Brent: All right. Or I'll call you.

S. R. BRENTNALL,
Colonel, Air Corps,
Chief, Production
Engineering Section.

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[redacted] PLS

NY-64
AAF EASTN PROC DIST 182050Z MAY 1943

CG AAF MAT COMMAND
WRIGHT FIELD DAYTON OHIO

ATTN CHIEF PROCUREMENT DIV

NYCONT T 345 RE A.D.P. NO. 656
CONTRACT BEING PREPARED. CONTRACTOR ADVISES THAT COL. VOLANDT HAS ORALLY APPROVED A PRICE READJUSTMENT CLAUSE DUE TO EXPERIMENTAL NATURE OF ARTICLES . CONTRACTOR ALSO EXHIBITED TELEGRAM FROM GENERAL ARNOLD,S OFFICE THAT THE ARTICLES URGENTLY NEEDED. CONTRACTOR WILLING TO ACCEPT UPWARD RENEGOTIATION PROVISION IN LIEU OF STANDARD PRICE READJUSTMENT CLAUSE PROVIDED THAT LIMITATION PROHIBITING ADDITION TO CONTRACT PRICE [redacted] AFTER COMPLETION OF MORE THAN 25 PER CENT OF THE ARTICLES IS ELIMINATED. PLEASE ADVISE.
PROPST ACTING

END JL

(APR 11-30)

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52:CHB:JP

[redacted]
MATERIEL COMMAND

Wright Field, Dayton, Ohio
May 22, 1943

T-345 ADP 656 - - Sun Stills

A. A. F. District Supervisor
Eastern Procurement District
67 Broad Street
New York, New York

36

1. Reply to above referenced teletype and ADP 656 concerning 30,000 Sun Stills is as follows.

2. Generally, the construction consists of wooden dowels, pins and slats which can be manufactured by any furniture manufacturer or small wood pattern shop. The resinous plastic for frame and cover plates are commercially procurable. Specification of thermal requirements should be emphasized to contractor. Rubber tubing and ball, shoulder strap, metal buckle, toweling chemically treated, are all commercially procurable. Cement, heat and water resistant, are commercially procurable but requirement should be emphasized.

3. Inasmuch as all items are commercially procurable, the contractor is chiefly an assembler of the components.

4. A redetermination of price specified in the contract is inapplicable. A flat fixed price is suggested as result of negotiations. Maximum price referred to on ADP is considerably above a fair and reasonable price.

For the Commanding General,

A. E. JONES
Brig. General, U. S. A.
Chief, Procurement Division

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SOLAR-STILL
PB-5--(1/2 PP.)
MAT. DIV
MMB
WPH.

U. S. Standard Form No. 32 (Revised
Approved by the Secretary of the
Treasury June 15, 1935

Contract No. W28-038 ac-2618

...ract No. W28-038 ac-2618 (Supplemental Agreement No. 1 to
...ract No. W28-038 ac-2618, dated
...Supplemental Order No. 3001,
...ember 27, 1942.

CONTRACT

(SUPPLIES)

/s/ [illegible] for H. HUTCHINS
H. E. HUTCHINS
Colonel, Air Corps
District Supervisor
Eastern Procurement
District

ANMB Preference AA-1 Allot. No-1

Allocation Classification System Symbols: USA .....

WAR DEPARTMENT
(Department)

Gallowhur Chemical Corporation
(Contractor)

Contract for 30,000 Ounces ..... Amount, $360,000.00

Place Army Air Forces, Material Command, Eastern Procurement District, 67 Broad Street, New York, N.Y.

The Finance Officer, U. S. Army, 88 Journal Square, Jersey City, N. J. is designated as the officer to make payments in accordance with this contract. The supplies and services to be obtained by this instrument are authorized by, are for the purpose set forth in, and are chargeable to the Procurement Authorities listed hereon, the available balances of which are sufficient to cover cost of the same.

AC 2563 P 422-00 A 0705-03 - $360,000.00
A.P.P. No. 347300, initiated by Acmo, Equip. Br.,
(April 9, 1943)
Class: WE-P Project No. 85-40 A.D.P. No. 656

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SOLAR-STILL
PB-5--(2/2PP.)

CONTRACT FOR SUPPLIES

THIS CONTRACT, entered into this 8th day of June, 19 43.
by THE UNITED STATES OF AMERICA, hereinafter called the Government, represented by the Contracting Officer executing this contract, and Gelloshur Chemical Corporation

a corporation organized and existing under the laws of the State of Vermont
a [redacted]

an [redacted]
of the city of Windsor, in the State of Vermont
hereinafter called the contractor, witnesseth that the parties hereto do mutually agree as follows:

ARTICLE 1. *Scope of this contract.*—The contractor shall furnish and deliver to the Government the products and materials specified in Article 15 hereof

for the consideration stated Three Hundred Sixty Thousand DOLLARS and No CENTS, ($360,000.00), payable in the manner and at the unit prices stated herein, subject to any changes in the stated consideration provided for herein,

in strict accordance with the specifications, schedules and drawings, all of which are made a part hereof and designated as follows: As set forth in Article 15 hereof.

This contract was negotiated under the authority of the First War Powers Act, 1941, and Executive Order No. 9001, December 27, 1941.

Deliveries shall be made as follows: As set forth in Article 16 hereof

Classification: None

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Commanding General,
Air Material Command,
Engineering Division,
Equipment Laboratory,
Wright Field, Dayton, Ohio

19 JUL 1943

Gentlemen:

Tests have been conducted by the Material Command, Wright Field, Dayton, Ohio, on four Sicple sun stills, Nos. 29, 30, 32 and 50, submitted by your agency. The results of the operational tests so far conducted are as follows:

a. Two of the four stills submitted, Nos. 29 and 30, failed. The failure of No. 30 was due to the fact that on each of several trials salt water only was obtained. The 92 cc of water from a one hour test contained 2.6% sodium chloride, whereas the original water contained 3.5% sodium chloride. Sun still No. 50 was returned to your representative. The failure of No. 29 was due to the fact that the small drain tube in the distilled water reservoir fell out during a distillation test.

b. All the valves on the aluminum bulbs used as pumps failed after a very short time.

c. The weep holes of sun still No. 29 became plugged with particulate matter contained in the salt water used. The holes could not be cleaned by increasing or decreasing the pressure in the sea water reservoir with the pump.

d. The plastic stiffener tubes of sun still No. 30 stuck in the still and could not be removed after two or three days of use. The stiffeners could not be removed after either soaking in water or after drying. Thus the still could not be rolled up. These tubes were of brown plastic. The black stiffeners did not stick under the same conditions. It will be necessary to roll up the stills in actual use.

e. The knobs on the end of the stiffener tubes pulled out making it difficult to remove the stiffeners.

f. The functioning of the air inlet valve on the sea water reservoir was irregular. At times air would not bubble through the valve as specified in the operating instructions.

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Sullowhar Chemical Corporation
13 [illegible]

a. It was observed that distilled water frequently dripped back to the evaporator pad if the sea water reservoir was filled only four inches above the fresh water reservoir. A fill of four inches is given as the minimum in the operating directions.

b. The evaporator pad of sun still No. 29 was saturated with sea water and allowed to dry. Sea water was then pumped into the sea water reservoir. The pad became wetted, and it was again allowed to dry. The sea water reservoir was again filled with sea water and again the pad was wetted, indicating that the pores of the evaporator were not easily plugged by dried sea salts.

c. In simultaneous tests of sun stills Nos. 2[illegible] and 30, the yields of the two stills differed from 1 to 25% per hour. The total yields of each still during the simultaneous tests differed by 0.2[illegible] per hour.

j. Although it was not possible to determine the efficiency of the sun stills pending receipt of necessary equipment, the yields obtained appeared to be reasonable, with the two stills which could be used for distillation tests. The water obtained from the stills contained small amounts of salt (except that from still No. 30, noted above). One sample from a one hour test contained 0.01% sodium chloride, another from a two hour test, 0.07% and one from an eight hour test, 0.18%; the latter still was No. 30. The water had an odor associated with plastics or plasticizers. The taste was very slightly bitter.

k. It was found to be difficult to follow the operating instructions, due to the wording, the punctuation and the format.

The tests conducted on the durability of the sample sun stills are incomplete because of the limited number available. The results of those so far completed are as follows:

a. A sample of the transparent face material exposed to 100° F. for one hour had assumed a permanent roll and was slightly crinkled. It shrank about 1.2%. It retained its wettability by water.

b. A complete sun still was subjected to a temperature of 160°F. for 24 hours, while rolled up. At the conclusion of the test the transparent face had become very badly distorted and wrinkled. It was scarred where the rubber bulb and tubes had come in contact with it. The material had shrunk approximately 7% making it

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Gallowhur Chemical Corporation,
13 JUL 194[illegible]

[illegible] possible to unroll the still completely, and rendering the still non-functional. The material was still soluble by water.

The following recommendations are made on the basis of the tests conducted up to the present:

a. The failure of gun still No. [illegible] should be investigated so that corrective changes can be made in production models. It is requested that an explanation of this failure be submitted to the Material Command. The fairly high salt content of one sample from gun still No. 3[illegible] should also be noted.

b. It is recommended that the drain and fill tubes be attached more securely, and that lacquer or similar parts be strengthened.

c. It is recommended that a more suitable pump and valve system be provided and that about 10 inches of tubing be provided on the intake of the pump.

d. It is recommended that a strainer be provided at the intake for sea water of such mesh that it will keep back particulate matter that would clog the weep holes, and of such construction that it can be cleaned easily.

e. It is recommended that the stiffeners and those parts with which they are in contact be made of material which will not stick in use.

f. It is recommended that the knots on the ends of the stiffeners be firmly attached.

g. It is recommended that the irregular functioning of the air inlet valve be corrected; perhaps by modification of the size or shape of the holes to reduce the possibility of lens formation by water in the holes.

h. It is recommended that the operating instructions be changed to read ". . . raised at least seven inches above bottom reservoir . . . ."

i. It is recommended that the odor and taste of the distilled water be eliminated.

j. It is recommended that the material used for the stills conform with requirements for [illegible] as given in Specification No. 9[illegible]-1490 with Amendment No. 2 dated 1 February 1943 and 21 May 1943 respectively, copy attached.

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Gallowhur Chemical Corporation
[illegible]

K. It is recommended that the operating directions be modified in content and format so that they can be followed more easily.

In order to complete the tests, it is requested that the following be submitted to the Materiel Command:

a. Fifteen more sun stills.

b. Complete and specific information of the nature of the transparent face material and of the cement used to fasten the evaporator pan to the back of the still, in particular, (1) the compositions, sources, and designations of these materials, (2) all special treatments or processing that the regular stocks are subjected to and (3) the reasons for any such treatments or processing, and for the choice of the materials.

It will be satisfactory for a representative of your Company to witness the tests to be conducted.

Your interest and cooperation are appreciated.

Very truly yours,

G. V. HOLLOMAN,
Colonel, Air Corps,
Chief, Equipment Laboratory,
Engineering Division.

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WASHINGTON DC 212254Z

COMMANDING GENERAL

AIR SERVICE COMMAND

PATTERSON FIELD FAIRFIELD OHIO

AFDRS 4 U3423 PD REQUEST FOLLOWING LIFE RAFT EQUIPMENT BE PROCURED AND SHIPPED TO FIRST SEA SEARCH ATTACK GROUP LANGLEY FIELD VIRGINIA BEFORE JULY FIFTEENTH COLON ONE HUNDRED EMERGENCY SIGNALLING MIRRORS SMALL SIZE SIXTY RUBRER BOAT LIGHTS ONE HUNDRED FIFTY SOLAR STILLS FOR MAKING POTABLE WATER LATTER ITEM MANUFACTURED BY GALLOWHUR CHEMICAL CORPORATION TWO HUNDRED FIFTY EAST FORTY THIRD STREET NEW YORK CITY PD ADVISE ACTION TAKEN

ARNOLD

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'AFDBS-4AA)

War Department
Headquarters of the Army Air Forces
Washington, D.C.

22 Jul 1943

DBS/S&M 452.19 (05B)

SUBJECT: Solar Stills for First Sea Search Attack Group.

TO: The Commanding General, Air Service Command,
Patterson Field, Fairfield, Ohio.

Attn: Major Shelton, Overseas Supply Section.

1. In accordance with telephone conversation between Major Shelton and Lieutenant Hierach of this office, 21 July 1943, it is desired that your office immediately take action to supply the First Sea Search Attack Group at Langley Field, Virginia with seventy-five (75) Solar Stills.

2. These Solar Stills are to be supplied on experimental bases for Service test.

3. It is requested that this Headquarters be advised action taken.

By Command of General ARNOLD:

H. B. BENEDICT
Lt. Col., Air Corps,
Chief, Distribution Section
Office, Asst. C/AS, M M & D

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ASCSA5C2 ASCS06A 22 Jul 43 1

1. In conformance with attached teletype, it is desired that seventy-five (75) Solar Stills be procured and shipped to Langley Field, marked: Attention Major Foster. The attached teletype requested one hundred fifty (150) of these stills, but this quantity was reduced on the basis of a telephone conversation with Lt. Colonel Benedict on 21 July 1943. It is further requested that those stills arrive at Langley Field no later than 1 August 1943.

Att:
AFDBS 4 AE U3423

R. R. SCOTT

ASCS06A
RRS:efm
5-6237

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ROUTINE

Army Air Forces, Materiel Command,
Wright Field, Dayton, Ohio.

Ref: TJK:reh-70-2M.
24 July 1943.

Gallowhur Ehemical Corporation,
250 East Forth Third Street,
New York, New York.

S. R. BRENTNALL,
Col., Air Corps.

PES-2390-M.....CONTRACT W 2620 AC 278. RETEL 22 JULY 1943.

MATERIEL COMMAND WILL ACCEPT 75 SUNSTILLS WAIVING INSPECTION REQUIREMENTS.

THIS DOES NOT CONSTITUTE BLANKET AUTHORITY FOR FUTURE SHIPMENTS AS THE 75

STILLS ARE FOR EXPERIMENTAL PURPOSES. MATERIAL TO BE SHIPPED TO ARRIVE

DESTINATION ON OR BEFORE 1 AUGUST 1943. DESTINATION: ARMY AIR FORCES,

LANGLEY FIELD, VIRGINIA. ATT: MAJOR FOSTER. OFFICE TRAFFIC & TRANSPORTATION

WILL CONFIRM AS OFFICIAL SHIPPING INSTRUCTIONS. END AFAMC.

PRODUCTION DIVISION, WRIGHT FIELD.
Contract W 2620 AC 278.

cc: AAF Insp. Office,
New York, N.Y.
East. Dist. Sup.
AAF Inspector.

COLLECT

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Subject: Solar Stills for First Sea Search Attack Group.

1st Ind. Ref: TJK:vb 70-5M

Hq., Materiel Command, Wright Field, Dayton, Ohio. 29 July 1943.

To: Commanding General, Air Service Command, Patterson Field, Fairfield, Ohio. Attention: Class 03-F - Mr. Dubro.

1. Reference the basic communication, 75 Sunstills on Contract W 2620 AC-278 have been diverted from Fairfield Air Depot to Army Air Forces, Langley Field, Virginia, Attention Major Foster.

2. Shipping instructions were issued by telegram, Office of Traffic and Transportation. Telegram number OTT 29181, sent 26 July 1943.

For the Commanding General:

S. R. BRENTNALL,
Colonel, Air Corps,
Chief, Production
Engineering Section.

Incl:
a/c

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GALLOWHUR CHEMICAL CORPORATION

WINDSOR, VERMONT

SEND REPLY TO: 250 EAST 43RD STREET
NEW YORK, N.Y.
MURRAY HILL 4-0890

Aug. 30, 1943.

Commanding Officer
AAF Materiel Command
Engineering Division
Equipment Laboratory
Wright Field, Dayton, Ohio

Gentlemen:

Attached are two copies of revised directions for operating our Sunstill apparatus.

As you know, it is our intention to screen directions on the back of each unit, but before doing so want to be sure that they are satisfactory to you.

After you have had a chance to examine these directions, we shall be very pleased to receive your comments.

Very truly yours,
GALLOWHUR CHEMICAL CORP.

J. N. Conover

JNC:ao
encl.2

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(AFR 11-30)

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SUBSIDIARY OF [illegible] INC

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"S U N S T I L L"
Trade Mark

DELANO PROCESS

APPARATUS TO MAKE FRESH WATER FROM SALT WATER BY THE ACTION OF THE SUN.

To Set UP:

Unroll unit and push support rods thru threaded holes at "A" and "B" until threads engage, tighten sufficiently to prevent faces touching black pad.

To Fill:

Press free end of fresh water drain tube into slot behind salt water reservoir at corner "B".
Fill canvass scoop with salt water and elevate to allow salt water reservoir to fill. Press filling tube close to scoop end into slot behind salt water reservoir at "A" to prevent water's draining out thru tube.

To Operate:

Hold or tie apparatus with window facing sun and tilted back at an angle of about 45° (Upper reservoir should at no time be less than 7 inches above lower reservoir). The emptying of salt water reservoir should require from 45 to 90 minutes - refill when empty.

If flow from salt water reservoir seems slow or stops, unscrew valve stem in center of salt water reservoir one full turn and allow reservoir to empty - tighten valve and refill. Should flow continue slow or even stop unscrew and remove valve stem, clean end of any foreign

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matter - replace valve and refill reservoif.

Excess salt water will drip from drains at "C" and "D". Fresh water will have accumulated in lower reservoir after at least one hours operation and may be drained off by unhooking and lowering end of fresh water tube. The condenser window may sag but should not touch black pad, window may be tightened by carefully screwing support rods and/or drawing side lackings closer.

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ess reply & ENVELOPE to:

[redacted]

Commanding General,
AAF Materiel Command,
Engineering Division,
Equipment Laboratory,
Reference:ESF:mao:54,
Wright Field, Dayton, Ohio.

XXXXXXXCOMMAND

2 SEP 1943

COM. GEN.
TECH. EXC.
ADM. EXC.
C. O.
BUD. OFF.
EXP. ENG.
CONTRACT
INSP.
PROD. DIV.
PROD. ENG.
PROD. CONT.
I. P. S.
A. S. C.
TECH. DATA
CIV. PERS.
OTHERS

Gallowhur Chemical Corporation,
250 East 43rd Street,
New York 17, New York.
Attention: Mr. Best.

Gentlemen:

Tests have been conducted on the sample Delano Sunstill submitted by representatives of your Company 13 August 1943, with results as follows:

a. The still was thoroughly dried, rolled up with the corrugated paper liner in place and exposed to -65°F for 48 hours without the cardboard tube. Upon removal from the cold room the still was flexed by finger pressure only. After the still had attained room temperature it was unrolled. No ill effects were observed.

b. The still, dry and rolled up as in the cold test, was exposed to +160°F for 48 hours. It was then allowed to cool to room temperature and was unrolled. The only ill effect observed was that the white coloring matter on the fresh water reservoir had become tacky and has remained so.

c. The utilization of available radiant energy by this sunstill (designated as S/13) and three samples of an earlier model, Numbers 65, 66 and 78, was tested. All the stills were operated for a half hour and the water distilled was emptied before the test was begun. The solar energy was measured with an Eppley Weather Bureau type pyrheliometer, kept normal to the sun's rays, and a Brown potentiometer. The resulting graph of time versus potential was integrated for each of the five sixty-minute periods and the integral converted into appropriate energy units. The attached protocol contains the calculations and detailed results of the tests. The efficiency of the sunstills is approximately 30%; it varies somewhat with the intensity of the radiation, decreasing with decreasing intensity. The efficiency of still Number S/13 is somewhat lower than that of the others. During the first period there was little variation of the measured radiation, except during twenty minutes when it was low; during the second and third periods the radiation was quite constant; during

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the fourth period it was slightly irregular; and during the fifth period it was very irregular due to scattered, dense clouds.

As a result of the tests, the following recommendations are made:

a. An effort should be made to increase the efficiency of the stills. In order to attempt to increase the efficiency of stills of the type Number 8/13, the fabric edges of the face should be made to fit closely to the fabric around the stiffener tubes.

b. The sea water scoop should be lighter and smaller and should be supported so that it will not interfere with the operation of the still. Some means should be provided to prevent back flow of sea water from the reservoir.

c. The reflecting surface of the fresh water reservoir is considered desirable, although not necessary, inasmuch as the water from still Number 8/13 was cooler than that from the other stills. However, the coloring matter should withstand the specified temperatures.

d. One or two additional narrow slats should be substituted for the broad slat near each end of the back; and the rivets used to fasten the slats to the fabric should be rust-proof.

e. The screw head on the needle valve is considered satisfactory, but the slot should be widened.

Tests were also conducted to investigate the possibility of using a General Electric 250 W, 105-120 V, Reflector Drying Lamp for routine testing of stills. With the pad of the still at a distance of eighteen inches from the element of the lamp, and perpendicular to it, 29 cc of water per hour were distilled after a warm-up period. At this distance the energy is approximately 1.9 cal/min./cm^2 as measured by the pyrheliometer. At a distance of twenty-four inches the yield was 20 cc/hour, and the energy approximately 1.1 cal/min/cm^2. It is not considered that this lamp alone is a satisfactory source of energy for testing these stills. It is expected that information about more suitable sources will be available soon.

In response to a verbal request of a representative of your Company, it is considered that any of the following companies will be able to supply the braided cotton lacing cord:

a. International Braid, Company, Providence, Rhode Island.

b. Providence Braid Company, Providence, Rhode Island.

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Ltr. to Gallowhur Chemical Corporation.

2 SEP 42

c. Narrow Fabrics Company, Reading, Pennsylvania.

d. Shoelace Company, Lawrence, Massadhusetts.

It is suggested that, as soon as further samples of stills are ready, they be submitted for test to the Materiel Command, Wright Field, Dayton, Ohio, marked for the attention of Department 54-6, Equipment Laboratory, Engineering Division.

Your interest and cooperation are appreciated.

Very truly yours,

G. V. HOLLMAN,
Colonel, Air Corps,
Chief, Equipment Laboratory,
Engineering Division.

1 Incl.
Protocol

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Address Reply & ENVELOPE to:

Commanding General,
AAF Materiel Command,
Engineering Division,
Equipment Laboratory,
Reference: ESF:mao:54:13444,
Wright Field, Dayton, Ohio.

13 SEP 1943

Dallowhur Chemical Corporation,
250 East 43rd Street,
New York 17, New York.

Gentlemen:

Reference is made to your letter dated 30 August 1943. Attached are proposed instructions for the "Sunstill"; these are considered more satisfactory in arrangement and wording than those submitted by your Company. These instructions are in draft form and are subject to improvement and change. It is suggested that the word TOP be printed on the front of the salt water reservoir.

Also attached for your information is copy of letter to Mr. A. W. Janowitz from the General Electric Company dated 31 August 1943. It is the intention of the Materiel Command, Wright Field, Dayton, Ohio to install the light source suggested.

Reference is also made to your letter dated 19 August 1943, in which was stated that correspondence concerning the toxicity of Tenite II was inclosed. This correspondence was not found inclosed with the letter.

Your interest and cooperation are appreciated.

Very truly yours,

O. V. HOLLOMAN,
Colonel, Air Corps,
Chief, Equipment Laboratory,
Engineering Division.

2 Incls.
#1 - Proposed Instructions.
#2 - Ltr. dtd. 8-31-43.

COM. GEN.
TECH. EXC.
ADM. EXC.
C. O.
BUD. OFF.
EXP. ENG.
CONTRACT
INSP.
PROD. DIV.
PROD. ENG.
PROD. CONT.
L. P. S.
A. S. C.
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AAFMC-190-WF-5-20-43-5 M8

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GENERAL ELECTRIC

NELA PARK ENGINEERING DEPARTMENT

CLEVELAND, OHIO

August 31, 1943

Mr. A. W. Janowitz
Room 514 - 25 North Main St.
Dayton, Ohio

In reference to the "artificial sun" problem for Dr. Fetcher, Mr. Scott added to my understanding of it the fact that Dr. Fetcher is getting totally different results when testing his equipment in actual sunlight as compared with testing it under drying lamps radiating energy equivalent in heat to the sun's radiation. This result indicates that his equipment may be selective to various wave length radiation in its operation. Dr. Fetcher's request that we try to approximate the sun's spectral distribution for his testing the equipment indicates that he, too, suspects his equipment is selective.

By using a selection of colored lamps (or color filters) and/or lamps operating at various efficiencies in combination with a water filter for adsorbing excess infra-red, we could fairly well approximate the sun's spectrum in the visible and long wave areas. But since the sun's spectrum is also continuous in the area of shorter than visible wave length radiation and discharge lamps provide only band spectra in this region, it does not seem possible to simulate the sun's radiation in this area.

Before building any elaborate equipment, it might be well to try a comparatively simple set-up which more nearly approximates the sun's spectrum than does the present test equipment using drying lamps. If test results with the new equipment more nearly match those made under actual sunlight, then we would know that the equipment probably is selective to radiation; and, likewise, we would have a better idea of how closely the sun's radiation must necessarily be matched.

A battery of fifty 300-watt reflector spotlights concentrated on the 2-foot by 3-foot test area and mounted approximately 5 feet from it should provide between on e and two calories per square centimeter per minute. A water filter made up of a glass tray containing about one inch of water will help to correct the ratio of I.R. to visible radiation.

We will continue working on this problem in the event Dr. Fetcher wants a closer approximation of the sun's radiation.

The enclosed papers may be of interest to Dr.Fetcher.

DCM:RJ

cc: Buckeye Div.

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D. C. Miller

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C O P Y

Enc. 2

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A STILL TO MAKE DRINKING WATER FROM SALT WATER BY THE ACTION OF THE SUN

SPECIFIC DIRECTIONS

To Set Up:

Unroll the Still and discard the paper. Push the two support rods through the threaded holes at the corners "A" and "B". Tie the Still to the raft. Screw the rods in far enough to keep the transparent face from touching the black pad. Then push the free end of the tube from the Fresh Water reservoir into the notch at corner "B", behind the Salt Water reservoir.

To Fill:

Hold the Still with the Salt Water reservoir on top. Fill the canvas scoop with salt water and let it run into the Salt Water reservoir. Then squeeze the scoop end of the filling tube into the notch at "A". Always keep the Still face up with the Salt Water reservoir higher than the Fresh Water reservoir. Salt water runs from the reservoir onto the black pad. When the pad is wet, salt water drips slowly from holes at the bottom of the Still; the Still is then ready to operate.

To Operate:

Hold or tie the Still with the face toward the sun and tilted back about 45 degrees. Fresh drinking water will collect in the Fresh Water reservoir. To get the drinking water take the fresh water drain tube from its notch. Keep the Still faced toward the sun.

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GENERAL DIRECTIONS

If salt water stops dripping from the holes at the bottom, unscrew one full turn the valve stem in the center of the Salt Water reservoir. Let the reservoir empty itself. Then screw the valve back and refill the Salt Water reservoir. It may be necessary to unscrew the valve stem all the way and clean the end of it.

If the face touches the pad, screw in the support rods or tighten the lacings at the side.

To protect the Still when not in use, remove the stiffener rods, roll it up and stow it.

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AT-2-28-43-500M

INTER-OFFICE MEMORANDU

ARMY AIR FORCES
MATERIEL CENTER
Office of The Commanding General

Date was written in in ink by Dr. Fetcher - he did not know whether it was dated in mail room or not.

Wright Field, Dayton, Ohio

Date 16 Sept. 1943

TO: Chief, Production Division, Wright Field.
Attention: Reduction Engineering Section.

SUBJECT: Salvador [illegible] Still.

1. Two Salvador Survival "Solastills" have been submitted to this office by a representative of the Salvador Chemical Corporation, New York, New York. These samples differ in some respects from the model on which the original test data was based, and against which the requirements were written. The principal features of the present model, such as Number 170, are as follows:

a. The balsa slats on the back are approximately 1/8 inch thick and are of two sizes, approximately 1-1/2 inches in the middle section, and tapered slightly 3/4 inch at the top and bottom. The slats are riveted to the curved back of the base as well as cemented to it.

b. The face material is a white sheet chemically treated to render it potable by water and heat treated to prevent distortion under extreme temperature conditions. The face is cemented to strips of canvas which are laced to the sides of the still.

c. The stiffener, or support, rods are plastic with one end rounded and the other end threaded. They are arranged so that by screwing them in the turnbuckle portion at the top of the still, they serve to tighten the face, if this becomes necessary. The lacings at the side serve the same purpose.

d. The top, or salt water, reservoir is provided with a pre-adjusted salt water flow valve which leads into a slot and thence to the black toweling. The valve stem is threaded and has a slot on the outside end so that it can be removed for cleaning, if necessary. A knurled knob was considered for the end of the screw so that it could be grasped with the fingers. The knob was abandoned in preference to the slotted head because of the temptation the knob offers to attempts to alter the carefully predetermined rate of flow, and because of the possibility of a projecting knob damaging the face material when the still is rolled up with or without the paper liner. It is considered that if it becomes necessary to open this valve ample tools for doing so will be available in the raft. For example, the following items contained

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[illegible]

[illegible] to Chief, Prod. Div., Att. [illegible]
[illegible] Still

[illegible] accessories [illegible] satisfactorily as socket drivers, [illegible] sizes, [illegible] and a set of ratchet wrenches, [illegible] gasket [illegible] spanner wrench, gear ferrule, [illegible] set [illegible], flat-nose pliers, [illegible] pliers, and [illegible]. These [illegible] are to be "dog tags", coils, [illegible] [illegible] [illegible]

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70-2M

Ref: TJKirreh

SUBJECT: Contract W 2620 AC 278.

18 September 1943.

TO: Gallowhur Chemical Company,
250 East 43rd Street,
New York, New York.

1. Tentative approval for production is given for a period of sixty days from date of this letter on subject contract covering "Sun-Stills".

2. Upon receipt of wandykes and engineering data required, a permanent production release will be granted and at that time it will be possible to type the "Sun-Still" according to the drawings.

3. It is necessary that the salt water flow valve be made in such a way that it can be adjusted easily by the fingers and not damage the plastic face of the "Sun-Still" when rolled up. It is also necessary that all textile material used in the fabrication of the "Sun-Still" be mild-dew proofed by the use of a suitable mild-dewing agent covered by a Federal or Air Corps Specification.

4. It is requested that the data necessary to issue a permanent release be forwarded at the earliest possible moment.

For the Chief of Production Division:

W. N. MORGAN,
Colonel, Air Corps,
Acting Chief, Production
Engineering Section.

cc: Wast. Dist. Sup.
AAF Inspector.

Get CTI on T1-1475
and Teletype # 5-124 subject sun stills (142)

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C-Solaq Still
O.D.
AS, DER-1(115pp)
HAND

3.061
3.043

NAVAL MEDICAL RESEARCH INSTITUTE
NATIONAL NAVAL MEDICAL CENTER
BETHESDA, MARYLAND

October 11, 1943

SUBJECT: TEST OF PERFORMANCE OF AN IMPROVED DELANO SUNSTILL ON LAND.

PROJECT: NMRI-24.

Investigation and report by

P. H. FUTCHER,
Lieutenant, MC-V(S), USNR.

APPROVED:

A. R. BEHNKE, Commander, (MC), USN
Research Executive.

E. C. HAMLETSON, Captain, (MC), USN
Medical Officer in Command.

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#5, Dr B-1 (+Jrnl)

SUMMARY OF FINDINGS

1. An improved model of the Delano Sunstill equipped with lacing to tighten the anti-fog treated plastic Tenite window and first manufactured in August 1943, was tested. The still produced 358,444 and 442 cc. of practically salt free water on September 22 and 23 and October 4, 1943 on a rooftop at Bethesda, Maryland, latitude 40° N., with sea water as a source. Had there been no clouds, it is calculated that 525 cc. would have been produced per day. The still performed better and was more rugged than the earlier model.

2. Dr. W. S. Johnston of the Smithsonian Institution determined with a pyrheliometer that the still utilized for the distillation of water 45 per cent of the solar energy striking it. He believed that this figure erred in being slightly too high.

3. The new type of valve controlling the outflow of sea water from the reservoir, while an improvement over the earlier valve, still gave very variable flows. Dr. Johnston demonstrated with a pyrheliometer that both too slow and too rapid a flow from the salt water reservoir cut the efficiency of the still.

4. It is calculated that if the still operates with this same efficiency at sea in latitude 30° N. it will produce a minimum of 380 cc. on June 21 and a minimum of [illegible] on December 21. The maximum for any latitude or season is [illegible] cc. These figures are corrected for average cloudiness, and were calculated from data published by W. H. Kimball in the Monthly Weather Review, Vol. 56, p. 393, (1928).

5. If at sea a Sunstill produces the very optimistic volume of 500 cc. of water daily, 9 days will elapse before it has made a volume of water equal to its own volume when folded (4400 cc.).

6. In the same volume (4400 cc.), or 268 cu. in. occupied by a folded Sunstill can be stowed a Deepsea (Permutit) chemical kit capable of producing 19,800 cc. of demineralized water, or 10 cans of standard Army-Navy canned water containing 3400 cc.

7. The weight of the unpackaged Sunstill is 730 grams, equivalent to that of packaged chemicals producing 2000 cc. of potable water.

8. Data on the volumes and weight of the 4 Sunstills and the chemical kits necessary to provide 4 men with 500 cc. of water daily for 14 days are presented in Table [illegible].

CONCLUSIONS

1. No consideration need be given to the use of the Sunstill in rafts in which its 4400 cc. or 268 cu. in. volume when folded renders it too bulky to be stowed - such as is probably

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the case in the one-man parachute raft.

2. If one makes the very generous assumption that this Sunstill's as yet untested output at sea is 500 cc. daily (an actually impossible output in many latitudes), this still merits consideration only in that unlikely situation in which space in emergency kits is unlimited and weight is the limiting factor.

3. In any case, a Sunstill should not be made standard equipment on Navy rafts without previous evaluation of its performance in sea trials during which men live with the stills on rafts for several days and nights. Under these conditions on life rafts in the Gulf of Mexico in July 1943 (Report No. 2, Project X-127) the efficiency of the earlier model of Sunstill fell well below its efficiency when operated on land, where constant, exact orientation to the sun can be maintained.

4. Installation of an awning on rafts, as recommended by the Liaison Committee on Emergency Rescue Equipment, will interfere seriously with operation of a Sunstill. This fact militates against adoption of such a still for rafts.

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TABLE I

Dimensions and Weight of Sunstills and Other Data on Water Making Devices

Dimensions of assembled sunstill	- 41 x 39 x 2.5 cm.
Inside dimensions of cardboard cylinder protecting folded still	- 11.5 cm. diameter - 43 cm. length
Inside volume of cardboard cylinder	- 4400 cc.
Weight of still	- 730 gms.
Weight of cardboard cylinder	- 299 gms.
Effective area of black towelling in still	- 1090 sq. in.
Inside volume of standard Army - Navy rectangular water can	- 425 cc.
Weight of same	- 97 gms.
Amount of water in can	- 330 - 340 cc.
Ratio of volume of packaged Decalso (Permutit) chemical kit capable of making 10 liters of water, to volume of water produced	- 1:41
Ratio of weight of same kit to volume of water produced	- 1:402

TABLE 2

Sample Day's Run of Still on Roof Top at Bethesda, Md., Latitude 40° N.

September 23, 1943: sunrise about 0710; sunset about 1900.

Time of period	Air temperature at start of period - C°	Sun during period	Volume of distillate cc.
0700-0800	14.4	minimum intermittent overcast	2
0800-0900	14.4	"	12
0900-1000	18.4	"	34
1000-1100	20.7	bright	51
1100-1200	22.6	"	53
1200-1300	24.5	"	65
1300-1400	24.9	"	60
1400-1500	26.5	"	64
1500-1600	26.5	"	40
1600-1700	27.2	"	40
1700-1800	25.8	heavy intermittent overcast	20
1800-1900	24.3	heavy overcast	3
Total			444 cc.

Sodium content of distillate = 2.9 milliequivalents per liter (0.007 grams per cent)

Chloride content of distillate = 7.6 milliequivalents per liter (0.026 grams per cent)

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TABLE 3

Volumes and Weights of Water-Making Devices Necessary to Provide 4 Men with 500 cc. Daily for 14 Days (28,000 cc.)

Water-making device	Volume		Weight	
	cc.	cu.in.	gms.	lbs. oz.
Sunstills (4)	17,600	1,070.	2,920	6 6
Decalso (Permutit)	6,200	380	7,000	15 6
(Volume of 8 water cans now placed on 4 man raft, containing 2720 cc. of water)	(3,400)	(208)	(3,480)	(7 11)

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TELETYPE ROOM OUT*

1943 NOV 1 AM 9 15

ENG-4493 11-1-43

MATERIEL DIVISION, AC/AS, WMD

P R I O R I T Y

REFERENCE IS MADE TO TELEPHONE INQUIRY THIS DATE. PRODUCTION OF THIRTY THOUSAND DELANO SUNSTILLS WILL START APPROXIMATELY 1 NOVEMBER 1943. SHOULD FURNISH THREE STILLS ON TYPE A-3 RAFT. ALSO RECOMMEND PROCUREMENT OF PUXX PERMUTIT PROCESS DESALTING KITS. ONE KIT TO REPLACE WATER CANXXXEON ONE-MAN RAFT. FIVE WATER CANS ON TYPE A-3. RAFT TO BE REPLACED BY COMPARABLE BULK OF KITS. NAVY HAS TESTED PROCESS EXTENSIVELY AND APPROVED IT. IT HAS ALSO BEEN TESTED BY MATERIEL COMMAND. HIGGINS AND MINNESOTA STILLS UNDER ACTIVE DEVELOPMENT END

AFAMC

ENGINERING DIVISION

HSM

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Water Producing Equipment for Life Rafts

AC/AS/MC&R/Requirements Division. Att: Lt. Col. Bacon. 2 Nov. 1943

AC/AS/MR&D/Materiel Division.

1

RWJ:mmc:3831

1. With reference to your telephone inquiry the following is the present status of subject equipment:

a. Satisfactory production articles have recently been received on the Solano sun still and the manufacturer has been given authority to proceed with production. A quantity of 30,000 of this item is on order. It is planned to issue three of these stills per multi-place raft.

b. The Permutit chemical water de-salting process has proved satisfactory in laboratory tests at Wright Field, and it is understood that it has been adopted by the Navy. By placing quantities of the chemical in life raft kits in place of some of the cans of drinking water now used, the yield of water can be increased eight times for the same bulk.

2. Since the sun still is limited in usefulness to latitudes and climates where the sun shines with considerable frequency, it is believed that all three sources of water should be provided in the multi-place rafts. It is recommended that the A-3 life raft be provided with three sun stills, two of the present seven cans of water, and Permutit chemical equal in bulk to the other five cans. It is also recommended that the can of water furnished on one-man life rafts be replaced by an equal bulk of Permutit chemical. Your comments are requeste

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R. C. WILSON,
Colonel, Air Corps
Chief, Devel. Engineering Branch.

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HQ A.A.F.
NOV 2 - 1943
MESSAGE SECTION

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P-1

ARMY AIR FORCES
MATERIEL COMMAND
ENGINEERING DIVISION
MEMORANDUM REPORT ON

ESF:pjc-54

Date 18 December 1943

SUBJECT: Development Progress of the Higgins Still for Pneumatic Life Rafts.

Equipment Laboratory

Contract No.
Expenditure Order No. 671-68
Purchase Order No.

SERIAL No. [illegible]-671-152X

A. Purpose:

1. To report on development progress of the Higgins Still for pneumatic life rafts and trip to New Orleans, Louisiana.

B. Factual Data:

1. On 7 September 1943, Colonel John H. Jouett, U.S.A. (Ret'd.), Mr. C. F. Penner, and Mr. Russell F. Hardy, all of Higgins Industries, Incorporated, New Orleans, Louisiana, submitted to the Material Command a model of a solar still designed for use on pneumatic life rafts. This model was tested the same day but it did not operate properly. The still was designed to operate on much the same principle as the Delano and Massachusetts Institute of Technology stills, but with a different feed mechanism and with water cooling. The still was constructed entirely of flexible sheet materials and these could be collapsed to a very small volume for packing. In use it is inflated with air. Several suggestions for improving the still were offered to the Higgins representatives.

2. Although the test of 7 September 1943 was not satisfactory, the still was considered basically sound. For this reason, negotiations were immediately started between the Material Command and Higgins Industries for an experimental contract for the development of the stills. Inasmuch as Higgins Industries was unwilling to accept a non-exclusive license right clause in the contract, no contract was effected. Nevertheless the Higgins Industries actively prosecuted the development of the still.

3. On 25 and 29 September 1943 Mr. Alexis E. Ushakoff, Director of Research of Higgins Industries, the inventor of the still, visited the Material Command and submitted several new models. These were tested on 28 September 1943 and proved much more satisfactory than the model submitted 7 September 1943. They were deficient in several respects, and these factors were discussed with Mr. Ushakoff.

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18 December 1943.

4. From 2 November 1943 through 27 November 1943, Dr. E. S. Fetcher of the Material Command was in New Orleans for the purpose of assisting in the development of the Higgins still. During this period approximately 120 tests were made of various types of stills. Daily conferences were held between Mr. Alexis K. Vukcheff, Director of Research, Mr. Thomas Winstead, Mr. Jack Schilling, and Mr. Bronislaus Kopacy of the Research Department of Higgins Industries, with Dr. E. S. Fetcher of the Material Command. Several conferences were also held between Dr. Fetcher and Mr. Andrew J. Higgins, President, Mr. Andrew J. Higgins, Jr., Vice-President, Mr. Frank O. Higgins, Vice-President, Colonel John E. Jouett (U.S.A. Ret'd.), Vice-President, Mr. Maurice Gottesman, Secretary and Treasurer, all of Higgins Industries and Higgins Aircraft. Approximately fifteen stills of various design were constructed and tested after adequate testing equipment and procedure had been set up. The first of these models, and those which had been constructed previous to the arrival of the Material Command representative were approximately 10% efficient; that is, they converted into distilled water only 10% of the solar energy available to them. In order to insure an adequate supply of water for a life raft an impractically large area of such a still would be necessary. During the course of the work the stills were improved until a model was constructed which was approximately 60% efficient. The construction of this model is not practical for use in life rafts; it will be necessary to modify the constructions.

C. Conclusions:

1. It is concluded that the Higgins still is potentially capable of producing an adequate supply of water for personnel on the ocean for unlimited periods. At the same time it will probably be capable of being packed in a small volume and be light in weight.

2. It is considered that this still will not be satisfactory for use with water polluted with bacteria principally because of the likelihood of occasional direct contact between the evaporating and condensing surfaces. (The number of pathogenic bacteria in the [illegible] is very small.)

D. Recommendations:

1. It is recommended that the Engineering Division, Material Command, Equipment Laboratory, give all encouragement and assistance possible to Higgins Industries in the development of subject still, in order that it may become available as soon as possible. (Action initiated.)

Prepared by E. S. Fetcher, Jr.

Approved by H. V. Hoagman, Col., A.C., Equipment Laboratory

Concurrence: G. H. Windsor, Col., A.C.

Approved by for J. O. Barrett, Brig. Gen., USA, Chief, Engineering Division.

Distribution: [illegible]

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CASE HISTORY GALLOWHUR SOLAR STILLS

Wright Field
11 August 1944

TO: Historical Officer, Materiel Command.

STATEMENT BY: EDWIN S. FETCHER, JR.

Research Physiologist

8 December 1943 — Gallowhur representative delivered first production models of Delano "Sunstill" for test. Also submitted for test samples of inflated type, wick fed, floating solar still (their model B-3). These samples were the first evidence this office had that Gallowhur had been working on this type of still.

11 December 1943 — Tests on first production Delano "Sunstills" completed. Stills satisfactory.

31 December 1943 through 4 January 1944 — Test by AAF Materiel Command personnel at Eglin Field of Gallowhur Model B-3 still, MIT (Telker) inflated, floating still, and Higgins spherical, inflated floating still. Efficiencies of all stills low (8 to 13%). Operation only fairly satisfactory. Failures apparently due to mechanical features.

13 and 14 January 1944 — Notified Gallowhur and Higgins of their own results only, of the 31 December - 4 January tests, by telephone. Also mentioned possible desirability of conference between all interested organizations.

17 January 1944 — Messrs. Raye, Best, Conover, and Miller of Gallowhur were at Wright Field to discuss 31 December - 4 January test results and to inquire as to whether or not they should continue development work. I advised them to do so and suggested possibility of experimental contract.

18 January 1944 — Dr. R. C. Wilcox of the National Research Council visited Wright Field. Discussed with him the results of 31 December - 4 January tests, in particular with reference to the MIT (Telkes) still. He explains the relation of Gallowhur to MIT; i.e., that Gallowhur had a contract sponsored by, or let by the National Research Council to construct MIT

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stills according to Dr. Maria Telkes' specifications, and that there had been some difficulties between Dr. Telkes and Gallowhur.

19 January 1944 — At Dr. Wilcox's suggestion, telephoned Dr. Telkes giving her results of tests.

23 January 1944 — Mr. J. Conover of Gallowhur phoned me at home, asking me to come to New York to assist Gallowhur.

25 January 1944 — In New York with Gallowhur. Inspected and discussed various inflated models, all with wick feet; a polystage model; a small spherical, floating model, which Gallowhur said did not work well; and modified (cloth backed) Delano "Sunstill" model. The latter was proposed as an intermediate type to be used pending satisfactory development of the inflated types, since it would pack in a somewhat smaller volume than the ordinary slat-backed Delano "Sunstill". It was agreed that this model should be included in tests to be conducted in February 1944.

s/ Edwin S. Fetcher, Jr.
t/ EDWIN S. FETCHER, JR.

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Inter-Office Memorandum on:
Material Demand Conference ( )
Officially Authorized Travel (X)
Name and Location of Activity Visited: Boca Raton Army Air Field, Boca Raton, Florida.

Date: 4 March 1944

Subject: Stills for Life Rafts.

Purpose: To report on test of subject stills.

Personnel Present:
Captain W. J. McCleary.
Lt. A. Rolfe
Dr. E. S. Fetcher, Jr.

Equipment Observed and/or
Topics Discussed and Decisions Reached (If any):

Tests from a life raft were conducted 20 February 1944 through 23 February 1944 of the following stills:

1. Inflated (pillow) types which float behind raft
   a. Gallowhur Chemical Corporation, Type B still (four tested)
   b. MIT (Telkes) still (three tested)
   c. Higgins Industries still (three tested)
2. Modified Delano "Sunstill" (one tested)
3. Minnesota still. This operates either from heat of sun or of body.

Records of solar energy were made during the tests.

Conclusions (If any):

Gallowhur type B stills are easiest to operate but least efficient; MIT stills are more efficient but more trouble to operate; Higgins stills are very efficient but are difficult to operate and are not very reliable. All have very good and very bad points. Minnesota still is good, but too complicated for use in life rafts. Modified Delano still is not satisfactory. No still yet satisfactory for recommendation to standardize. (Arrangements have been made for a meeting at Wright Field of interested parties on 8 March 1944 to take best from each inflated type still for an AAF still. Detailed report of tests will be prepared.)

Remarks: (Use reverse side. Always refer to applicable paragraph.)

(AFR 11-30)

Prepared by: E. S. FETCHER, JR.

Noted: for Colonel

Approved: E. E. McKenna
Lt. Col. AC

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PRIORITY

TELEGRAM

OFFICIAL BUSINESS—GOVERNMENT RATES

FROM: WAR DEPARTMENT
AAF Material Command
BUREAU Wright Field, Dayton, Ohio.

ESF:pjo-54
4 March 1944 10:00 a.m.

GALLOWHUR CHEMICAL CORPORATION,
250 EAST 43rd STREET,
NEW YORK, NEW YORK.

G. V. HOLLOMAN,
Colonel, Air Corps.

NR-44.10 THE MATERIEL COMMAND, WRIGHT FIELD, DAYTON, OHIO, WILL APPRECIATE YOUR ASSISTANCE AND COOPERATION IN DESIGN OF AAF STILL FOR LIFE RAFTS. CONFERENCE SCHEDULED AT 10:00 A.M. 8 MARCH 1944 AT EQUIPMENT LABORATORY, ENGINEERING DIVISION, MATERIEL COMMAND, WRIGHT FIELD, DAYTON, OHIO. URGE YOU TO SEND TECHNICAL REPRESENTATIVE TO CONFERENCE. OTHER INTERESTED ORGANIZATIONS BEING INVITED END AFAMC

AAF MATERIEL COMMAND, WRIGHT FIELD

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Sun Stills

AC/AS, [illegible], Air Services Division

AC/AS, [illegible], Materiel Division

6 March 1944

1

Major Podine/fw - 3831

1. Inclosed herewith is a copy of Comment No. 9 and 10, dated 20 January 1943 which approves the procurement of a quantity of sun stills for use in life rafts, and copy of teletype to Materiel Command dated 11 March 1943, requesting procurement of 30,000 sun stills.

2. This office has been informed that 10,342 of these stills have been delivered to Air Service Command (Class 03F) who is now waiting instructions as to the basis of issue.

3. It is requested that your office instruct Air Service Command to issue the 30,000 sun stills on a basis of three per each five man life raft.

4. No action should be taken to procure any additional sun stills over the 30,000 now on order until a specific requirement is given by AC/AS, OCAR.

Incls.
1. M&R Comment 9 & 10.
2. Cy Teletype dtd 11 March 1944, subj as above.

R. A. LEE
Colonel, Air Corps
Actg. Chief, Devel. Engineering Branch

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Return to Room [illegible]

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DBS/SAM 452.17
(00)

9 MAR 1944

TO: ACAS, MM&D, Materiel Division

DATE: 9 March 1944

FROM: ACAS, MM&D, Air Services Division

COMMENT NO. 2
Miss Spengler/abm/71604

1. This office has advised the Air Service Command, this date, the basis of issue of Solar Stills.

DONALD W. BENNER
Colonel, Air Corps
Chief, Supply & Maintenance Branch

Incls: n/c

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C-2 47

PRIORITY

7 MARCH 1944

TELEGRAM

S. C. MAYNE, JR.
Major, Air Corps.

Sent 9:20 AM 3/7/44

HIGGINS INDUSTRIES,
INDUSTRIAL CANAL PLANT,
NEW ORLEANS, LOUISIANA.
ATTENTION: MR. ANDREW J. HIGGINS.

WITH REFERENCE TO TELEGRAM NO. 4411 DATED 4 MARCH 1944 AND TELEPHONE CONVERSATION 6 MARCH 1944. PURPOSE OF MEETING 8 MARCH IS TO COMBINE BEST FEATURES OF HIGGINS, GALLOWHUR AND MIT STILLS FOR INCORPORATION INTO ONE GOOD AAF STILL. NO PRESENT STILL CONSIDERED SATISFACTORY. NO INFORMATION DIVULGED TO AAF PERSONNEL COVERING PROPRIETARY DESIGNS OF HIGGINS WILL BE TRANSMITTED TO OTHER COMPANIES WITHOUT PERMISSION OF HIGGINS REPRESENTATIVES. THIS IS RECOGNIZED POLICY OF THE MATERIEL COMMAND. YOUR REPRESENTATIVES ATTENDANCE STRONGLY URGED TO ASSIST AAF IN SOLUTION OF DIFFICULT LIFE SAVING PROBLEM. END AFAMC

MATERIEL COMMAND, WRIGHT FIELD

GOVERNMENT PREPAID

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7 NEWORLEANS LOU MARCH 7 1944 134

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ARMY AIR FORCES ATTN DR I S FETCHER MATL CMD

WPB

SINCE NO ASSURANCES HAVE BEEN RECEIVED FROM YOU THAT OUR DEVELOPMENT RIGHTS I WILL WEX X I WHETHER REJECTED I STILL WILL BE PREVENTED WE WILL NOT HAVE A REPT AT CONVEX CONFERENCE MARCH EIGHTH SO HEREBY REQUEST THAT ALL KNOWLEDGE CONCERNING THE DESIGN DEVELOPMENT OF OUR STILL IMPARTED TO YOU IN CONFIDENCE REMAIN IN CONFIDENCE AND REFUSE PERMISSION TO DISCLOSE ANY INFORMATION OR DETAILS CONCERNING DEVELOPMENT AND CONSTRUCTION OF OUR STILL TO OTHERS

HIGGINS INDUSTRIES INC BY A J HIGGINS PRESIDENT AND

ALLEN E HANDY

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(AFR 10-5)

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C-4 47

[redacted] 17 3 5 36

[redacted] 66

[redacted] NEW ORLEANS LA MAR 6 431P

[redacted] E S PEECHER ATTN EQPT LAB CG MC

[redacted] HEIGHTSFIELD OHIO

I HAVE [redacted] OUR REPRESENTATIVE [redacted] HARDY GIVING HIM AUTHORITY TO ASK FOR THE RETURN OF AND ACCEPT THE [redacted] THREE SOLAR STILLS WE LOANED YOU AS A GOVERNMENT [redacted] FOR TESTING PURPOSES [redacted] THESE STILLS ARE [redacted] DEVELOPMENT AND TESTS. MR HARDY WILL CONTACT YOU WITH REGARD TO THE [redacted] RETURN OF THESE STILLS

HIGGINS [redacted] INDUSTRIES INC A J HIGGINS PRESIDENT

[redacted] DEP

1045

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3-18-44

ARMY AIR FORCES
MATERIEL COMMAND
ENGINEERING DIVISION
MEMORANDUM REPORT ON

SUBJECT: Inflated Type Life Raft Stills. Date 25 March 1944.

SECTION Equipment Laboratory

SERIAL No. EMO-5M-671-189

Contract No.
Expenditure Order No. 671-85
Purchase Order No.

A. Purpose:

1. To report on a conference concerning inflated type life raft stills.

B. Factual Data:

1. The conference was held at the Equipment Laboratory, Engineering Division, Materiel Command, 9 March 1944. The personnel present were as follows:

NATIONAL CARBON COMPANY

Mr. H. J. Harlow

JUDGE ADVOCATE'S OFFICE

Captain Lane

BAGR, MATERIEL COMMAND

Lt. Harrigan

PROD. DIV., MATERIEL COMMAND

Lieutenant Lehman

NDRC LIAISON, MATERIEL COMMAND

Lieutenant Jones

NDRC, WASHINGTON, D. C.

Dr. Wilcox

MASS. INSTITUTE OF TECHNOLOGY

Dr. Maria Telkes

EQUIPMENT LAB., MATERIEL COMMAND

Colonel G. V. Holloman
Captain W. J. McCleary
Captain R. R. Pickler
Dr. E. S. Fetcher, Jr.

GALLOWHUR CHEMICAL CORPORATION

Mr. Clifford Kaye
Mr. A. Beat
Mr. Jack Conover
Mr. William Miller

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(161)

Number of pages - 6.

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[illegible] Div. Memo. Report No. [illegible]-58-67-184
25 March 1944

2. Colonel Holloman opened the conference with a statement of its purpose and of the policy of the Material Command towards this meeting. Captain Lane discussed the legal and patent aspects of the pooling of ideas that was necessary to the success of the conference. The various organizations concerned stated their willingness to cooperate.

3. The requirements of bulk, efficiency and area of solar stills for life rafts were outlined. If stills of 60% efficiency are used, the working area exposed to the sun must be approximately 900 square inches to provide approximately 1-1/2 pints of water per day per raft with appropriate rain catching and storing equipment. (See Equipment Laboratory Memorandum Report No. EO-58-671-180 dated 24 January 1944.) If only 30% efficient stills are available the working area will have to be twice 900 square inches. The maximum allowable bulk of the stills to fulfill this requirement was given as 500 cubic inches; preferably less. It was agreed that the water distillation rate under standard conditions compared to the packed bulk of the still would be an important consideration in the selection of a still. It was agreed that the inflation type still would come nearest to fulfilling the requirements, and the discussion was therefore limited to this type.

4. The results of recent tests of this type of still at Boca Raton, Florida, were discussed in detail. (The yields, salt contents and efficiencies of the Gallowhur, MIT and Higgins stills are attached as Appendix I. See also Photographs Nos. 137587 and 137590. The "corrected yield" is the difference between the amount of water collected from the still and the quantity of sea water contaminating the collected water. The efficiency is the ratio of the corrected yield to the amount of water that could have been distilled by a still of equal area, oriented to the sun, and perfectly efficient.) The several factors responsible for variations in performance of the MIT and Gallowhur stills were considered, along with factors affecting the ease of handling of the several stills.

5. Much of the discussion concerning necessary changes in the present Gallowhur and MIT stills revolved around the advantages of orienting the still to the sun. There was complete agreement as to the desirability of orientation. Difficulties of keeping the still properly supplied with salt water for distillation, or of keeping salt water from contaminating the distilled water are inherent in the present design of the MIT and Gallowhur stills. The majority of the organizations represented considered that partial orientation could be achieved with little modification of present models. (The Gallowhur Chemical Corporation has submitted for test a partially oriented model (No. 58; see Photographs Nos. 137587 and 137590).

6. A question was raised concerning the use of less critical materials than Vinylite for the outer envelope of the stills. The opinion of all those who had had experience with the construction of the stills was that Vinylite was by far the most suitable material. There was also complete agreement concerning the use and kind of wetting agents for the Vinylite. Various essential details of construction were also discussed.

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[illegible] Rpt. [illegible] Report [illegible]-[illegible] [illegible]
[illegible] [illegible]

. Conclusions.

1. It was concluded that a sufficiently satisfactory solar still could be developed in a short time employing only necessary modifications of the present "U" and Halvorson stills and incorporating the best features of both.

2. It was concluded that an intensive program of development be carried on toward [illegible] still more satisfactory than that likely to result from the minor changes contemplated on present models.

. Recommendations.

1. It is recommended that the following action be taken by the organizations designated below.

a. Engineering Division, Materiel Command, Equipment Laboratory.

(1) In cooperation with such agencies as it deems desirable, take the necessary steps to:

(a) provide one sufficiently adequate inflation type solar still, based on types already tested, in the shortest possible time. (Action initiated)

(b) to encourage and assist development of more satisfactory inflation type stills than are likely to evolve immediately. (Action initiated)

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(AFR 11-30)

Concurrence:

Prepared by E. S. FLETCHER, Jr.
Chemist

Approved by G. V. HOLLOMAN, Col., A.C.
Chief, Equipment Laboratory

Approved by F. O. CARROLL, Brig. Gen., U.S.A.
Chief, Engineering Division.

Distribution:
C.G., AC/AS, MCR
C.G., AC/AS, MTD
N.A.C.A., Wash., D.C.
BAER, K. F. (4)
Chief, Aero Medical Lab.
Chief, Production Adv.,
Attn: Miscellaneous Equip. Br.

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Engrin. Div. Memo. Report No. ENG-54-671-189
2[illegible] March 1954.

"APPENDIX I."

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Date	Period	cc/cm²	Min Alk.	#54 Corr. yield cc	#54 (Cl-) meq/L	#54 Eff %	#56 & #57 Corr. yield cc	#56 & #57 (Cl-) meq/L	#56 & #57 Eff %	#55 Corr. yield cc	#55 (Cl-) meq/L	#55 Eff %	#53 Corr. yield cc	#53 (Cl-) meq/L	#53 Eff %
2/20	3:44 1:46	0.309		7	32	2	21	297	50	0.1	3.9	54			
2/21	11:20 1a:20	[illegible]		56	5.3	15				10	10	[illegible]			
2/21	12:20 1:50	[illegible]		63	4.6	11				9	6.6	17	73	370	[illegible]
2/21	1:50 3:20	[illegible]		[illegible]	[illegible]	[illegible]				57	5.4	15	76	47	[illegible]
2/21	3:20 4:50	0.22		[illegible]	11	[illegible]				[illegible]	3.7	6	57	10	10
2/22	11:45 12:45	0.15		[illegible]	8.4	3.3				55	11	22	12	23	[illegible]
2/22	12:15 2:15	[illegible]		52	3.0	[illegible]				68	3.2	18	87	8.2	18
2/22	2:15 3:15	0.23		33	[illegible]	[illegible]				[illegible]	0.9	15	45	3.7	12
2/22	3:45 5:15	0.22		21	5.1	3.8				50	0.5	11	31	1.4	[illegible]

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"APPENDIX I."

GALLBLADDER MODEL 3
(...ontrast)

No.	Weight	cc/cm²	Sum of Diff.	Corr. yield cc	Di- meq/L	Eff %	Corr. yield cc	Di- meq/L	Eff %	Corr. yield cc	Di- meq/L	Eff %	Corr. yield cc	Di- meq/L	Eff %
	2:30 1:30	0.11		19		4.3							12	12	
43	10:30 12:30	0.20		37		8.7	117		53	68			24	14	48
	1:30 2:30	0.13		22		5.0				32			14	11	
	4:00 5:00	.15		24		5.0	97		24	59			24	14	
	11:30 12:30	0.16		23		2.5	22		6.5	23			9	13	0.

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"APPENDIX. I."

MIT (Volkes) [illegible]

Date	Period	cc/cc'	Air Lit.	#55 Corr. yield cc	#55 (Cl-) meq/L	#55 Eff %	#55T Corr. yield cc	#55T (Cl-) meq/L	#55T Eff %	#23 Corr. yield cc	#23 (Cl-) meq/L	#23 Eff %
2/20	5:40 6:40	0.069		5.5	346	2.9				8	166	15
2/21	13:20 14:20	0.10		7.5	41	25						
2/21	22:00 1:30	0.08		5.5	47	20				7.5	49	21
2/22	1:30 3:30	0.04		5.7	43	9.0				4.5	43	15
2/22	5:20 6:40	0.22		4.7	138	12				13	21	4.7
2/22	[illegible]	0.15		7.5	[illegible]	50				3.	[illegible]	[illegible]
2/22	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]				[illegible]	[illegible]	[illegible]
2/22	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]				[illegible]	[illegible]	[illegible]
2/22	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]				[illegible]	[illegible]	[illegible]

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[illegible] Div. Memo. Report No. ENG-54-671-189
[illegible] March 1944.

"APPENDIX. I"

HIT (Telkes) [illegible]

(Continued)

Date	Period	cc/cm²	sin Alt.	#355 Corr. yield cc	#355 (Cl-) meq/L	#355 Eff %	#357 Corr. yield cc	#357 (Cl-) meq/L	#357 Eff %	#23 Corr. yield cc	#23 (Cl-) meq/L	#23 Eff %
2/23	9:30 10:30	0.14		13	318	9.3	51	138	.1	43	526	8.0
2/23	10:30 12:30	0.20		127	42	28	86	70	19	83	172	22
2/23	12:30 2:00	0.18		72		20	133		49	60	77	25
2/23	2:00 3:30	0.15		60		21	86		34	30		11
2/23	3:30 5:00	0.16		38		14	98		22	15		6.6

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"APPENDIX I."

HIGGINS STILLS

Date	Period	cc/cm²	#1 Corr. yield cc	#1 (Cl-) meq/L	#1 Eff %	#2 Corr. yield cc	#2 (Cl-) meq/L	#2 Eff %	#3 Corr. yield cc	#3 (Cl-) meq/L	#3 Eff %
2/20	3:45 4:45	0.45				98	171	43			
2/21	11:20 12:20	0.10				107	218	51			
2/21	12:20 1:50	0.21				295	200	85			
2/21	1:50 3:20	0.22				150	91	32			
2/21	3:20 4.50	0.22									
2/22	11:45 12:45	0.15									
2/22	1:45 2:15	0.45	61	315	1.						
2/22	2:15 3:45	0.23	157	382	47						
2/22	3:45 5:15	0.22	14	46	3				36	44.	9

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AAFEC-666-WP-2-24-43-500M

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INTER-OFFICE MEMORANDUM

ARMY AIR FORCES
MATERIEL COMMAND
Office of The Commanding General

ESF:pjo-54
Wright Field, Dayton, Ohio
Date 18 MAR 1944

TO: Chief, Procurement Division, Wright Field.

SUBJECT: Authority for Purchase No. 387056.

1. The Gallowhur Chemical Corporation has carried on extensive research, development and testing on this type of still and has acquired considerable knowledge and technique in the design and construction of this equipment.

2. Since this concern has partially perfected the desired still, it is deemed advisable to secure the services of their past experience in order to obtain a rapid solution to the problem of developing such a still; therefore, it is recommended that this procurement be made sole source.

3. Every effort has been made to secure the services of other potential concerns in the development of this and similar types of stills without results.

F. O. CARROLL,
Brig. General, U. S. A.,
Chief, Engineering Division.

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Signature _____

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CARBON-Color St,11
Project 43.040
AS.OES-4(1/2pp)
4 Apr 44

C. G., AAF, Wash., D.C.
Att: Asst C/AS, ATC.

Disposition of Delano "Sunstills".

10 MAR 1944

sunlight; therefore, they are not well adapted to areas where there is little sun, such as the North Atlantic and North Pacific Areas.

For the Commanding General:

F. O. CARROLL,
Brig. General, U. S. A.,
Chief, Engineering Division.

1st Ind. AFDMA-2C
Hq., Army Air Forces, Washington 25, D. C., 17 March 1944 Maj Bodine/fw - 3831

TO: Commanding General, AAF Material Command, Wright Field, Dayton, Ohio. Attention: Engineering Division

1. The Air Services Division has agree to instruct Air Service Command to immediately allocate the 10,384 Delano sunstills to the 5th, 7th, 10th and 13th Air Forces for use with the A-3 Life Rafts issued to those Air Forces and to allocate a quantity to Morrison Field for use in airplanes being ferried acorss.

2. The Air Services Division is also going to instruct Air Service Command to query the above Air Forces as to their total requirement for the subject stills so that allocation of the remainder of the 30,000 stills now on order can be made.

By command of General ARNOLD:

R. A. LEE
Colonel, Air Corps
Actg. Chief, Devel. Engr. Br., Materiel Div.
Office, Assistant Chief of Air Staff
Materiel, Maintenance and Distribution

AFDMA-2

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AS,UEIS 4(2/>pp)

Address reply to ENVELOPE to:

Commanding General,
AAF Materiel Command,
Engineering Division,
Reference: 857:pjc:5L,
Wright Field, Dayton, Ohio.

16 [illegible] 1944

Disposition of Delano " anstills".

Commanding General,
Army Air Forces,
Washington 25, D. C.

Attention: Asst C/AS, OMD.

1. In confirmation of telephone conversation 4 March 1944 between Major Rocine of your Office and Major Mayne and Doctor Fetcher of this office, the following information is submitted:

a. The Accessories Branch, Unit AS-(J)-8, Air Service Command Headquarters, Patterson Field, Fairfield, Ohio, reports that 10,534 Delano " anstills" of 30,000 ordered have been received and are stored at WASC and that instructions for distribution have not been received. (Production of these items was begun in December 1943.)

b. This office recommends as a basis of issue of subject stills, three per multiplace raft.

c. This office does not recommend standardization of subject stills because of their large bulk (250 cubic inches each, because of the space they occupy in the raft when in use, and because more compact and satisfactory stills are approaching the end of their development.

d. This office does not consider that it is its function to designate the distribution of subject stills inasmuch as they are special equipment procured with the understanding that they would be used at those points where the need was most urgent. This office does not have the information requisite for this determination of urgency.

e. It is suggested that since this information is probably available in your Office, the distribution of these stills be designated by your Office.

2. For your information, these stills operate only in direct

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Higgins

INDUSTRIES INCORPORATED

March 25, 1944

Commanding General
AAF Materiel Command
Engineering Division
Equipment Laboratory
Reference: RSP:jdc-51
Wright Field, Dayton, Ohio

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(AFR 11-30)

Dear Sir:

Referring to your letter of March 17th:

As previously explained, we felt embarrassed at being requested to have a representative present at the conferences on March 8th and 9th, for the reason that we had not, before that time, been prepared to file full claims for patents on the Solar Still, which has only now come to a termination of our research for manufacturing prototypes of a final design.

We did not care to have a representative present or to have any revelations that might be made, as it would prejudice us in our full rights in making applications for patents, as we are now doing.

In order that the record be cleared, we refer to the fact that when our Mr. Ushakoff loaned to Dr. Fetcher the three stills, these three stills were not in their approved form. They were hurriedly built by using metal attachments that were makeshifts, and it was known to us that the stills with these metal attachments, fixtures and appurtenances, would require attention and might be inoperative or cause damage. I was advised by our Mr. Ushakoff that he made Dr. Fetcher fully conversant with these facts at the time these three improvised stills were furnished for the benefit of such tests as their condition and hurried construction would permit.

We are pleased to advise you that we have stopped further changes and are definitely set on the still as we will manufacture it. We are manufacturing under close check and controlled cost accounting, a batch of twelve stills of 26" diameter. It is anticipated that these stills will be completed by April 25th.

(17)

no metal

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Higgins

Commanding General
AAF Materiel Command
Wright Field, Dayton, Ohio

March 25, 1944

parts or fixtures whatsoever on these stills.

We are making arrangements with a branch of the United States Marine Corps, also with the U. S. Coast Guard and U. S. Navy, to have a deep sea test made of these stills, and we would be very pleased to have Dr. Fetcher or other of your representatives attend such tests.

We hope that after the construction of this still, as finally determined on for production, we will have a fair estimate of the cost of producing same in different quantities.

We regret very much the length of time it has taken us to develop and perfect the still to its present state, but we have been operating under difficulties in securing critical materials and securing apparatus necessary for the proper moulding of the special compound plastic material now being used.

Yours very truly,

HIGGINS INDUSTRIES, INC.,

Andrew J. Higgins

Andrew J. Higgins, President

AJH/t

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Address reply to ENVELOPE to

Commanding General,
AAF Materiel Command,
Engineering Division,
Reference: MCF:pjc-54,09483,
Wright Field, Dayton, Ohio.

21 MAR 1944

3.045

Water Producing Equipment for Life Rafts.

Commanding General,
Army Air Forces,
Washington 25, D. C.

Attention: Asst C/AS, MMD,
Development Engineering Branch.

1. Reference is made to the attached copy of letter from your Office dated 20 March 1944, on the above subject. The AAF Materiel Command, Wright Field, Dayton, Ohio, is proceeding as rapidly as possible to comply with the instructions contained therein.

2. In accordance with Paragraph 3 of attached copy of letter, the following information concerning the water producing equipment is submitted:

a. Rain catching paulin: now furnished.

b. Rain storage bags: now in production.

c. Permutit process: can be in production six weeks after receipt of purchase order at a rate of at least 10,000 kits per month by the Permutit Company. (This quantity would be enough to equip 1,500 rafts per month.)

d. Solar stills: The Delano "Sunstill" now in production is considered far too bulky to be of much real value; its production is therefore limited to 30,000 stills. Development of a much more compact solar still should be at a stage in a very few weeks where samples can be submitted to the AAF Board, Orlando, Florida. Inasmuch as these stills will require the use of a critical material (Vinylite) the Resources Control Section has been informally notified of this probable requirement.

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AS,DRA-6(2/3/44)

Asst. C/AS, MMD

Water Producing Equipment for Life Rafts.

3. It should be noted that the inclusion of the quantity of Permutit Process kits necessary to comply with the directive will increase the weight of the rafts approximately ten pounds. It is therefore considered that, as soon as satisfactory solar stills become available, half of the Permutit Process kits required in the attached directive, be replaced by such stills.

For the Commanding General:

F. O. CARROLL,
Brig. General, U. S. A.,
Chief, Engineering Division.

1 Incl.
Cy. ltr. dtd.
20 March 1944.

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WAR DEPARTMENT

HEADQUARTERS OF THE ARMY AIR FORCES

WASHINGTON, 25, D. C.

AFDMA-20
20 March 1944

Water Producing Equipment for Life Rafts

Commanding General, AAF Materiel Command
Wright Field, Dayton, Ohio

Attention: Engineering Division

1. The following comments have been received from ACAS, OC&R, concerning water producing equipment for life rafts:

"The minimum requirement of water for one man, in a life-raft, is one pint per day.

"It is requested that the Materiel Command be directed to provide water producing equipment for the type A-3 and B-2 five (5) man life-raft for a period of 15 days on the basis of one pint per day per man. Of this fifteen (15) day supply of water for five (5) men, at least, ten (10) day supply for five (5) man shall be provided by the Permutit Process. In addition two cans of water will be provided for immediate use in the life rafts."

2. It is directed that your office take the necessary action to provide water producing equipment for the A-3 and B-2 (5) man life raft as requested in the above comments from ACAS, OC&R.

3. It is also requested that the above action be expedited and that this office be notified the length of time it will take before the water producing equipment will be ready for installation as part of the life raft accessories.

By command of General ARNOLD:

R. A. LEDO
Colonel, Air Corps
Actg. Chief, Devel. Engr. Br., Materiel Div.
Office, Assistant Chief of Air Staff
Materiel, Maintenance and Distribution

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WAR DEPARTMENT

HEADQUARTERS OF THE ARMY AIR FORCES

WASHINGTON, 25, D. C.

AFDMA-2C

Water Producing Equipment for Life Rafts 20 March 1944

Commanding General, AAF Materiel Command
Wright Field, Dayton, Ohio

Attention: Engineering Division

1. The following comments have been received from ACAS, OC&R, concerning water producing equipment for life rafts:

"The minimum requirement of water for one man, in a life-raft, is one pint per day.

"It is requested that the Materiel Command be directed to provide water producing equipment for the type A-3 and B-2 five (5) man life-raft for a period of 15 days on the basis of one pint per day per man. Of this fifteen (15) day supply of water for five (5) men, at least, ten (10) day supply for five (5) man shall be provided by the Permutit Process. In addition two cans of water will be provided for immediate use in the life rafts."

2. It is directed that your office take the necessary action to provide water producing equipment for the A-3 and B-2 (5) man life raft as requested in the above comments from ACAS, OC&R.

3. It is also requested that the above action be expedited and that this office be notified the length of time it will take before the water producing equipment will be ready for installation as part of the life raft accessories.

By command of General ARNOLD:

R. A. LEE
Colonel, Air Corps
Actg. Chief, Devel. Engr. Br., Materiel Div.
Office, Assistant Chief of Air Staff
Materiel, Maintenance and Distribution

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Refer reply to [illegible] to:

15 APR 1944

4-14-44

Commanding General,
Air Material Command,
Engineering Division,
Reference: [illegible],
Wright Field, Dayton, Ohio

Test of Solar Stills for Life Raft Use.

Army Air Forces Board,
Army Air Forces Tactical Center,
Orlando, Florida.

1. It is requested that appropriate tests of inflated type solar stills be conducted to determine suitability for use in life rafts.

2. Test models will be furnished by the Air Material Command, Wright Field, Dayton, Ohio, to the organization designated as the testing agency. It is expected that models will be ready for test during the last week of April. It is recommended that this test be assigned highest priority in order that the urgent need for such stills may be fulfilled as soon as possible.

3. In order that the Material Command project engineer may be present at the tests and that appropriate arrangements may be made, it is requested that this Command be advised of the following as soon as possible.

a. The organization designated as the testing agency.

b. The location of the tests.
(Most of the tests must be conducted on the ocean.)

c. The date of the tests.

4. The following test requirements and information are submitted:

a. The solar stills to be tested consist of an inflated vinylite envelope enclosing a water and heat absorbing pad. In use the pad is saturated with sea water, the envelope is inflated, the still is tied to the raft and put overboard to float on the ocean. Heat from the sun is absorbed by the black pad and the salt water contained therein evaporates; water vapor condenses on the vinylite envelope as salt-free water, and is collected. Two or three different models will be submitted and it is desired that the most satisfactory one be chosen.

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Refer reply to [illegible] to:

Commanding General,
[illegible] Material Command,
Engineering Division,
Reference: [illegible],
Wright Field, Dayton, Ohio

15 APR 1944

4-14-44

Test of Solar Stills for Life Raft Use.

Army Air Forces Board,
Army Air Forces Tactical Center,
Orlando, Florida.

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...r Board

...ent of ...ller ...ills for life ...aft use.

16 APR 1944

a. ...here is no similar ...ilitary ...ow standard. ...limited procurement (3,000) of ...ilone type "Gunnills" has been made. The ...ermutit process desalting kit, which is in ...roduction, employs a very different ...ineiple in that the chemical used to ...ure the drinking water is expended when used; whereas these ...ills constitute a renewable source of water.

b. This type of still ...s far smaller ...ackage volume than the ...ilone type "Gunnills" but is ...y ...omparably an efficient ...e one latter. ...ddition it ...ires ...ce room inside the raft when in use. ...herefore, it is ...ieved to be more adaptal... to life rafts ...an any still ...ilone type.

c. ...ince this type of ...still is more ...ompact and takes up ...so much in the raft, it ...ossible to ...rovide more stills, and hence a greater ...ater supply than ...ith the ...ilone type.

d. It is ...xpected that this type of still, in conjunction with rain ...atching, and ...storage ...s ...ans, will ...rovide at least ...ith ...ome ...ater ...ills ...ith ...raft. ...f this ...aft.

e. The stills ...should ...ed ...e ...ested for at least a ...onth ...ith ...ecific ...ervation. ...rvation will be made so that ...ximum ...ber ...ld be ...tilled. ...The stills should be tested ...ith ...ea ...efficient ...n ...eration of water ...ently received ...into drinking water.

f. ...eference is ...ade to the attached ...ly, Memorandum, ...ivision ...emorandum ...eport, ...erial ...o. ...-..., dated 24 ...anuary, 1944. ...t is ...exhibited that the ...ximum area of each of these stills ...ld be ...approximately ... sq. in. It is recommended that the ...ize of ...ills be ...ided ...ximate with the attached ...emorandum ...eport, the actual still ...reas, and with the efficiency ...determined during the test ...by ...aterial Command ...personnel, as well as ...the ...ected ...ills which ...ill be ...approximately ...ize. ...ch. ...possible it ...ould be ...ably ...esirable to include ...six stills ...each ...aft, ...raft. This is ...because the ...assumed ...ximum ...ement of ...the ...of ...ater ...per day, per man is ...manifestly ...inadequate, it ...possible to ...have one or two ...extra stills ...in the ...event of ...need ...more.

...Materials ...will be ...provided ...as soon ...as ...available.

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A-F Board

Test of Solar Stills for Life Boat Use.

16 APR 1944

i. The questionnaire to be answered by testing personnel is as follows:

(1) Are the stills adequately rugged? If not, what are the weak points? Can adequate repairs be made with the materials provided?

(2) Are the stills seaworthy? That is, do they maintain their proper position in the water, even in relatively high wind and waves.

(3) Is the water produced potable even when distilled in relatively rough weather? If not, why not?

(4) How many stills is it considered feasible to have in use at one time?

(5) Are the stills sufficiently easy to operate?

(a) to fill?

(b) to keep oriented?

(c) to drain?

(d) to inflate and deflate?

If not, what changes must be made?

(6) Are the operating constructions adequate? If not, in what respects?

j. The testing agency should furnish following:

(1) Skilled test personnel

(2) Unskilled personnel for testing directions, simplicity of operation, etc.

(3) At least one power boat to transport personnel and equipment to and from the testing grounds and to serve as tender constantly during the tests.

(4) At least one multiplace raft - type A-3 or A-2 with appropriate accessories.

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AAF Board

Test of Solar Stills for Life Raft Use.
1F APR [illegible]

(if desired, this office will furnish this raft provided notice is given.)

(5) Quarters for two to four Materiel Command personnel during the test period.

k. The Materiel Command will furnish the following:

(1) The models for test.

(2) Specialized test equipment for measuring solar energy.

(3) The project engineer and one or two other representatives will be present.

l. The test models will be available approximately 27 April, 1944. The test should be started not later than 1 May, 1944.

m. The test should be conducted for at least three full days, preferably five days.

n. This test is considered to be of the greatest urgency, since there is a most serious need for this equipment.

o. Project Engineer - [illegible]. Metcher, Jr.
Emergency Rescue Branch,
Wright Field, Extension No. 20139,
Address reports to : Commanding General,
A.F. Materiel Command,
Engineering Division,
Attn: Department 54-6.

p. The test models shall be returned to this office upon completion of the test.

q. No estimate of the rate of manufacturing can be given, except that the stills could be produced at high rates, depending on the quantity involved and the availability of materials.

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AAF Board

Test of Solar Stills for Life Raft Use.

[illegible]

r. Operating instructions will be furnished with the test models.

For the Commanding General:

F. O. CARROLL,
Brig. General, U.S.A.
Chief, Engineering Division.

1 Incl.
Cy. M.R. No. ENG-54-671-.80,
dtd. 24 Jan. 1944.
Reference "Drinking Water Kits in Safe"

Copies to: AAF Board (3)
Proving Ground, Command, Liaison Office,
Wright Field, Dayton, Ohio. (3)
CG/AAF AC/AS, OC&M, Requirements Division,
Washington, D. C. Attn: Requirements
Liaison Branch

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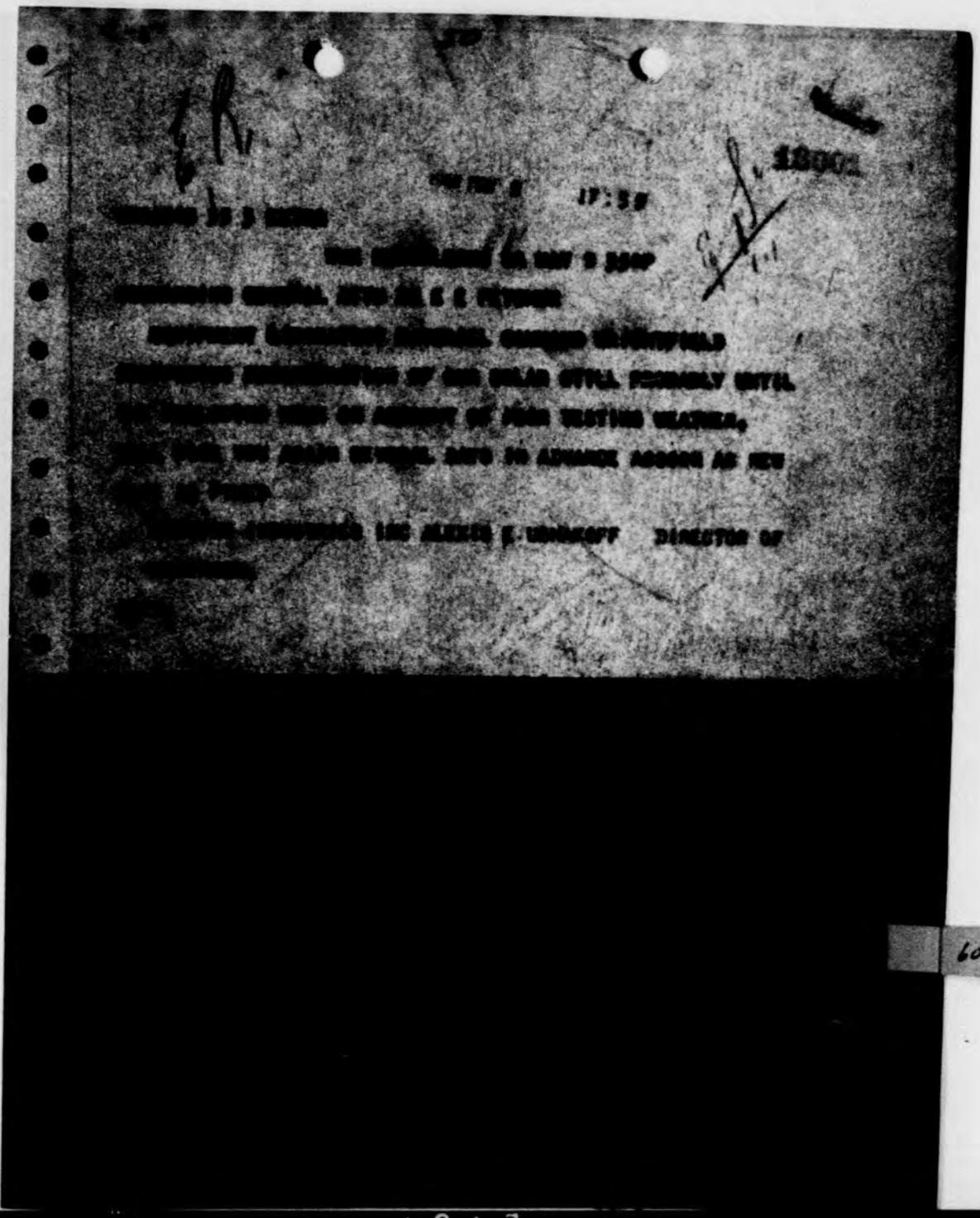

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Carbon Solar [illegible]
43.240
AS, AEC-17-4/17
Material, Diffusion

Development of Salt Water Still

Asst. C/AS, MM&D. 9 May 1944

Asst. C/AS, OC4R (Requirements Division) 3 cont.
Capt. Bennington/cpw/74887

Corporation's Solar Evaporator and the Higgins Sun Still be investigated with a view to informing this Office of their status. It would be very desirable if such an analysis could include data obtained from results of comparative test.

Incl:
n/c.

MARVIN I. GRIGGS
Brig. Gen., USA

Equipment Section _____

Emer. Res. Branch _____

TO: Asst. C/AS, OC4R, Requirements Division DATE: 17 June 1944

FROM: Asst. C/AS, MM&D, Materiel Division COMMENT NO. 4
RWJ/low/3871

1. The information requested in Comment 3 is contained in the attached first Indorsement dated 1 June 1944 from the Materiel Command.

Incl. n.c.
Added:
1st Ind. dtd 1 June 44
frm Materiel Command

R. C. WILSON
Colonel, Air Corps
Chief, Devel. Engr. Br., Materiel Div.
Office, Asst. Chief of Air Staff
Materiel, Maintenance and Distribution

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43.040
AS, DEB-19-[illegible]

Development of Salt Water Still

TO: Asst. C/AS, [illegible]D.

DATE: 9 May 1944

FROM: Asst. C/AS, OC&R (Requirements Division)

Comment No. 3
Capt. Bennington/cpw/74687

1. Request that proposed design of subject still be investigated.

2. Due to relative failure of previously developed stills of this type, this Division does not contemplate providing them in life rafts and emergency kits. The metal boiler type stills have proven to require excessive stowage space in comparison with their small capacity and output; they are hard to stow in already standard emergency kits; they are hard to repair if damaged; they tend to chafe a raft, are very uncomfortable aboard a crowded raft, may be more easily lost and require considerable strategic material and precision workmanship in their manufacture. If, however, one should prove extremely practical and efficient, it would, of course, be favorably considered.

3. Further request that progress of development of the Gallowhur Chemical

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AAFMC-14-A-WF-6-15-42-5M[illegible] copy of 3

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ROUTINE

TELEGRAM

OFFICIAL BUSINESS—GOVERNMENT RATES

FROM: WAR DEPARTMENT
AAF Material Command
BUREAU Wright Field, Dayton, Ohio.

RMF:pjc:46
10 May 1944 1:00 p.m.

GALLOWHUR CHEMICAL CORPORATION,
250 West 43rd Street,
New York, New York.

JOHN P. FRAIM, JR.,
Colonel, Air Corps.

[illegible]- INFORMATION HAS BEEN RECEIVED THAT PROVING GROUND GUNNERY
TESTS OF RIFLES WILL BE FURTHER DELAYED. YOUR COMPANY WILL BE NOTIFIED
AS SOON AS NEW DATE HAS BEEN SET RED ADAMS

MATERIEL COMMAND, WRIGHT FIELD

[illegible] - BULLSEYE

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May 11, 1944.

Commanding General
Material Command
Wright Field
Dayton, Ohio

Att. Emergency Division
Equipment Laboratory
Dept. 54-2 H.S. Fetcher

Gentlemen:

For your information, it seems appropriate at this time that we give you a brief summary of our Sunstill invention and development to date:

The following are the dates of the patent applications which have been filed by members of our research staff on the Sunstill invention -

11/18/41
8/30/47
9/2/42
9/4/42
10/2/42
10/8/42
10/20/42
11/2/42
11/20/42
12/24/42

While it is indicated that our patent applications cover the entire principle involved, it will be of interest to you to note that WE HAVE REASON TO BELIEVE THAT THE APPLICATIONS ON THE INCLINED MODELS ARE THE STRONGEST APPLICATIONS WE HAVE.

1. Dr. Boys apparently first thought of the idea during the early part of the summer of 1942 (the exact date is not available at this writing).

2. Miller first thought of the inclined type Sunstill during August of 1942.

3. First field tests of solar still models were made by us on September 7th, 1942.

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Commanding General, Materiel Command May 11, 1944.
Wright Field.

4. First Sunstill models were submitted to the Research Development Section, Office of the Quartermaster General, Washington, D.C.

5. First field tests by Research Development Section, Office of the Quartermaster General, Washington, were made December 20th, 21st, 22nd, 1942.

6. Further tests on Sunstill were made by us February 18th to February 26th, inclusive, 1943.

7. Wright Field representative (Major Mayne) witnessed and participated in Florida tests on February 24th and February 25th, 1943.

8. Contract from Army Air Force placed June 11, 1943.

9. Improved Sunstill submitted to Wright Field, June 25, 1943.

10. Written approval for production received from Wright Field, September 19, 1943.

11. First advice on inflated type solar still given to Research Development Section, Office of the Quartermaster General, Washington in letter from George Gallowhur dated February 4, 1943.

12. Photographs of our inflated type solar still shown at joint meeting presided over by Emergency Rescue Equipment Section of Joint Chiefs of Staff, Washington, D.C. on September 10, 1943, and complete discussion held on that date; information given to the meeting by us as to all phases of work which we had previously done in the Sunstill development.

13. Models of inflated Sunstills, following the above meeting, shown to Emergency Rescue Equipment Section of Joint Chiefs of Staff, in Washington on October 20, 1943. (Were also shown to Bureau of Aeronautics the same day).

14. Same models as above were shown, at the suggestion of Emergency Rescue Equipment Section of Joint Chiefs of Staff, Washington, to Lt. Col. Whitehead, Pentagon Building, November 9th, 1943.

15. Further models shown to Equipment Lab, Wright Field on December 8th, 1943.

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Commanding General, Materiel Command
Wright Field.

May 1, 1944.

16. On March 2, 1944, joint meeting was held at Wright Field, at which Gallowhur Chemical Corporation, Dr. Talkes of M.I.T., National Carbon Company, representative of N.D.R.C. and liaison men from other branches attended. Higgins of New Orleans was invited, but refused to attend.

Out of the above meeting came a plan to pool information and have Gallowhur Chemical Corporation work on an Army Air Force experimental contract on a cost-reimbursible basis. Contract is to take effect March 3, 1944, although we only received the formal contract on May 1st for signature. We have not as yet returned this contract to Wright Field.

Very truly yours,
GALLOWHUR CHEMICAL CORPORATION

Clifford F. Raye
Vice President

CFR:ao

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[illegible] Material Command,
[illegible] Materiel Division,
Engineering Division,
Reference: Projects,
Wright Field, Dayton, Ohio.

15 May 1944

[illegible] for Air Raft Gun.

Army Air Forces Board,
Army Air Forces Evaluation Center,
Orlando, Florida.

1. Reference is made to Materiel Command letter to your office dated 29 April 1944, regarding the above subject. The Air Materiel Command, Wright Field, Dayton, Ohio, has received information that a type of still very similar to those described in this letter, made by Higgins Industries, New Orleans, Louisiana, will be available for test approximately 31 May 1944. This command has not had an opportunity to test this particular model, although the model has been inspected by personnel of this command. However, considerable assistance has been given the Higgins Industries in the development of the still, and earlier models have been tested.

2. Referenced letter requested that tests be started not later than 1 May 1944, at which time one type of inflated still was ready for test. It is now considered advantageous to include the Higgins still in the test requested and to delay the test until this still is available. These matters have been discussed with personnel of the Proving Ground Command who have examined the Higgins still and have expressed willingness to include it in the tests.

3. It is therefore requested that the Higgins stills, and such other stills which the testing agency may desire for test or comparison, be included in the test program requested, provided no serious delay beyond 15 May 1944 is encountered. It is considered that the test requirements set forth in the referenced letter are broad enough to cover these stills, except that parts of Paragraph 4 g do not necessarily apply.

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[illegible] to [illegible] Board.

Solar Stills for Life Raft Use.

15 May 1944.

1. [illegible] relative merits of the stills to be tested, it is recommended that, in addition to the obviously important factors of efficiency, simplicity, actual bulk, etc., the equally important factor of the ratio of the distillation rates to the packed volume, be weighted heavily.

By the Command of the General:

[illegible]
Major General, U. S. A.,
Chief, Engineering Division.

Copies to: [illegible]
[illegible] Board
[illegible] Field, Canton, Ohio.
[illegible], Army Requirements Division,
[illegible], U. S. Army Transport Service
[illegible]

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Cable Arnold

Wm Gruber
Mr Jones

DMA
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AAF MESSAGE CENTER
Room 3 E 1073 — Ext. 72332 - 72333
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WA 223

Gen. Arnold

WOV V WUB 181 133 9 EXTRA

EU NEWYORK NY MAY 19 0OPR 539P

LT GEN H H ARNOLD ARMY AIR FOCCES
PENTAGON BLDG

WHAT CAN YOU DO TO EXPEDITE CONTINUED DELAYS IN APPROVING IMPROVED PORTABLE SOLAR STILL WE HAVE DEVELOPED FOR CONVERTING SALT WATER INTO FRESH WATER FOR USE BY ARMY AIR FORCE OUR PLANT HAS ALREADY DELIVERED 30,000 MODELS WITHOUT A SINGLE REJCTION YET NO FURTHER ORDERS ARE IN VIEW AND WRIGHT LABATORY HAS CONTINUALLY POSTPONED TESTING OUR IMPROVED MODELS ON GROUNDS THAT HIGGINS OF NEW ORLEANS MAY EVENTUALLY DEVELOP A BETTER MODEL. ELEMENT OF TIME IN SAVING OF LIVES SEEMS OF GREAT URGENCY. MOREOVER OURS IS THE ONLY SOLOR STILL PLANT IN THE COUNTRY AND WE ARE RELUCTANT TO SHUT DOWN AND LOSE TRAINED PERSONNEL OUR IMPROVED MODEL HAS WITHSTOOD SEVERE ACTUAL FIELD TESTS IN PRESENCE OF AIR FORCE OBSERVERS. RESPECTUFLLY REQUEST YOUR SUGGESTIONS / June 5

GEORGE GALLOWHUR PRESIDENT GALLOWHUR CHEMICALS
CORPORATION 250 EAST 43 ST NEW YORK.

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539P 43.

(AFR 11-30)

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Carbon-Solar Still
~~93.040~~
45,020.15
Materiel Command

Major R.J.Bodine/mm/3931

AFMMA-2C
2? May 1944

Development of Salt Water Still

Commanding General, Materiel Command,
Wright Field, Dayton, Ohio.

Attention: Engineering Division.

1. It is directed that action be taken to investigate the merits of the salt water still as described in the enclosed papers.

2. It is also directed that this office be given the status of the development of the Gallowhur Chemical Corporation's solar still and the Higgins Sun Still. This status report should include data obtained from the results of comparative test between the two stills.

By command of General ARNOLD:

R. C. NELSON,
Colonel, Air Corps,
Chief, Devel. Engr. Sr., Materiel Div.,
Office, Assistant Chief of Air Staff,
Materiel, Maintenance & Distribution.

Incl.
Cy. ltr. fr. AAF Board
dtd. 27 Mar. 44, w/2 Incl.

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AFMMA-2

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Carton-Salvage
#3, DEB-11-6/M
Materiel, MMA

Development of Salt Water Still.

1st Ind. EMP:pjc:lb-BR:150524

Hq., Materiel Command, Wright Field, Dayton, Ohio, 1 June 1944.

To: Commanding General, Army Air Forces, Washington 25, D. C. Attention: Assistant Chief of Air Staff, Materiel, Maintenance and Distribution, Development Engineering Branch.

1. Reference is made to Paragraph 1 of basic communication. Reference is also made to the attached copy of Memorandum Report No. ENG-46-671-189B dated 3 June 1944, Subject: "Minnesota Stills for Life Rafts", in preparation. (A completed copy will be forwarded when approved.) Many of the comments concerning the Minnesota Still apply to this proposal. It should also be pointed out that the vacuum pump is no longer the prinsipal disadvantage of the Minnesota Still, as states in Inclosure #1 of letter from AAF Board dated 29 March 1944. An apparatus almost identical with that described was tested at the University of Minnesota and found to be less satisfactory than direct evacuation of the air. This was because sufficient gases come out of solution from the water during its removal to impair or stop the distillation; it is also extremely difficult to fill such an apparatus without entraping a few bubbles of air. (It requires only approximately 1.5 cc of air, at normal pressure, in a volume of 700 or 800 cc to seriously impair distillation with the small temperature gradients proposed.) A much more complicated pump than that proposed would be required to remove these traces of gas. A very small pump has the disadvantage that many strokes are required to evacuate the system. Various sizes were tried at the University of Minnesota and it was determined that a free air capacity of 40 to 60 cc per stroke was most desirable.

2. It is considered that when satisfactory solar stills become available (see Paragraph 3) adequate drinking water will be supplied by them in combination with rain catching and storage equipment, and the Permutit desalting process in almost all parts of the ocean. (See Memorandum Report No. ENG-54-671-180 dated 21 January 1944, Subject: "Drinking Water Supply on the Ocean". It is considered probable that the water supply will be better than that given in Exhibit B of this report.)

3. Reference is made to Paragraph 2 of basic communication. The development of both stills mentioned is virtually complete. Comparative tests of the stills will be carried out by the Proving Ground Command beginning 5 June 1944.

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HQ, DEB 17.4771

1st Ind. to AC/AS, MMD.

Development of Salt Water Still.
1 June 1944.

4. It is presumed that the reference to "the Gallowhur Chemical Corporation's solar still" is to the stills that have resulted from a conference at this Command, and which this Corporation has developed under the guidance of an assumed contract with this Command. These stills are a combination of suggestions from the Massachusetts Institute of Technology group, the Gallowhur group, personnel of this Command, and the Proving Ground Command. More properly they might be called MIT-Gallowhur, or Gallowhur-MIT Stills. MIT and Gallowhur each had a still, neither of which was satisfactory.

5. No comparative data are now available for the Gallowhur-MIT Stills and the present Higgins Stills. Comparative data on the earlier models are contained in Memorandum Report No. ENG-54-671-189 dated 25 March 1944, Subject: "Inflated Type Life Raft Stills." These data do not apply to the present models because of important improvements made since these tests were run.

For the Commanding General:

H. Z. BOGERT,
Colonel, Air Corps,
Acting Chief,
Engineering Division.

1 Incl.
Withdrawn: 2 Incls. - #1 and #2.
Added: 1 Incl. - Incl. #3 - M. R. No. ENG-54-671-189B dtd. 3 June 1944.

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17

HEADQUARTERS ARMY AIR FORCES

OUTGOING UNCLASSIFIED MESSAGE

PRECEDENCE	DATE	FROM (OFFICE OF ORIGIN)
ROUTINE	23 May 1944	ACAS/MTED/Material Division.

TO	NAME OF OFFICER PREPARING	PHONE
MR. GEORGE GALLOWHUR GALLOWHUR CHEMICALS 250 EAST 43RD ST. NEW YORK, N. Y.	Major E.Hodine/dw	3831

I certify that the following message constitutes official business and is necessary in the military service.

TYPED NAME	SIGNATURE
R. C. WILSON	
GRADE AND TITLE	
COLONEL, A.C.	

AFMA-2 .... 7147 ..... PD

IN ANSWER TO YOUR MESSAGE DATED 19 MAY 1944 CONCERNING WHAT IS BEING DONE TO TEST THE GALLOWHUR IMPROVED STILL ACTION IS BEING TAKEN TO MAKE COMPARATIVE TESTS OF THE GALLOWHUR AND HIGGINS SOLAR STILL AT THE ARMY AIR FORCES BOARD ON 5 JUNE 1944. IF THE ABOVE TESTS INDICATE THAT THERE IS A SUITABLE STILL AVAILABLE THAT WILL MEET THE REQUIREMENTS OF THE ARMY AIR FORCES ACTION WILL BE TAKEN BY THIS HEADQUARTERS TO SET UP QUANTITY REQUIREMENT FOR THE SUITABLE STILL.

ARNOLD

COMEBACK

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(AFR 11-30)

OFFICE SYMBOL	1 AFMA-2	2	3	4	5	6
SIGNATURE OF RESPONSIBLE OFFICER						
INTERNAL OFFICE COORDINATION						

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c/c Solar Still
Serial 11,040
Ltr. Dtd. 11/11/42
Mat. Div. Memo.

GALLOWHUR CHEMICAL CORPORATION
WINDSOR, VERMONT

Send Reply To: 250 E. 43rd Street
New York 17, N. Y.

May 26, 1942

Lt. Gen. H. H. Arnold
Army Air Forces
Pentagon Building
Washington, D. C.

Dear General Arnold:

Thank you for your telegram of May 25th, in reply to my telegram of May 19th. I think it is important that you have some of the background of this matter. In our opinion there has been inexcusable delay on the part of Army Air Force in getting adequate inflated type Solar Stills into the hands of the men of our armed forces, who need them badly.

We say inexcusable because while we are all searching for the ideal model, there has been available one which could be depended upon to produce more than enough water to support a man's life.

We emphasize particularly that we were requested by the Army Air Force to rush samples, and two of our technical people to Eglin Field by April 26th, and we were advised at that time that recommendations for procurement had to be decided upon by May 1st/ Here it is almost the end of May and actually we do not seem to be very much further along towards reaching the immediate goal of this recommendation for procurement than we were a month ago.

We cannot help but feel that part of the basic reason for this inexcusable delay has been due to Higgins in New Orleans and to the apparent willingness on the part of Wright Field Laboratory to bend over backwards in their efforts to cooperate with Higgins. This they are apparently willing to do, in spite of the fact that Higgins refused to attend in the joint meeting held at Wright Field on March 8th and 9th, and to cooperate with the Army Air Force and other people interested in the development of a satisfactory inflated type solar still.

This influence of Higgins and their ability to have Wright Field delay ordering an adequate model, was apparent at the time of the visit of our technical men to Eglin Field on April 26th, for offical tests had just about gotten under way when they were stopped, while representatives of the Proving Ground and representatives of Wright Field Experimental Laboratory left both Eglin Field and Dayton, Ohio to go to New Orleans at the request of Higgins to see a new model. In other words, Higgins influence over the Army Air Force is so great that his phone call stops offical tests scheduled far in advance.

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Although it was reported to us at the time that our models were looked upon with favor, the final tests were postponed for another week. Again, because Higgins wasn't ready in that week's time, Wright Field agreed to another postponement of the test - This time to June 5th. However, apparently in response to protests which we made in a telegram to you dated May 19th the tests have now been advanced to May 30th.

All throughout this past five months, there has appeared to be a desire on the part of Wright Field to cater to the Higgins people, to the detriment and delay of the Sunstill program. We had agreed to sign an experimental contract for the development of a satisfactory inflated model, but in view of Wright Field's delay in sending the contract to us, we have held up signing a contract until we can determine the extent to which Wright Field has already broken the contract by giving information gained from our Laboratory and our experimental work, to Higgins. Dr. Fetcher, of Wright Field Laboratory, on his visit to us on May 16th, indicated that such information has been given to Higgins.

Since our protest about the delay and their apparent favoritism towards Higgins, we are impressed by further apparent prejudice against us by Wright Field as evidenced by such instances as a telephone call from Dr. Fetcher to one of our Technical people, at his home in the country, on Sunday, May 21st, stating that recalculation of the tests at Eglin Field showed lower efficiencies, whereas according to our figures such recalculation is incorrect; and such statements over the telephone on previous days from Dr.Fetcher to the effect that our models were not properly made, and that the taste of the water was objectionable to the extent that it must be overcome, and other criticisms not previously indicated in numerous conversations, and during tests at Eglin and in New York Harbor at which Dr. Fetcher was present.

We developed the Sunstill in the summer of 1942 and tests were run December 1942 for the Emergency Rescue Equipment Section of the Office of Quartermaster General. At that time our Richard Delano, the President's cousin, and I went with a representative of the Quartermaster to Florida to assist in running these tests.

It is important to mention that we are the only people who have produced any Sunstills in commercial volume and the only people already set up to manufacture those units. We have already delivered thirty thousand units to the Army Air Force without a single rejection.

Our information indicates that whereas we developed, and have patents pending on this type of apparatus, the Higgins people did not enter the field until after our models were shown and discussed with representatives of the Army Air Force, and ever since then it would appear that favoritism has been shown the Higgins Company.

Dr. Fetcher has stated to both Mr. Kaye, our Vice President, and Myself, that he was entitled to give information to Higgins of any of our latest developments, but he would not disclose any of Higgins developments to us, and this was done in spite of the fact that an experimental contract has not been signed and accepted. Moreover, from time to time Dr. Fetcher has referred to the Higgins model as "his model".

It is important for the record that we emphasize that our laboratory has at

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all times given complete information on our latest ideas and development to Dr. Fetcher, not only on Sunstill, but on other matters,--we with the understanding that this information was being kept in strict confidence and in the interest of helping the war effort, - while Dr. Fetcher apparently taken the position that what we have is his, and that he may turn it over to Higgins.

To summarize the situation, therefore, it is our opinion that the Experimental Laboratory at Wright Field, Dayton, Ohio, has inexcusably delayed decision on adopting an adequate inflated type solar still, through favoritism to the Higgins people in New Orleans, and that proper action should be undertaken if it is determined that they have improperly given information belonginto us to the Higgins Company.

Very truly yours,
GALLOWAY CHEMICAL CORP.

/s/ George Galloway
George Galloway
President

GG:PF

cc: Mr. John P. Bader
2019 Pawhuska Road
Brookside Manor
Hyattsville, Md.

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CABLE "SKOL" NEW YORK

GALLOWHUR CHEMICAL CORPORATION

CHEMICAL AND PHARMACEUTICAL MANUFACTURERS

WINDSOR, VERMONT

OFFICE OF THE PRESIDENT

SEND REPLY TO: 250 EAST 43RD STREET
NEW YORK 17, N.Y.
LEXINGTON 2-3720

May 31, 1944

6/8

To:

Lt. General H. H. Arnold
Army Air Forces
Pentagon Building
Washington, D. C.

Dear General Arnold:

Subsequent to my letter of May 26, we received word from Wright Field that the tests on our Sumstill versus Higgins have been postponed again to June 5.

We understand that the Higgins spherical model is almost identical to a model which we developed a year ago and which was tested in Florida in November 1943. We have moving pictures of these tests which are available for any one in the government to see at any time. This movie was shown to Dr. Fetcher in January and on March 9, 1944, we submitted a top feed, cylindrical type model to Wright Field and we understand that this feature has now been incorporated by Higgins in the spherical model. We abandoned further development of this model because it had a large packed volume in relation to production; moreover, Dr. Fetcher of Wright Field asked us specifically to concentrate on our oriented model and asked us not to work further on this top feed type, although it now appears that this is the latest Higgins' type which Dr. Fetcher is so enthusiastic about.

From information we have, we are fearful that our men will not be allowed to remain throughout the entire testing period at Eglin Field, scheduled to start June 5th and including tests on any competitive models. It would be in line with our past experience that our men would be asked to leave the models

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SUBSIDIARY COMPANIES

SKOL COMPANY — SKOL DEVELOPMENT CORP.

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to be tested in our absence and that the Higgins people would not arrive with their models until after our men have left.

We request that the tests on our and competitive models be carried out simultaneously and that our representatives as well as any competitors' representatives be allowed to remain throughout the testing period. If our men encounter difficulty in this respect, I have asked them to wire to you direct for authority to remain.

Very truly yours,
GALLOWHUR CHEMICAL CORP.

George Gallowhur
President

GG/b

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Major Bodine/fw-3831

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AFDMA-2C
1 June 1944

Gallowhur Inflated Type Solar Still

Commanding General, AAF Material Command
Wright Field, Dayton, Ohio

Attention: Engineering Division

1. Inclosed herewith is a copy of letter from the Gallowhur Chemical Corporation dated 26 May 1944, concerning the delay in testing the solar still.

2. The inclosed letter was answered stating that an investigation would be made on the charges contained in letter from the Gallowhur Chemical Corp. and that they would be informed of the outcome of the investigation as soon as it has been completed.

3. It is, therefore, directed that action be taken by your office to investigate the charges contained in the inclosed letter and that this office be given complete information on the outcome of this investigation so that a reply can be made to the Gallowhur Chemical Corporation.

4. It is also directed that the information on this investigation be furnished this office no later than 10 June 1944.

By command of General ARNOLD:

Incl.
Cy of ltr frm
Gallowhur Chem. Corp.
dtd 26 May 1944.

R. C. WILSON
Colonel, Air Corps
Chief, Devel. Engr. Br., Material Division
Office, Assistant Chief of Air Staff
Material, Maintenance and Distribution

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HQ. AAF

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Comments
Return to Adm. Sec.

AAF ADMIN. SECTION

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Division, Inter Office
AS,DE B-12
Washington, D.C.

Written 1 June 1944

Major R. J. Bodine/fw-3831

AFDMA-2C

8 JUNE 1944

MEMORANDUM FOR THE CHIEF OF MATERIEL, AAF

Subject: Concerning Letter from Gallowhur Chemical Corporation

1. In the letter received from the Gallowhur Chemical Corporation, Mr. George Gallowhur, President of the company, complains that the Materiel Command is holding up field tests of the Gallowhur inflated type solar still so that a similar still now under development by Higgins of New Orleans can be field tested at the same time.

2. Mr. George Gallowhur also complains that Materiel Command is catering to Higgins in their development of a similar type solar still and that certain laboratory tests and developments made by Gallowhur were turned over to Higgins.

3. Action is being taken by this office to have these charges made by Mr. George Gallowhur investigated by Materiel Command and that a complete report on this investigation be furnished this office no later than 10 June 1944. Mr. George Gallowhur will be informed of the outcome of this investigation as soon as it is received in this office.

O P ECHOLS
Maj General, U S A
Asst Chief of Air Staff
Materiel, Maintenance & Distribution

Incl.
Ltr for Gallowhur Chemical
Corporation.

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AFDMA-2C
Maj. R J Bodine/fw-3831

7 June 1944

Mr. George Gallowhur
Gallowhur Chemical Corporation
250 East 43rd Street
New York, N. Y.

Dear Mr. Gallowhur:

Reference is made to your letters dated May 26th and May 31st, concerning the delay on the part of Wright Field in expediting field tests of the inflated type solar still.

I am having an investigation made on the charges stated in the above referenced letters and you will be informed of the outcome of this investigation as soon as it has been completed.

Very sincerely,

/s/ H. H. Arnold
H. H. ARNOLD
General, U. S. Army
Commanding General, Army Air Forces

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AFDMA-2C
Maj. R J Bodine/fw-3831

7 June 1944

Mr. George Gallowhur
Gallowhur Chemical Corporation
250 East 43rd Street
New York, N. Y.

Dear Mr. Gallowhurt

Reference is made to your letters dated May 26th and May 31st, concerning the delay on the part of Wright Field in expediting field tests of the inflated type solar still.

I am having an investigation made on the charges stated in the above referenced letters and you will be informed of the outcome of this investigation as soon as it has been completed.

Very sincerely,

/s/ H. H. Arnold
H. H. ARNOLD
General, U. S. Army
Commanding General, Army Air Forces

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MATSD COMMAND ROUTING AND RECO 'HEET

INSTRUCTIONS:
1. Use full addresses for sender and addressee to facilitate routing.
2. Draw line across page after each comment.
3. Use whole sheet, both sides.
4. If addressed to two or more offices, first office receiving will readdress to next office on list.
5. See Office Memorandum 10-1 for full instructions.

Subject: **Gallowhur Inflated Type Solar Still.**

Comment Number

To: Chief, Engineering Division, Wright Field, Dayton, Ohio

From: Emergency Rescue Branch, Personal Equipment Lab., Wright Field, Dayton, O.

Date 8 June 1944
Dict. By LT. COL. E. E. McKINSON
Phone No. [redacted]

1. 1. With reference to Gallowhur Chemical Corporation letter to Lt. General H. H. Arnold, Army Air Forces, the following information is submitted:

a. There has been delay in the development of a satisfactory solar still due to engineering difficulties.

b. Service tests of the Gallowhur Solar still, by the Army Air Forces Board at Eglin Field, on 1 May 1944, was stopped and delayed by this office for a period of two weeks, in order that the solar still already developed by the Higgins Corporation could be submitted in competition with the Gallowhur solar still.

c. The solar still submitted by Gallowhur Chemical Corporation at that time, was reported unsatisfactory by the Eglin Field personnel, as it did not produce palatable water. It was necessary that the Gallowhur Chemical Corporation representatives return to their plant and make modifications to their solar still.

d. Engineering difficulties have delayed the Army Air Forces Board tests on both stills since 1 May 1944. The Gallowhur Solar Still and the Higgins Solar Still are, at the present time, on competitive service tests at Eglin Field.

e. The Emergency Rescue Branch has endeavored to show no partiality or favoritism in any way whatsoever to either the Gallowhur Chemical Corporation or the Higgins Corporation. It has been, and it is, the policy of this Laboratory to obtain from as many companies as possible, samples of equipment and submit them to the Army Air Forces Board for competitive service test in order that the Army Air Forces can obtain the best possible equipment.

f. This laboratory feels justified in delaying the final service test of this item for a short period to allow the Higgins solar still to be submitted since the Higgins solar still was completely developed.

g. This Laboratory has no knowledge of having improperly given to the Higgins Corporation any information belonging to the Gallowhur Chemical Corporation.

2. It is the opinion of this office that due to keen competition between the Higgins Corporation and the Gallowhur Chemical Corporation, the Gallowhur Chemical Corporation is endeavoring to use any means possible to force their product upon the personnel of the Army Air Forces.

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JOHN P. FRAIN, JR.,
Colonel, Air Corps,
Chief, Personal Equipment Laboratory,
Engineering Division.

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Carbon, Solar Still
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45, DEB-15-1(1944)
Material, Miscellaneous

L.Fornes:50
Ext. 30151

"Gallowhur Inflated Type Solar Still"

1st Ind.

Engineering Division, AAF Material Command, Wright Field, Dayton, Ohio. 9 June 1944.

To: Commanding General, Army Air Forces, Washington 25, D. C.
Att: Asst. Chief of Air Staff, M&D, Material Division.

1. With reference to the inclosed copy of letter dated 26 May 1944 from the Gallowhur Chemical Corporation to General H. H. Arnold, the following information is furnished for use in preparation of a reply.

a. The Army Air Forces requirements to date for Solar Stills have been fulfilled by the delivery of 30,000 of such articles procured on contract W 2620 AC-275 dated 8 June 1943 from the Gallowhur Chemical Corporation. This transaction was a sole source procurement of the most satisfactory model available, and the quantity has been more than sufficient to meet the demands of the Service.

b. Test results and the reports from using services have indicated that considerable improvement was necessary in the present Solar Still before a recommendation could be made by the AAF Material Command for standardization of a type for future procurement. Engineering difficulties encountered have caused a delay in this development. On 1 May 1944 the Army Air Forces Board was prepared to conduct service tests at Eglin Field of an improved model submitted by the Gallowhur Chemical Corporation. At that time word was received that the Higgins Corporation would be prepared to submit a Solar Still for test in two weeks. In order that comparative service tests might be run, the tests on the Gallowhur model were postponed. In the meantime, Eglin Field reported that preliminary tests by their personnel showed that the Gallowhur model did not produce palatable water. Therefore the delay incident to awaiting the arrival of the Higgins model also afforded the Gallowhur representatives the opportunity of returning to their plant and making modifications to their Solar Still. Accordingly the comparative service tests were begun on both the Gallowhur and Higgins models on 6 June 1944 which date was the earliest on which either article could be made available to the Army Air Forces Board.

c. The Material Command has endeavored to show no partiality or favoritism in any way whatsoever to either the Gallowhur Chemical Corporation or the Higgins Corporation. It has been, and now is, the policy of the Engineering Division to obtain from as many companies as possible, samples of equipment and submit them to the Army Air Forces Board for competitive service test in order that the Army Air Forces can obtain the best possible equipment. This policy results to stimulate

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"Gallowhur Inflated Type Solar Still"
1st Ind. 9 June 1944
Asst. Chief of Air Staff, M&D, Materiel Division

contractors to greater effort in continuously improving their product. Personnel of this Command have been repeatedly cautioned to avoid action which might precipitate charges of unfairness and favoritism. Dr. Fetcher has been apprised of this situation, and Mr. Gallowhur may be assured that full cooperation and careful consideration will be given all items submitted by his organization to the Materiel Command for test.

d. With reference to the exchange of information on items of equipment between competing organizations, the Gallowhur Chemical Corporation may be assured that procurement procedures of the War Department operate to fully protect individual patent applications and license rights.

For the Commanding General:

P. S. BOOTH,
Colonel, Air Corps,
Acting Chief,
Engineering Division.

Incl.

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Carbon - Solar Still
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Mail Div MMatd

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Written 15 June 1944
AFDMA-2C
Major R J Bodine/fw-3851

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Mr. George Gallowhur
Gallowhur Chemical Corporation
29? W. 43rd Street
New York 17, N. Y.

Dear Mr. Gallowhur:

Reference is made to your letter dated May 26, 1944, concerning the delay on the part of Wright Field in expediting field tests of the inflated type solar still.

The Army Air Forces was prepared to conduct service tests on May 1, 1944, of an inflated type solar still submitted by your corporation. At that time word was received that the Higgins Corporation would be prepared to submit a solar still for test in two weeks and in order that comparative service tests might be run the tests on the still submitted by your corporation were postponed.

Preliminary tests made on the solar still submitted by your corporation showed that the still did not produce palatable water and the delay incident to awaiting the arrival of the Higgins model also afforded your representative the opportunity of making modifications to the solar still before final tests would be made. Accordingly the comparative service tests were begun on both the Gallowhur and Higgins stills on June 6, 1944, which date was the earliest on which either still could be made available for final test.

HQ. AAF JUN 22 1944 MMB

The Army Air Forces has endeavored to show no partiality or favoritism in any way whatsoever to either your corporation or the Higgins Corporation. It has been, and now is, the policy of the Army Air Forces to obtain from as many companies as possible samples of equipment and submit them to the Air Forces testing agency for competitive service tests in order that the Army Air Forces can obtain the best possible equipment.

Personnel of the Material Command have been repeatedly cautioned to avoid action which might precipitate charges of unfairness and

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Major R J Bodine/fw-3831

Written June 15, 1944

AFDMA-2C

Mr. George Gallowhur
Gallowhur Chemical Corp.
New York 17, N. Y.

favoritism. Mr. [illegible] Fetcher, of Wright Field who was mentioned in your letter of May 26, 1944, has been apprised of this situation and you may be assured that full cooperation and careful consideration will be given all items submitted by your organization to the Materiel Command for test.

With reference to the exchange of information on items of equipment between competing organizations, your organization may be assured that the procurement procedures of the Army Air Forces operate to fully protect individual patent applications and license rights.

Very truly yours,

[illegible]
Deputy Commander, [illegible]

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c/o - Julian Stitt
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AS, DEB-21 W/M
Mat Div, WPAFB

GALLOWHUR CHEMICAL CORPORATION

250 East 43rd Street
New York 17, N. Y.

General H. H. Arnold
Commanding General
Army Air Forces
Washington 25, D. C.

Dear General Arnold:

I am writing in further reference to my letters to you of May 26 and May 31, as no satisfactory action has yet been taken.

Criticism of the delayed manner in which the Sunstill program was being conducted led to the calling of a meeting on March 9, at Wright Field, of all interested parties with the purpose of settling immediately upon the requirements governing the design of a Sunstill to meet the needs of the Army Air Forces. Although this meeting was postponed to accomodate the Higgin's representatives, they refused to participate.

At this meeting, definite decisions were reached regarding the type of still desired and an absolute time limit was established by Dr. Fetcher.

Before leaving Wright Field, we presented our gravity feed model; this was a new idea to Dr. Fetcher and he was obviously greatly impressed by it. Our company, long before this time, had developed handmade models of many types of stills and we were ready to push, under Dr. Fetcher's guidance, any type which would be most acceptable to the Air Corps. Dr. Fetcher, however, definitely instructed us to defer certain developments, including the gravity feed, "to a later date."

When the Eglin Field tests were repeatedly delayed, I protested this matter to you in my letter of May 26. Dr. Fetcher, in my office, took full responsibility for these delays and justified them on the grounds that Higgins had something radically new and of great promise. Furthermore, he admitted to me that he had given details of our models to Higgins. A few hours later, in conversation with our Mr. Haye, Dr. Fetcher said he doubted if he had given "much valuable information to Higgins, but he stressed that he had the "right"to do so. All along, Dr. Fetcher refused to give us any information on Higgins' work, saying that this was "confidential." Dr. Fetcher, moreover, stated we must not disclose any information on our developments to the Navy or other branches of the armed services. This position I rejected as unfair to the Navy.

We very strongly took the position with Dr. Fetcher that he did not have the right to give any information whatsoever to Higgins: that Higgins had refused to join with Wright Field's cooperative plan: moreover, that disclosures to Higgins were contrary to the intent of the experimental contract which was offered to us by Wright Field.

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AS, DEB-21-3/44 #6

General H. H. Arnold

June 20, 1944

The Higgins' still incorporates absolutely no unique features that had not been developed in our company's laboratory prior to Higgins entering the solar still field, but does incorporate the very features presented by us to Dr. Fetcher and rejected by him. It is our contention, therefore, that actually we are competing against our own stills at the present Eglin Field tests.

Recently at Eglin Field, Dr. Fetcher identified our still to Eglin Field officals as the "M.I.T.-Gallowhur Still" and the still submitted by Higgins as "the Higgins Still" despite the fact that I had previously carefully explained to Dr. Fetcher the fact that our model was developed previous to the M.I.T. development.

I had repeatedly stated to Dr. Fetcher and other representatives of Wright Field that we will continue to cooperate wholeheartedly for the rapid development of the Sunstill in order to save men's lives. We feel, however, that because of mismanagement of this program, promoted by Dr. Fetcher's seeming determination to favor the Higgins people, this entire project has been inexcusably delayed for months.

Very truly yours

GALLOWHUR CHEMICAL CORPORATION

/s/ George Gallowhur
George Gallowhur
President

GG/b

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c/c-Solar Stills
48.040
48, DEB-2
Mat Div. 9 Nov 42

37

250 East 43rd Street
New York 17, N. Y.

June 2, 1942

Commanding General
Army Air Forces
Washington, D. C.

Attention: Lt. General Barney M. Giles
Deputy Commander

Gentlemen:

We wish to acknowledge receipt of your letter dated June 22nd and thank you for writing to us as your interest and cooperation are appreciated.

However, we do wish to call your attention to the fact that the question of palatable water is one which does not justify delay after April 15th, and it is not correct that June 6th was the earliest date on which either the Gallagher or Pilgrim still could be made available for final tests, at least insofar as the Gallagher still is concerned.

Your statement (actually to the fact that the question of palatable water is one which has been before both your experimental laboratory at Wright Field and ourselves during the whole course of solar still development, and it is known that the unpleasant taste does not come from the working of our solar still but from the plasticizer used in the manufacture of vinylite.

Mr. Fiester of your experimental laboratory at Wright Field knew in advance of our arrival at Eglin Field on April 26th that there was such haste for action that our laboratory had not had enough time to complete the curing of the stills, which would have removed the solvent taste.

There was an unpleasant taste to the water produced by our solar stills in the first day or two of our arrival at Eglin Field, but we were advised those tests were not official. The stills were fully cleaned out and dried and ready for the official tests, but the official tests were never held at that time due to the request for a delay made by Pilgrim Industries, and so it does not seem justified at this time to raise the issue that the delay was justified by the fact that our stills did not produce palatable water.

Further, as a matter of fact, Sunstill #2 which was taken to Eglin Field on April 26th and was ready for the official tests on May 1st as requested of us, was one of the stills used in the official comparative tests made on June 7th.

It is our opinion that procurement could have been initiated if official tests had been held on May 1st as originally scheduled, and that the time lost since then has been inexcusable delay. Furthermore, it is now June 29th and we do not have any advice relative to conclusions reached from the tests started June 7th.

Very truly yours,

[illegible]
/s/ C. T. Hays
CLIFFORD P. HAYS
Vice President

(AFA 11-30)

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Written 4 July 1944.

AFDMA-2C

Major R J Bosine/fw-3831

Mr. Clifford . Kaye
Vice-President Metal Corporation
[illegible] Street
New York 17, . Y.

Dear Mr. Kaye:

Reference is made to your letter dated June 2 , 1944, concerning the field testing of the solar stills.

It has been the policy of the Materiel Command to test all items before [illegible] that for field testing to be sure that the engineering of the item is satisfactory. This procedure does eliminate delays resulting from rejection of the item by the service test agency because of some engineering fault. In many articles the Materiel Command requests that the manufacturers make sufficient tests to be sure that the article is sound from an engineering standpoint so that when field tested the article will not require engineering changes. It is admitted, however, that during field tests certain unforeseen conditions may arise which will require an engineering change.

~~On this tests started~~ On June 7, 1944, ~~on solar stills~~ one the Army Air Forces Board indicated at first test that ~~the~~ submitted by your company gave off palatable water. However, after the still was in storage for a period of [illegible] days at ~~New York~~ it not only gave off water which had a bad taste but caused a stinging feeling in a man's stomach. After analysis of the various parts of the still it was found that the Garan carrier for the cloth was the source of the unpalatable water.

started field tests on solar stills which

I have been informed that additional stills have been received for field tests and it is estimated that it will be four weeks before these tests will be completed.

I believe that a more thorough test of the stills should be given by your company before submitting them for field tests to be sure that the still will always produce palatable water. By making these thorough tests, many of the delays that are now [illegible] experienced in the field testing of the stills will be eliminated.

Very truly yours,

Completed
6 JUL 1944

AFDMA-2 AFDMA-1 AFMED

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Return to Room 4D-873

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INTER-OFFICE MEMORANDUM
ARMY AIR FORCES
MATERIEL CENTER
Office of The Commanding General

Capt. W. H. Lane
pyl17-1 27233
Wright Field, Dayton, Ohio
Date 5 July 1944

TO: File

SUBJECT: Gallowhur Chemical Corporation
Contract W 33-038 ac-2528 for
Development of Solar Still.

Conference 15 June with Dr. Fetcher and Major Butts of Emergency Rescue Unit, Engineering Division, Captain Smith of Procurement Division, and Captain Lane of Patents & Royalties Office.

1. Dr. Fetcher stated that it was assumed in dealing with the Gallowhur Company and particularly with respect to furnishing information, data, and the like to that company in the perfection and testing of their Solar Still, that the subject development contract had been signed and was in effect.

2. The Gallowhur Company has not signed the contract and has intimated that ideas and information obtained from Gallowhur were passed on to Higgins by Dr. Fetcher.

3. The Gallowhur people, according to Dr. Fetcher, allege that they have been working on Solar Stills for two years, and that the Higgins Still is a recent development which incorporates many of the principles of the Gallowhur Still.

4. According to Dr. Fetcher, the Higgins Still is larger, weighs more, and does not fold into as small a space as the Gallowhur Still.

5. It was agreed at this preliminary conference that it would be to the Government's interests to have the Gallowhur Company sign a development contract and thereby acquire reproduction rights in the Gallowhur Still. This is particularly so in view of the fact that Gallowhur may not be able to produce all the stills that are needed within the time available.

Messrs. Raye and Brown of the Gallowhur Company joined the conference.

6. Mr. Raye stated that in his belief, some of the patentable ideas incorporated in the Gallowhur Still have been included in the Higgins Still, and that if the Government obtains a license in the subject development contract, Gallowhur will lose control of the manufacture of their still for the Government. They were unable to point out such patentable features, but expressed the belief that the Vinylite covering, gravity feed, suspension arrangement of the head, and

Signature

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File
Gallowhur Chem. Corp. N 33-038 ac-2528 - conference
5 July 1944

particularly the principle of suspending a flexible, absorbent pad in an inflated transparent envelope, with flexible supports, and the salt water ballast is regarded by Gallowhur's patent attorneys as being new and novel. These features are reputed to be covered by patent applications with respect to which actions are stated to have been received from the U. S. Patent Office indicating that claims are allowable with respect thereto.

7. Mr. Maye was particularly concerned about the delay in the submission of the contract to Gallowhur for signature. He inferred that the interval of time between the agreement with respect to the contract (approximately 15 March, 1944), and the date of submission of the contract to Gallowhur for signature (approximately 1 May 1944), appeared unnecessarily long in their opinion. Also during delay between first scheduled start at Eglin Field test (1 May 1944) and actual start (5 June 1944). This period of time enabled Higgins, in the opinion of Gallowhur, to obtain information with respect to the Gallowhur Still and possibly incorporate the same in the Higgins Still so that the Higgins Still would be on a par with the Gallowhur Still.

8. Mr. Fetcher emphatically denied having transmitted any information along this line to Higgins, but stated that under the terms of the contract with Gallowhur, he believed that were the contract in effect, he would feel justified in passing such information on the end that a better Solar Still may be developed.

9. An attempt was made to explain to Messrs. Maye and Brown the reason for the delay in the testing of the Still. It was explained that it was necessary to obtaining at Eglin Field a priority for the comparative tests. Furthermore, in order for a comparative test to be of value, all stills must be tested at the same time, otherwise conditions of temperature, sun, and the like might be such as to give an inaccurate comparison. It was explained by Major Butts and Captain Smith that there was certainly no intentional delay on the part of the Army Air Forces, but it was believed that as a matter of judgment, in view of the unsatisfactory results obtained from Solar Stills up to this time, that it was to the interest of the Government to have a comparative test. Major Butts and others explained that the Government now has a large quantity of the Delano Stills made by Gallowhur (approximately thirty thousand) which are practically worthless. It was also explained to Messrs. Maye and Brown that in the April tests of the Gallowhur Still the water was regarded as unpalatable in view of the fact that persons drinking the water became nauseated.

10. Mr. Maye reviewed the entire situation of the development of the Gallowhur Still from the standpoint of Gallowhur. He again intimated that Higgins may have incorporated in the Higgins Still some of the features which make the Gallowhur Still operate more efficiently. Discussion was had with respect to various meetings on Solar Stills in which Mr. Talkes of MIT was present and apparently gave out considerable information in regard to Solar Stills. It was again pointed out that in the April tests of the Gallowhur Still, men drinking the water therefrom became quite nauseated. The Gallowhur people pointed out, however, that the water from the present still appears much better. Captain Smith explained that

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File
Gallowhur Chem. Corp. W 33-038 ac-2528 - conference
5 July 1944

the procurement had been held up for reasons beyond control of those in the subject conference and that the interval of time between negotiation and submission of the contract to Gallowhur for signature is not much beyond the normal time for such procedure. Mr. Kaye pointed out that it was not in his opinion the intent and purpose of the contract to include the right to use information obtained therefrom and give it to other people for the purpose of assisting such other people in their patent positions. Mr. Kaye's position in this regard was not made clear and an attempt was made to point out that even if information were given, which is not believed to be the case, it would not improve Higgins' patent position because the Gallowhur inventors should be in the most favorable position with respect to the filing of patent applications and proving first inventorship.

11. Mr. Kaye wanted an indication or an assurance that Gallowhur would receive its share of the Solar Still business. It was pointed out to them that such assurance could not be given in view of the contingencies of price, delivery, and the like. It was also pointed out that more than one source was desired and that this desire might inure to the benefit of Gallowhur, especially if a still other than the Gallowhur Still were adopted.

12. Major Butts expressed the belief that he did not feel the Gallowhur people were justified in intimating that pressure had been brought to delay tests of the still. In his opinion, it was a matter of obtaining the best still. This was particularly so in view of the performance of any Solar Still tested up to that time. Mr. Kaye then stated that he wanted the deal to go through as originally agreed upon. It was pointed out that the contract sets forth the deal and that nothing in the agreement guaranteed procurement of the Gallowhur Still, neither was any assurance given that Gallowhur should receive any contracts for procurement of Solar Stills.

13. Captain Smith then pointed out that nothing has changed since the contract was negotiated and in his opinion the Gallowhur people have no reason for refusing to sign the contract. In fact, the Government had lived up to its part of the agreement and in his belief, Gallowhur people should do the same. The Gallowhur people then stated that they would take the matter under advisement with their executives and advise as to their decision.

W. R. LANE,
Captain, J. . . . .,
Patents & Royalties Office.

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GALLOWHUR CHEMICAL CORPORATION

250 East 43rd Street
New York 17, N. Y.

July 12, 1944

80

Commanding General
Army Air Forces
Washington 25, D. C.

Gentlemen: Attn: Lt. General Barney M. Giles
Deputy Commander

We beg to acknowledge receipt of and thank you for your letter dated July 1st. Although it had been our opinion that unfair favoritism has been shown in the past, we appreciate your assurance that this situation shall be avoided in the future.

In regard, however, to your third paragraph we can only repeat that your representative told our Mr. Gallowhur that information had been given to the Higgins Corporation.

While we do not wish to prolong this exchange of correspondence as we are more anxious to see the development concluded, we respectfully take issue with the conclusion of the fourth paragraph of your letter in that our Sunstill does not use any basic idea of the M.I.T. still.

We trust an early determination can be made as to whether or not the present Sunstills are acceptable for the Army Air Forces use.

Very truly yours,

GALLOWHUR CHEMICAL CORPORATION

Clifford F. Raye
Vice President

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AFDWA-2C
Major R J Bodine/fw-3831

1 July 1944

Mr. George Gallowhur
Gallowhur Chemical Corporation
230 East 43rd Street
New York 17, N. Y.

Dear Mr. Gallowhurt

Reference is made to your letter dated June 20, 1944, concerning the delay in testing the solar still.

My letter to you dated June 22, 1944, in answer to your previous letter dated May 26, 1944, gives assurance that the Army Air Forces has endeavored to show no partiality or favoritism in any way whatsoever to either your corporation or to the Higgins Corporation. The Materiel Command personnel have again been cautioned to avoid action which might precipitate charges of unfairness and favoritism.

I have been informed that no information has been given to the Higgins Corporation that would prejudice the rights of your company concerning the development of the sun stills.

The reason that Dr. Fetcher of the Materiel Command identified the still, submitted by your company, to the Eglin Field officials as the "M.I.T.-Gallowhur Still" is because at the meeting on March 29, 1944, at Wright Field, which was attended by representatives from your company and M.I.T., both representatives from your company and M.I.T. submitted designs and ideas which have been incorporated in the still submitted by your company.

The physical tests of the Gallowhur and Higgins stills have been completed by the Army Air Forces Board although it is not known at this time whether either still meets the requirements of the Army Air Forces.

Your efforts in the development of a sun still for the Army Air Forces are greatly appreciated and you may be assured that the Army Air Forces will cooperate wholeheartedly with your company in any further development projects.

Sincerely yours,

/s/ Barney M. Giles
BARNEY M. GILES
Lt. General, U.S. Army
Deputy Commander, Army Air Forces

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AFF AF 30028 (2-H:NCS:ga

Headquarters Air Materiel Command

Wright Field, Dayton, Ohio

12 July 44

Subject: Return of [redacted]
Authority for Purchase No. 387056
Engineering Services

To: [redacted] AAF Materiel Command
[redacted] Wright Field
[redacted] Personal Equipment Laboratory
[redacted] Attn: Sea Rescue Unit

1. Subject Authority for Purchase, attached hereto, is being returned, inasmuch as the Procurement Division, Materiel Command is unable to take further action on this document until the following additional information is supplied and/or the following corrections are made:

Contractor has returned contract unsigned and further negotiations by the Procurement Division appear impossible.

2. The subject Authority for Purchase is being deleted from all records of the Procurement Division and will not be reinstated until, and as of the date, it is received back in the Procurement Division completed or corrected as indicated above. It is requested that the Air Service Command records be adjusted accordingly.

3. If the subject Authority for Purchase shall be completed or corrected, it should be returned to the Records Branch, Procurement Division, and should bear, in the "Initiation Date" space, the date such supplemental information has been added or corrections made.

4. If the subject Authority for Purchase shall be cancelled (instead of being completed or corrected) it should be returned to the Records Branch, Procurement Division, for permanent filing.

For the Commanding General:

Attach:
AFP 387056 w/corres.

H. C. Smith, Capt AC
for O. C. SNATLAND
Colonel, Air Corps
Chief, Procurement Division

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Authority for Purchase

No 387056

VENDOR

CONTRACT No.

PURCHASE ORDER No.

DELIVERY VIA TERMS METHOD PROPOSAL

THE ABOVE SPACE TO BE USED BY THE PURCHASE BRANCH ONLY

Item	Quantity	Unit	Estimated Unit Price	DESCRIPTION OF SUPPLIES OR SERVICES TO BE PURCHASED	Unit Price	Total Price
				W33-038 ac-2528 (11979)		
				See attached sheet.		

3-16-44 P.O. Mahoney Contract

NEGOTIATIONS COMPLETED R C Adams

Controlled materials are not involved.

4/4/44

Total Estimated Cost $25,000.00 CLASSIFICATION CL-13 C-2 AA-1

Total Actual Cost

B—FUNDS A—FUNDS C—FUNDS

EXPEND. ORDER No. MISCL. CHARGE No.	Project No.	Item No.	Project No.	Item No.	Project No.	Class No.	Item No.
671-63 (13)	611-4	671-9					

Increase of Funds to Actual Cost Approved

MATERIAL TO BE OBLIGATED Equipment Laboratory

WANTED NOT LATER THAN 15 June 1944 (Date)

Chief-Division-Organization

DELIVER TO AAF Supply Officer, Wright Field, Dayton, Ohio. 54-6

Expenditure Control—S. F. O.

Procurement Data Number of Sets

DATE FURNISHED

Budget & Fiscal Officer

Remarks on the following matter marked with "X" appear in the space below:

1. Recommended Sources of Supply X 2. Government furnished material 3. Tools, patterns, etc. loaned by Government
4. Should Serial Number be assigned 5. Point of Inspection X 6. Increase Existing Orders 7. General Remarks X

1. Gallowhur Chemical Corporation, 250 East 43rd Street, New York 17, New York. Sole source
Material estimate - $400.00 Eight Hour Law appleson
5. Destination.
7. a. Engineering services are in connection with development of solar stills for use in life rafts; this type of still, with adequate rain catching and storing equipment, is expected when developed to yield approximately one pint of water per man.
b. Services required to complete and extend development. No still as yet developed is satisfactory.
c. Services are concerned with new equipment.
License rights should be considered and also reproduction rights. (OVER)

PAR #1 3/17/44 BB

The supplies and services to be obtained by this instrument are authorized by law for the purpose set forth in and are chargeable to the appropriation number(s):

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ACA1942442405 P 611-07 A 212/ (AFR 11-30)

Upon due inquiry made it was found that the articles enumerated hereon could not be procured from any other source of the Government without transfer of funds, or the immediate need of these supplies or the remoteness of this station from the point of supply precludes their purchase from any other branch of the Government.

Date	Initialed by:	Approved by:	Signed by:
13 MAR 1944	E. S. FETCHER, JR. 20139	Q. V. HOLLOMAN, Colonel, Air Corps.	F. O. CARROLL, Brig. General, USA

Coordinated by: Approved: KOHLHESER, Lt. Col., Air Corps.

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REMARKS (continued)

7. d. Procurement of these services would greatly expedite development of a suitable still.

NOTE: The samples contain no rubber or synthetic rubber.

The sample stills will contain approximately 4 square feet of .004" or .008" Vinylite each.

Not on Army Air Forces Stock List.

AFP UNIT RECORDS BRANCH
PROCUREMENT DIVISION

OUT
AFP UNIT
GEN. PROC. BR.

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A.F.P. No. 387056

For engineering services for a period not to exceed three months from the date of the contract in connection with the development of an inflation type solar still. This item shall be suitable for use as life raft equipment, for the production of drinking water from sea water by making use of solar energy. The contractor shall produce working samples and conduct such experimental tests as are required to demonstrate the suitability of the equipment for the purpose.

-B dated March 7-1942

Progress reports with drawings, together with engineering data in accordance with AAF Specification No. 98-40033 if required, shall be submitted at 30 day intervals; and a final report in reproduceable form shall be furnished at the completion of the contract. If an article satisfactory to the Government has been developed, engineering data in accordance with Specification No. 98-40033 shall also be furnished.

-G dated March 7-1942

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1.

XXXXXXXCOMMAND

ESF:vms:46ER

13 July 1944

Chief, Production Division,
Attention: Prod. Engineering Section,
Aeronautical Equipment Branch,
Miscellaneous Unit.

435

Requirements for Solar Stills for Life Rafts.

1. Information has been received by this office indicating that the AAF Board intends to recommend the use of either of two types of solar stills for life rafts. In anticipation of instructions to provide these stills the information contained herein is submitted to your office so that action can be initiated without delay if such instructions are received.

2. One type of still is manufactured by Higgins Industries, 521 City Park Ave, New Orleans, Louisiana. This still will be referred to herein, and probably in the report of the AAF Board as the spherical pad still. The Higgins Company refers to this still as "Solar Still model 24". The other type of still is manufactured by the Gallowhur Chemical Corporation, 250 S. 43rd Street, New York 17, New York. This still will be referred to herein as the flat pad still. The Gallowhur Company refers to this still as "Sunstill model B-6". Each of these companies regards the still it manufactures as a proprietary item; although both companies have received considerable assistance in development from AAF personnel; and the Gallowhur Corporation has received assistance from the Solar Energy Utilization Group at the Massachusetts Institute of Technology.

3. The AAF does not now own any samples of either type of still; nor does it have reproduction rights at the present time. Therefore, it is not feasible to prepare specifications for release. In place of specifications, the requirements set forth in Paragraphs 4 and 5 should be adhered to in procuring subject stills.

4. The flat pad still shall conform to the models tested by the AAF Board with the changes and provisions listed below. A sample of this still is available in this office.

a. The hexagonal, black, cellulose sponges shall have a total water capacity 30 to 50 % greater, with the same evaporating area, than the sponges of the stills tested. (The capacity should be 1300-1500 cc., instead of approximately 1000 cc.

b. The water distilled in the still shall be non-toxic. It shall be potable by personnel not in emergency situations when substituted for ordinary drinking water.

COM. GEN.
TECH. EXC.
ADM. EXC.
C. O.
BUD. OFF.
EXP. ENG.
CONTRACT
INSP.
PROD. DIV.
PROD. ENG.
PROD. CONT.
P. S.
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(Tests indicate that the "Resistoflex" coated top section of the still and the "Saran" screen supporting the sponges are the chief sources of a taste which rendered water from these stills unpotable after a period of disuse. The "Resistoflex" coating can probably be omitted and another material can be substituted for the "Saran".)

e. The screen supporting the pads shall have a wider mesh than that of the stills tested by the AAF Board.

d. The tabs used for tying the stills to each other and the raft shall be vertical instead of horizontal, and two positions of tilt shall be provided; one so that the pad will be tilted at approximately 15° and the other so that it will be tilted at approximately 40° from the horizontal.

e. The clips and tie cords holding the stills together and to the raft shall be capable of withstanding a pull of approximately 200 pounds. Any clips furnished shall be easy to manipulate and shall be secure. The tie cords shall be such that standard knots shall not slip nor jam even when wet; and they shall be resistant to chafing. The tie cords shall be long enough to permit tying the stills to the raft and each other in a variety of positions; and to permit tying the stills so that the distances between centers is at least three still diameters.

f. A means of charging the still without spilling shall be provided.

g. These portions of the fresh water trap which run the length of the still are considered unnecessary.

h. A complete explanation of the still and detailed operating instructions shall be provided in waterproof form. There shall be also provided a brief summary of operating instructions indelibly printed on the still.

i. A stronger lifting loop shall be furnished than that on stills tested by the AAF Board.

j. A stronger and more durable tie string for the filling cap than that of the stills tested by the AAF Board shall be provided.

k. Approximately one foot by 3/4" of waterproof adhesive tape shall be provided with each still for the repair of punctures and tears. ("Utilitape" manufactured by the Industrial Tape Company is satisfactory for this purpose.)

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I.O.L. to Production Division.
Requirements for Solar Stills for Life Rafts (Cont'd)
14 July 1944

l. The black sponges shall be backed by a suitable white material, and shall be securely attached to the supporting screen.

m. The entire still shall be of rugged construction so that it may be expected to be serviceable for at least a month. It shall be strong enough, when inflated, to withstand, without injury the weight of a man. On the other hand no quantity or thickness of material shall be used in excess of that required to achieve this ruggedness, consistent with the proper functioning of the still.

n. The still and all joints shall be air and water tight, under the pressures encountered in the operation of the still.

o. The still and all its parts shall be serviceable after exposure to 150 hours salt spray test; and, while packed, to 160°F, and — 65°F. each, for 48 hours.

p. The stills shall be packed in the smallest possible space. Two or three stills may be packed in one container. The outer container probably should be rigid to protect the plastics of the still from excessive bending and possible cracking at very low temperatures.

5. The spherical pad still shall conform to the models tested by the AAF Board with the changes and provisions listed below. A sample of this still is available in this office.

a. Paragraphs, 4h, 4k, 4m, 4n, 4o, and 4p, apply to this still.

b. The water distilled in the still shall be non-toxic. It shall be potable by personnel not in emergency situations, when it is substituted for ordinary drinking water.

c. The envelope and many of its fittings may be lightened to decrease packed bulk provided that the requirements of paragraphs 4m, and 4n, are met; and provided the functioning of the still is not impaired. Every effort, consistent with these requirements, should be made to reduce the packed bulk of this still.

d. Cord and fittings for the attachment of the still must withstand a pull of approximately 200 lbs. The cord shall be resistant to abrasion and standard knots shall neither jam nor slip, when [illegible].

e. The baffle in the top of the salt water reservoir should have a somewhat larger hole for more ready filling than [illegible] tested by the AAF Board.

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I.C.M. to Production Division
Requirements for Solar Stills for Life Rafts (Cont'd)
14 July 1944.

f. The collector for excess salt water shall be modified so as to reduce contamination of the distilled water. This may require enlargement, and/or change of the retaining lip.

g. A well for the collection of distilled water shall be provided, which will reduce the possibility of contamination and increase the ease and completeness of collection of distilled water as compared to the stills tested by the AAF Board.

h. The possibility of leakage of salt water from the ballast tank or its fittings shall be obviated.

i. An adapter shall be provided in order that the life raft pump can be used for inflation of the still.

j. A container for filling the salt water reservoir shall be provided. One such container only need be furnished with the smallest packaging unit.

6. It is recommended that the first 25 stills on any order or contract be submitted to this office for approval before production is released.

7. Any further information will be furnished your office on request, or as it becomes available.

W. O. CRAIG
Brig. General, U.S.A.
Chief, Engineering Division.

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14 July 1944

Mr. Julius H. Amberg
Special Assistant to the
Secretary of War
Rm. 3E 739, Pentagon Bldg.
Washington, D. C.

In reply refer to:
H-714-F

Dear Mr. Amberg:

The Committee is in receipt of a complaint from the Gallowhur Chemical Corporation of Windsor, Vermont, as to alleged delays by the War Department in determining whether to enter into final arrangements with the Gallowhur Chemical Corporation for the production of solar stills to make drinking water for men forced down at sea. The Committee would appreciate receiving information with respect to the matter.

Very truly yours,

/s/ Hugh Fulton
HUGH FULTON
Chief Counsel

HF:vc

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July 15, 1944

MEMORANDUM FOR THE CHIEF, LEGISLATIVE SERVICES, AAF.
Attn: Colonel Warren S. Ege

Subject: Senate Investigation - Alleged Delays in Procurement of Solar Stills from Gallowhur Chemical Corporation.

There is annexed copy of letter of July 14, 1944, addressed to me by Mr. Fulton, Chief Counsel of the Truman Committee, with respect to a complaint as to alleged delays in determining whether to enter into final arrangements for production of the above mentioned stills from the company above-named.

Will you please look into the matter and draft reply for me to send to the Committee.

It may be that such stills are procured by some other branch of the Department, but the Office of the Quartermaster General informs me that if reference is made to such stills to be used by men forced down at sea from airplanes, the procurement would be by the Air Forces.

However, if my information is incorrect, will you please return the papers to me.

/s/ Julian H. Amberg
JULIAN H. AMBERG
Special Assistant to the
Secretary of War

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AF-104-WF-9-25-43-7500 sets of 4 ORIGINAL

No. 386992

Authority for Purchase

Sept. 1944 Control Unit Legal Branch

VENDOR Gallowhur Chem. Corp. 45-1588 E

CONTRACT No.

Higgins Industries Inc. 33-038

PURCHASE ORDER No. 45-1547-E

DELIVERY see below VIA Parcel Post TERMS net METHOD warrant PROPOSAL see below

THE ABOVE SPACE TO BE USED BY THE PURCHASE BRANCH ONLY

Item	Quantity	Unit	Estimated Unit Price	DESCRIPTION OF MATERIAL OR SERVICES TO BE PURCHASED	Unit Price	Total Price
1	15	ea.	$25.00	Stills, solar, flat pad inflated type for life raft packed	25.00	$325.00 375.00
2	15	ea.	$25.00	Stills, solar, spherical pad inflated type for life raft, packed	60.00	900.00 File 2A

R-45-3-7475

Date 9-19-44

Spec 9-26-44

NEGOTIATIONS COMPLETED 3/9

By authority of the War Production Board the preference ratings indicated are assigned to the deliveries on the purchase order or contract

NOT ON DISBARRED LIST

Date 2 Sept. 1944

Signed A. Benning

Total Estimated Cost $750.00 B—FUNDS

CLASSIFICATION CL-13 A—FUNDS

C—FUNDS

Total Actual Cost $1225.00 1275.00

Increase of Funds to Actual Cost Approved Not required

Chief—Division or Organization

AUG 30 1944

Expenditure Control Branch

Budget & Fiscal Officer

F. E. COYNE, JR., Col. A.C.

EXPEND. ORDER No. MISCL. CHARGE No.	Project No.	Item No.	Project No.	Item No.	Project No.	Class No.	Item No.
670-272 (13)	613-14	670-5					

MATERIAL TO BE OBLIGATED Pers. Equipment Laboratory WANTED NOT LATER THAN 1 September 1944 (Date)

DELIVER TO AAF Supply Officer, Wright Field, Dayton, Ohio (46-EX)

Procurement Data Number of Sets DATE FURNISHED

Remarks on the following matter marked with "X" appear in the space below:

1. Recommended Sources of Supply X 2. Government furnished material 3. Tools, patterns, etc. loaned by Government
4. Should Serial Number be assigned 5. Point of Inspection X 6. Increase Existing Orders 7. General Remarks: X

1. a. Item 1, Gallowhur Chemical Corp. 250 E. 43rd St., New York, N.Y. Material Est. $100.00
   b. Item 2, Higgins Industries, 521 City Park Avenue, New Orleans, La.
   c. These two companies have devoted much effort to the development of these stills; each company to the type indicated.
5. Destination
7. a. These are compact and simple stills for producing drinking water on life rafts.
   b. Three (3) of each type stills to be destroyed for tests of parts; five (5) for life raft tests; three (3) for packed bulk and installation tests; four (4) for temperature, salt spray, etc., test.
   c. New equipment (over)

License Rights should be considered, see Attachment A.

The supplies and services to be obtained by this instrument are authorized by, are for the purpose set forth in and are chargeable to allotment number(s):

JCA 194z-45,502-5150-613-09-212/50 pas

P A P A

(AFR 11-30)

Upon due inquiry made it was found that the articles enumerated hereon could not be procured from any other [illegible] Government without transfer of funds, or the immediate need of these supplies or the remoteness of this station from point of supply precludes [illegible] the Government.

Date 27 July 1944

Initiated by E. S. Fetcher Dr. E. S. Fetcher Capt.

Coordinated by: Ellfodder 8-11-44

Coordinated by

for JOHN P. FRAIM, Jr., Colonel, Air Corps

Approved Exp. Control B.F.O. AUG 12 1944

H. Z. BOGART Colonel, Air Corps

for FREDERICK E. COYNE Colonel, Air Corps 84

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d. Procurement will make stills available for test. None now available. Does not appear on AAF Stock Lists.

Note: Does not contain rubber or synthetic rubber, but a total of approximately seventy-five (75) lbs. Vinylite will be used.

RECEIVED 22 AUG 1944 PROCUREMENT DIVISION
RECEIVED 15 AUG 1944 PROCUREMENT DIVISION
RECORDS UNIT GENERAL PROCUREMENT BRANCH

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ATTACHMENT "A"

(For use with Engineering Division Authorities for Purchase. See Engin. Div. Office Memorandum No. 190-1 dated 5 February 1944.)

1. This is an experimental procurement for: (check appropriate statement or statements)

( ) Research.

Development of
( ) A new item.
( ) An item already partially developed.

(X) A comparative or Service Test quantity.

( ) Development, and purchase in quantity for use.

2. This procurement is for material or equipment which resulted from

( ) Submission of an item by a manufacturer for adoption.

(X) Development requested within the Army Air Forces.

3. What portion of the contract price is estimated to represent development cost? **This matter has been under consideration by the Patents and Royalties Office. It is understood that the production model of this still will retail for $8.00 to $10.00**

4. In what manner and to what extent, if at all, did Government personnel contribute to or assist in, or is it intended or contemplated that such personnel will contribute to or assist in, the design or development work?

Personnel from Massachusetts Institute of Technology and Government have assisted in the development to the point of testing and possibly having made suggestions.

5. What item, if any, may be affected or replaced by the item resulting from this development?

None

6. To your knowledge, what patents (numbers), if any, are owned by prospective contractor or others, closely related to this experimental or development work?

Understood Gallowhur Chemical Corp. filed patent applications on certain features of Gallowhur still and are reputed to have Patents or Patent applications on certain features of Higgens still.

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Capt.N.C.Smith
62-E:gmk
Tel. 2-7128

29 July 44

Chief, Engineering Division
Personal Equipment Laboratory
Attn: Maj. J. S. Butts

Solar Still
Callowhur Chemical Corporation

85

1. Forwarded herewith is copy of this Command's letter dated 24 June 1944, and copy of Callowhur Chemical Corp. letter dated 18 July 44 for your information.

2. No further action is being taken by this Section.

D. C. SWATLAND
Colonel, Air Corps
Chief, Proc. Division

Attached:

2 ltrs (copies)

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GALLOWHUR CHEMICAL CORPORATION
CHEMICAL AND PHARMACEUTICAL MANUFACTURERS
WINDSOR, VERMONT

18 July 1944

COPY

Captain N. C. Smith
Contracting Officer
Army Air Forces
Wright Field, Dayton, O.

RE: Contract W 33-038 ac-2528

Dear Sir:

In reply to your letter of June 24 with respect to the above contract, we wish to reply in Mr. Gallowhur's absence to that part of your inquiry requesting further clarification of our position in returning the contract unsigned, under date of June 20th.

In the agreement preceding the submitting of the contract, it was understood by us that the development work arising out of our experiments would be confined to the parties to the agreement of March 9th, namely, M.I.T. and ourselves. This belief was apparently wrong, as is your and our interpretation of the contract, in that Dr. Fetcher told Mr. George Gallowhur that the Wright Field Laboratories had the right to dispense such information to parties other than those to the agreement and admitted having disclosed some information on our development work.

While it was clear that the information could be made part of the specifications and available to others in the procurement of the article, the statements and actions of Dr. Fetcher have precluded our understanding being carried out. This factor has such a bearing on our patent position that we felt it unreasonable to sign the contract without the necessary protection to us.

Very truly yours,
GALLOWHUR CHEMICAL CORP.

COPY

/S/ Clifford F. Raye
Vice President

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24 June 44

Contract W33-038 ac-2528

Gallowhur Chemical Corporation
250 East 43rd Street
New York 17, New York

Attn: Mr. George Gallowhur

1. This will refer to your letter GG:McC dated 20 June 44.

2. Your letter states in part that the subject contract "does not embody the intentions of the parties as expressed during negotiations." To the best knowledge of the negotiator, the contract writer, and the Patents and Royalties office, the subject contract expresses their understanding of the agreement reached at the time of negotiation of the contract in March.

3. This office will be glad to consider the matter further upon clarification of your position.

N. C. SMITH
Captain, Air Corps
Contracting Officer

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AAF PROVING GROUND COMMAND
Eglin Field, Florida

Pd No 404
HWR:vw

28 July 1944

From: Proof Division

TO: CG, AAF, Office, AC/AS, M&D, Washington 25, D. C.

PD NO. 404. CONCLUSIONS AND RECOMMENDATIONS OF SERVICE TEST NUMBER 3-44-64 TEST OF STILL, SOLAR, FLOATING, VINYLITE, BAG TYPE ARE SUBMITTED HEREWITH.

CONCLUSIONS:

1. BOTH STILLS ARE HIGHLY VALUABLE. A SINGLE STILL OF EACH TYPE WILL PRODUCE A SUFFICIENT AMOUNT OF POTABLE WATER ON A CLEAR DAY IN TEMPERATE AND TROPICAL LATITUDES TO PROVIDE FOR THE SURVIVAL OF ONE MAN. 2. PER UNIT PACKED VOLUME THE GALLOWHUR STILL PRODUCES ALMOST THREE TIMES AS MUCH WATER AS THE HIGGINS STILL. 3. WHEN LEFT DEFLATED AND WET WITH SALT WATER FOR ONE WEEK THREE OUT OF THE SIX GALLOWHUR STILLS PRODUCED PEPPERY TASTING UNDRINKABLE WATER FOR THE FIRST DAY. IT IS CONSIDERED THAT THIS SERIOUS DEFECT CAN BE REMEDIED. 4. BOTH STILLS PERFORM LESS SATISFACTORILY IN ROUGH SEA THAN IN FAIR WEATHER. THE GALLOWHUR STILL SHOWS LESS SEA WATER CONTAMINATION THAN THE HIGGINS STILL UNDER SUCH CONDITIONS. 5. BOTH STILLS SHOWED SOME STRUCTURAL AND OTHER WEAKNESSES WHICH CAN BE REMEDIED.

RECOMMENDATIONS:

1. THE IMMEDIATE EMERGENCY SITUATION BE RELIEVED BY MANUFACTURING AT ONCE IN LIMITED NUMBERS THE GALLOWHUR TYPE STILL BUT WITH DEFECTS CORRECTED AND WITH IMPROVED GENERAL WORKMANSHIP. 2. BOTH COMPANIES CONTINUE THEIR WORK BY IMPROVING THEIR STILLS INCORPORATING THE CORRECTIONS SUGGESTED AND THE IMPROVED STILLS BE RESUBMITTED FOR TEST. 3. ALL MULTIPLACE LIFE RAFTS BE EQUIPPED WITH ONE STILL FOR EACH MAN IN ADDITION TO A MINIMUM OF TWO DESALTING KITS FOR EACH MAN (SUFFICIENT FOR 12 DAYS) AND A RAIN CATACHING DEVICE. 4. ONE MAN LIFE RATS BE EQUIPPED WITH ONE DESALTING KIT AND ONE STILL. DETAILED REPORT FOLLOWS.

GARDNER, CG AAFPOC

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Stills, Solar, Floating Vinylite Bag Type, AAF Board Project No. (M-4) 595
POC Service Test No. 3-44-64

Asst C/AS, M&S, Material Division

1 August 1944

Asst C/AS, Operations, Commitments & Requirements

1
Capt McGough/mfb/5217

This office has reviewed attached teletype from AAF Proving Ground Command, containing preliminary conclusions and recommendations relating to AAF Board Project No. (M-4) 595, subject - "Stills, Solar, Floating Vinylite Bag Type", and approves the recommendations with the following exceptions:

a. Recommendation No. three (3). Multi-place life-rafts of the Type A-3 and Type E-2 should be equipped with two (2) and three (3) stills respectively per life-raft. In addition the chemical "permutit Process" of sea water desalting should be placed in each multi-place life-raft in sufficient quantity to supply potable water for five (5) men for a period of ten (10) days based on a requirement of one (1) pint of water per day per man. Reference is made to R&R, Comment No. 2, dated 16 March 1944, subject - "Water Producing Equipment for Life-Rafts", from ACAS, OOAR, Requirements Division, to ACAS, M&D, Material Division.

b. Recommendations No. four (4). One (1) man life-rafts should be equipped with the chemical "Permutit Process" of sea water desalting in bulk equal to the present bulk of one (1) standard can of water (AN-W-5).

KENNETH P. BERQUIST
Colonel, Air Corps
Executive, Asst Chief of Air Staff
OOAR

1 Incl
Action copy of teletype
dtd 7-28-44

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ADDRESS REPLY TO
HEADQUARTERS OF THE ARMY AIR CES
WAR DEPARTMENT
WASHINGTON, D. C.

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WAR DEPARTMENT
HEADQUARTERS OF THE ARMY AIR FORCES
WASHINGTON

AFDMA-2C
3 August 1944

SUBJECT: Project No. (M-4) 595, Subject: "Stills, Solar, Floating Vinylite Bag Type"

TO: Commanding General, AAF Materiel Command
24373 Wright Field, Dayton, Ohio

Attention: Engineering Division

1. Reference is made to letter from this office to Engineering Division, 20 March 1944, subject, Water Producing Equipment for Life Rafts.

2. This Headquarters has reviewed the attached teletype from Army Air Forces Proving Ground Command containing preliminary conclusions and recommendations relating to the subject report and approves the recommendations with the following exceptions:

a. Recommendation No. 3. Multi-place life rafts of the Type A-3 and Type B-2 should be equipped with two and three stills respectively per life raft. In addition the chemical "Permutit Process" of sea water desalting should be placed in each multi-place life raft in sufficient quantity to supply potable water for five men for a period of ten days based on a requirement of one pint of water per day per man.

b. Recommendation No. 4. One man life raft should be equipped with the chemical "Permutit Process" of sea water desalting in bulk equal to the present bulk of one standard can of water (AN-W-5).

3. It is, therefore, directed that necessary action be taken by your office to provide the Gallowhur Type Still in Type A-3 and Type B-2 in quantities as stated in paragraph 2 a above.

4. It is also directed that action be taken by your office on the other recommendation of Eglin Field as approved by this Headquarters.

5. In regard to recommendation 1 (inclosed teletype) it is suggested that your office contact the project officer at Eglin Field to find out the defects noted in Gallowhur Still.

By Command of General ARNOLD:

R. C. Wilson

R. C. WILSON
Colonel, Air Corps
Chief, Devel. Engr. Br., Mat. Div.
Office, Asst. Chief of Air Staff
Materiel and Services

Incl.
Cy teletype
dtd 28 Jul 44
frm Eglin Field

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3 August 1944

MEMORANDUM FOR CHIEF, LEGISLATIVE SERVICES, AAF
Attention: Colonel Ege

Subject: Senate Investigation - Alleged Delays in Procurement of Solar Stills from Galloway Chemical Corporation.

Reference is made to memorandum from this office of 25 July 1944 regarding alleged delays in determining whether to enter into final arrangements for production of solar stills by the War Department.

Since the receipt of Mr. Fulton's letter of 14 July 1944, this office is in receipt of another communication, copy of which is annexed, of 24 July 1944 on the same subject. It is suggested that the answer to the latest communication from the Committee be incorporated in the answer to the Committee's letter of 14 July 1944.

MILES H. KNOWLES
Lt. Colonel, JAGD

for JULIUS M. AMBERG
Special Assistant to the
Secretary of War

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UNITED STATES SENATE
Special Committee Investigating
The National Defense Program

July 24, 1944

Colonel Miles N. Knowles
Room 3-E-739, Pentagon Building
Washington, D. C.

Dear Colonel Knowles:

The Committee has received complaints from both the Gallowhur Chemical Corporation and Higgins Industries with respect to the alleged slowness of the Government in adopting the solar still for making drinking water out of sea water for ship-wrecked aviators. Both Companies insist that they have developed suitable solar stills, and that many months have gone by without action by the War Department.

The Committee would appreciate it if you would inform it as to the facts with respect to the matter.

Very truly yours,

HUGH FULTON
Chief, Counsel

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WAR DEPARTMENT
OFFICE OF ASSISTANT SECRETARY FOR AIR
WASHINGTON

8 August 1944

MEMORANDUM FOR ASSISTANT CHIEF OF AIR STAFF, MATERIEL & SERVICES

Attention: Colonel J. W. Sessums
Room 4-C-671

1. Some days ago, Mr. Mark N. Donohue, Counsel for the Gallowhur Chemical Corporation, called at this office to complain against unfair treatment which his client allegedly had received from certain personnel in the Equipment Laboratory at Wright Field in connection with the development and production of solar distillation apparatus. After hearing Mr. Donohue's story, we requested that he submit full details thereof in writing, and this he has done in the attached letter dated August 1.

2. Mr. Lovett is of the opinion that the situation set forth in the attached letter should be promptly looked into. He has asked me to request, therefore, that an appropriate investigation be made and that he be furnished a report of the results thereof. He would also, at the same time, like information on the disposition of the 30,000 stills already acquired from Gallowhur on our present and future requirements for stills to be included in emergency equipment, and on the steps we are taking or have taken to meet these requirements. It would be appreciated if this investigation and report be expedited.

90

For the Assistant Secretary of War for Air:

/s/ A. M. Hanson
A. M. HANSON
Lt. Col., A. C.
Asst. Executive.

Attachment

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3.

AAFMC-14-A-WF-6-18-42-500M sets of 3

PRIORITY

WAR DEPARTMENT
Wright Field, Dayton, Ohio

BUREAU
E.S.Fetcher,Jr.:pat:46-ER, Ext.20139
August 11, 1944 12:00 M.

TELEGRAM

OFFICIAL BUSINESS—GOVERNMENT RATES

GALLOWHUR CHEMICAL CORPORATION
250 EAST 43RD STREET,
NEW YORK, NEW YORK.

JOHN P. FRAIM,JR.
Colonel, Air Corps.

ENG- 6648 SOLAR STILLS SUBMITTED BY YOUR COMPANY AND RECENTLY TESTED, HAVE BEEN APPROVED, PROVIDED CERTAIN CHANGES ARE ACCOMPLISHED SATISFACTORILY. IT IS REQUESTED THAT SIX (6) STILLS OF THE TYPE RECENTLY TESTED, PACKED IN TWO UNITS OF THREE EACH, BE SUBMITTED TO THE AAF MATERIEL COMMAND, WRIGHT FIELD, DAYTON, OHIO, ATTENTION: DEPT.46-ER, AS SOON AS POSSIBLE. IF STILLS NOT AVAILABLE IMMEDIATELY, FORWARD MOCK-UPS, OR DIMENSIONS OF PACKED STILLS. IT IS SUGGESTED THAT YOUR TECHNICAL REPRESENTATIVES VISIT THIS COMMAND AS SOON AS POSSIBLE TO DISCUSS NECESSARY CHANGES IN THE STILLS. END AFMC

Copy to : Admin.

MATERIEL COMMAND, WRIGHT FIELD.

GOVERNMENT PREPAID

By 1 Impression Mark

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AAFMC-16-A-WF-8-18-42-500M sets of 3

PRIORITY

TELEGRAM

OFFICIAL BUSINESS—GOVERNMENT RATES

FROM: WAR DEPARTMENT
AAF Material Command,
BUREAU Wright Field, Dayton, Ohio.

E.S.Fetcher,Jr.:pjo:46-ER, Ext. 20139
11 August 1944 11:00 a.m.

HIGGINS INDUSTRIES,
INDUSTRIAL CANAL PLANT,
NEW ORLEANS, LOUISIANA.
ATTENTION: MR. A. J. HIGGINS, SR.

JOHN P. FRAIM, JR.,
Colonel, Air Corps.

ENG-6641. THE MATERIEL COMMAND, WRIGHT FIELD, DAYTON, OHIO, HAS BEEN ADVISED THAT AS A RESULT OF RECENT TESTS THE HIGGINS STILL HAS NOT BEEN APPROVED FOR THE AAF. IT WAS ALSO RECOMMENDED THAT YOUR COMPANY CONTINUE DEVELOPMENT OF THIS STILL TO REDUCE ITS PACKED BULK. THIS COMMAND OFFERS ITS ASSISTANCE IN THIS DEVELOPMENT. THE EXTENSIVE WORK DONE BY YOUR COMPANY ON THIS PROJECT IS APPRECIATED END AFAMC

MATERIEL COMMAND, WRIGHT FIELD.

Copy to: [illegible].

Mechanical Branch.

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T-E-L-E-T-Y-P-E

AAF Materiel Command
Wright Field, Dayton, Ohio

16 August 1944

Capt. Jon H. Ober:
sep:HQP 2-8139

COMMANDING GENERAL
ARMY AIR FORCES
WASHINGTON 25, D. C.

JON H. OBER
CAPTAIN, AIR CORPS
ASST. TECHNICAL EXECUTIVE
OFFICE, CHIEF OF STAFF

ATTN: CHIEF, DEVELOPMENT ENGINEERING BRANCH
MATERIEL DIVISION, OFFICE, AC/AS, M & S.

HQP-759 . . . . . REFERENCE MADE TO LETTER DATED 3 AUGUST 1944. THIS OFFICE STRONGLY RECOMMENDS BASIS OF ISSUE OF ACCESSORIES AS FOLLOWS:

1. NUMBER AND TYPE OF ACCESSORIES SUPPLIED FOR TYPES B-2 AND A-3 LIFE RAFTS BE KEPT ALIKE.
2. SIX SOLAR STILLS, FIVE DESALTING KITS AND TWO WATER CANS, OR SIX STILLS, SIX DESALTING KITS AND ONE CAN OF WATER.

MOCK-UPS OF THIS EQUIPMENT HAVE BEEN PACKED SUCCESSFULLY IN MOCK-UP OF B-17 COMPARTMENT. LETTER FOLLOWS. REQUEST REPLY. END AFAC.

WOLFE, MATERIEL COMMAND

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(AFR 11-30)

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Address reply & ENVELOPE to:
B-1(2/640)

5.

Commanding General,
AAF Material Command,
Engineering Division,
Department 16-ER,
Wright Field, Dayton, Ohio.

E.S.Fetcher,Jr.:pjc:16-ER,
Extension 2-0139.

16 August 1944

-2-

Project No. (M-4) 595, Subject: "Stills, Solar, Floating Vinylite Bag Type".

Commanding General,
Army Air Forces,
Washington 25, D. C.

Attention: Asst C/AS, M&S.

1. Reference is made to the attached copy of letter from your Office dated 3 August 1944, on the above subject, and to conferences at Wright Field10, 11, and 12 August 1944 between personnel of the Office of the AC/AS, OC&R and this office.

2. This office does not consider that the basis of issue of solar stills and of "Permutit Process" desalting kits, as directed, is satisfactory for reasons as follows:

a. Different basis of issue of solar stills for type B-2 and A-3 Life Rafts.

(1) Production, supply and distribution is greatly facilitated by having one set of standard accessories for multi-place rafts.

(2) While the rated capacity is different (4 and 6 man) the basis of issue is the same in most cases. For example, a heavy bomber with a crew of ten men now equipped with two Type A-3 Rafts will eventually be equipped with two Type B-2 Rafts with no increase in number of crew members. Also medium bombers with a crew of five are equipped with one Type A-3 Raft.

(3) The present number of accessories will permit the weight-space ratio of the Type B-2 Raft to remain considerably more efficient.

b. Water requirements. In conferences 3 February 1944 between personnel of the Office AC/AS, OC&R, the Office AC/AS, M&S, and this office, it was agreed that the absolute minimal water requirements should be put at approximately one pint per day per man. This figure was agreed upon in part on the basis of experience, in part on the basis of limited physiological tests (although it was recognized that more water would probably be necessary); and in part because of

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B-1(3/6gg) 6.

Ltr. to MAS, Washington 25, D. C.

Project No. (B-4) 599, Subject: "Stills, Solar, Floating Vinylite Bag Type".

16 August 1944.

that time it appeared unlikely that even a pint a day could be secured. Since the February 1944 meetings, research and tests by the Office of Scientific Research and Development, by this office, and by other agencies have shown that human requirements are two to four pints per day at temperatures encountered on the oceans. It is considered that every effort should be made to secure water supplies as close to these latter requirements as possible in the space available for water producing equipment. It is further considered that equipment for obtaining drinking water is the most essential survival equipment carried in the life raft.

c. Basis of issue of solar stills. This office considers it of great importance to assure a continued minimal supply of drinking water, independent of a diminishing supply of chemicals; and independent of necessarily arbitrary limits on the time likely to be spent in a life raft. It should be noted that a non-expendable source of water will have the effect of increasing the length of time men can survive on rafts. Reference is made to Engineering Division Memorandum Report Serial No. ENG-54-671-180 dated 24 January 1944, Subject: "Drinking Water Supply on the Ocean."; from this it may be estimated that between 3 and 4 of the Gallowhur Type Solar Stills per raft are required (with rain catching and storage facilities now being furnished) to assure approximately one pint per man per day over most of the oceans. Hence, the 2 or 3 stills directed would not provide even a pint per day. In order to approach the actual minimal requirements, as outlined in Paragraph 3b, at least six such stills would be necessary. It should be noted that the packed bulk of these stills will be approximately 90 cubic inches each. Six of these, therefore, will occupy a volume of 500 cubic inches. Mock-ups of the six inflated type stills, in the form of two blocks of 150 cubic inches each, have been packed, with present complete accessories, in a mock-up of the rigid B-17 accessories compartment. In cases where space limitations are such that it is impossible to increase the present bulk of the accessories, this office recommends the removal of one or two water cans, and, if necessary, the removal of one or two cans of rations or other low priority items. The relative importance of other present accessories is given in Technical Order No. 04-15-1, now being revised. In view of the fact that this office regards adequate non-expendable drinking water equipment as the most desirable water source for multi-place rafts; and regards the desalting kits as a necessary reservoir, to be drawn upon only when circumstances require; it is considered that at least 500 cubic inches of the accessories space be allotted to solar stills.

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Ltr. to BuAer, Washington 25, D. C.

Project No. (B-4) 595, Subject: "Stills, Solar, Floating Vinylite Bag Type".

16 August 1944.

d. Basis of issue of Permutit Desalting Kits. It is considered that five desalting kits would afford adequate reservoir protection for the great majority of conditions. (Under conditions requiring the use of the desalting kits, it is reasonable to assume that survivors would reduce their water allowance to a pint per man per day; in this case, five kits would provide 26 man days of water). This office is in complete agreement with the position taken by personnel of the Office of the AC/AS, OC&R, that as much water as possible should be provided; however, it is considered that, in general, the allowance of Permutit kits should not infringe on space allotted to solar stills. The basis of issue directed calls for ten Permutit Kits. This amounts to a volume of approximately 370 cubic inches, one half of which (185 cubic inches) represents an increase in bulk and weight over present accessories. It is considered that it will not be possible to increase the bulk of the accessories container in most airplanes sufficiently to accommodate five extra Permutit kits as well as at least 300 cubic inches devoted to stills. It is recommended that, if it is desired to furnish more than five kits per raft, one of the two cans of water be removed, and a Permutit kit substituted; to provide six Permutit kits and one can of water. It is considered that one can of water would be adequate for almost any situation.

3. In view of the considerations set forth in Paragraph 2a, it is requested that the number and type of accessories supplied for the A-2 and A-3 rafts be kept the same.

4. In view of the considerations set forth in Paragraph 2, it is requested that the referenced letter be revised to mean that multi-place life rafts shall include the following water producing equipment (in addition to the present rain catching and storing equipment):

6 Solar Stills (or 300 - 350 cu. in. allotted to solar stills)

5 Desalting Kits (26 man days)

2 Water cans (AN-W-5)

or;

6 Solar Stills (or 300 - 350 cu. in. allotted to solar stills)

6 Desalting Kits (32 man days)

1 Water can (AN-W-5).

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B-1 (5/6/00) 8.

Ltr. to NRS, Washington 25, D. C.

Project No. (E-4) 995, Subject: "Stills, Solar, Floating Vinylite Bag Type".

16 August 1944.

3. It is requested that this office be advised as soon as possible of the decisions made in order that appropriate steps may be taken to initiate procurement.

For the Commanding General:

F. C. CARROLL,
Brig. General, U. S. A.,
Chief, Engineering Division.

1 Incl.
Cy. ltr. dtd. 3 August 1944.

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B-1 (11600)

Subject: Project No. (M-4) 595, Subject: "Stills, Solar, Floating Vinylite Bag Type".

95

1st Ind. AFDMA-2C
Headquarters, Army Air Forces, Washington 25, D. C., 8 September 1944

TO: Director, AAF Air Technical Service Command, Wright Field, Dayton, Ohio. Attention: Material Command, Engineering Division.

1. Basic communication has been reviewed with the result that the second of the two proposed allocations of water equipment given in paragraph 4 is approved for both A-3 and B-2 life rafts, namely:

6 solar stills (300 to 350 cu. in.)
6 desalting kits (32 man days)
1 can of water (AN-W-5)

By Command of General ARNOLD:

R. C. WILSON
Colonel, Air Corps
Chief, Naval Engr. Br., Mat. Div.
Office, Asst. Chief of Air Staff
Material and Services

Encl. n/c

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17 [illegible] 1944.

SUBJECT: Gallowhur Inflated Type Solar Stills

TO: Commanding General
Army Air Forces
Washington 25, D. C.

Attention: Colonel J. F. Sessums, Executive,
Office of AC/AS, Materiel and Services

1. Reference is made to the following correspondence:

a. Letter, dated 9 August 1944, from Executive, AC/AS, Materiel and Services, addressed to Director, AAF Materiel and Services, Patterson Field, Ohio and subject: "Complaint of the Gallowhur Chemical Corporation and Comments by the Office of the Assistant Secretary of War for Air," inclosing copy of memorandum from O/ASWA, 8/8/44, and letter from Mark N. Donohue, 8/1/44.

b. Letter, dated 9 August 1944, from Executive, AC/AS, Materiel and Services, addressed to Director, AAF Materiel and Services, Patterson Field, Fairfield, Ohio, Attention: Commanding General, Materiel Command, subject: "Alleged Delays in Procurement of Solar Stills," inclosing copy of R&R, 7/17/44, w/4 Comments and 15 inclosures, including copies of letters from Mr. Hugh Fulton, then Chief Counsel, Senate Special Committee Investigating the National Defense Program, dated 14 and 24 July 1944.

2. Set out below are the pertinent facts with regard to the subject matter of solar stills, submitted herewith as the basis for preparation of replies to Assistant Secretary of War for Air, to Mr. Hugh Fulton, and to the Gallowhur Chemical Corporation or its attorney, Mr. Mark N. Donohue:

a. Contract W 2620 ac-278, approved 12 June 1943, was placed with Gallowhur Chemical Corporation for 30,000 "Sunstills" at a total price of $360,000. Initial tests conducted on sample stills were unsatisfactory, and recommendations were made by this command for their improvement.

b. On or about 1 November 1943, Gallowhur, having made improvements in its model still, was given authority to proceed with production.

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Colonel J. W. Sessums, Executive, Office of AC/AS, M & S
SUBJECT: Gallowhur Inflated Type Solar Stills
17 August 1944

c. To meet request of Supply and Services, Washington, D. C. for 75 stills for the First Sea Search Attack Group, Langley Field, Virginia, inspection requirements were waived and Gallowhur was informed to ship 75 stills to Langley Field, Virginia.

d. On 17 March 1944, Development Engineering Branch, AC/AS, M & D, informed Engineering Division, M.C., that Air Service Command was being instructed to allocate 10,384 "Sunstills" then on hand to the 5th, 7th, 10th, and 13th Air Forces for use with the A-3 life rafts, and to Morrison Field for use in airplanes being ferried across.

e. Final delivery of "Sunstills" under the foregoing contract was made on 19 May 1944. At present approximately 5,000 are still in various Air Service Command Depots in this country.

f. On or about 7 September 1943, Higgins Industries, Inc. submitted to the Equipment Laboratory, Engineering Division, Wright Field, a model spherical, inflated, floating solar still designed for use on pneumatic life rafts. Though the tests on this model were unsatisfactory, the still was considered basically sound and, accordingly, negotiations were commenced between the Materiel Command and Higgins Industries, Inc. for an experimental contract. Higgins was unwilling to accept a non-exclusive license right clause, and for this reason no contract was consummated.

g. Development of the Higgins still, however, was actively prosecuted during September 1943, and from 2 November 1943 to 27 November 1943 Dr. E. S. Fetcher of the Personal Equipment Laboratory, Engineering Division, Materiel Command, was at Higgins Industries, Inc., New Orleans, assisting in the development of the Higgins still.

h. The first knowledge which this Command had that Gallowhur had developed an improved inflatable type solar still, Gallowhur Model B-3, came with the submission of a model by Gallowhur to Wright Field on 8 December 1944. Although this model had apparently been previously demonstrated to other services, Materiel Command had not been informed thereof by such other services.

i. On 8 December 1943 this Command, through Dr. E. S. Fetcher, requested Gallowhur to submit further models. At that time Dr. Fetcher did not inform Gallowhur that Higgins Industries, Inc. was developing a solar still or that he had recently returned from the Higgins plant at New Orleans.

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Colonel J. W. Sessums, Executive, Office of AC/AS, M & S
SUBJECT: Gallowhur Inflated Type Solar Stills
17 August 1944

j. During December 1943 and January 1944 this Command conducted tests on the Higgins' spherical still, the Gallowhur Model B-3 still, and on a still developed by Dr. Telkes of Massachusetts Institute of Technology. All stills operated on the same basic principles, though each possessed unique mechanical and operational features. None was satisfactory in the tests.

k. On 17 January 1944, Messrs. Raye, Best, Conover, and Miller of Gallowhur conferred with Dr. Fetcher at Wright Field and were encouraged to continue their developmental work. The possibility of an experimental contract was suggested to them.

l. In January 1944, Dr. E. S. Fetcher, at the request of Gallowhur, visited their laboratory in New York and inspected all types of inflatable floating stills being developed by Gallowhur.

m. On 4 March 1944, identical telegrams were sent to Gallowhur, Higgins, and Dr. Telkes requesting attendance at a meeting on 8 March 1944 at Wright Field to assist in the design of an acceptable still. Higgins refused to attend because it felt that its developmental rights would not be protected, and requested that all information respecting its still previously divulged to AAF representatives be kept in confidence. Though Higgins was assured that it was the policy of this Command not to divulge such information without the approval of the company concerned, it adhered to its refusal to attend the meeting.

n. The meeting was held on 9 March 1944 without the attendance of a representative from Higgins. Gallowhur and Dr. Telkes exchanged information with respect to their respective stills.

o. As a result of this meeting, negotiations were conducted between representatives of this Command and of Gallowhur relating to an experimental contract, the negotiations being completed approximately 15 March 1944. Copies of the contract (W 33-038 ac-2528) were sent to Gallowhur on 27 April 1944, contained a Reproduction and License Rights Article, and, at Gallowhur's request, was to take effect on 9 March 1944.

p. No representative of this Command at the meeting of 9 March 1944, or at any time prior to the forwarding of the contract to Gallowhur, entered into an understanding with Gallowhur, or gave Gallowhur any reason to understand, that Higgins Industries, Inc. would be excluded from any non-exclusive license which the Government might grant to others pursuant to the contract with Gallowhur. On the contrary, Gallowhur was informed that the reproduction rights clause was necessary to insure the use of additional, adequate facilities to meet the Government requirements.

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Colonel J. W. Sessums, Executive, Office of AC/AS, M & S
SUBJECT: Gallowhur Inflated Type Solar Stills
17 August 1944

q. Gallowhur never signed the contract. On 11 May 1944, Gallowhur addressed a letter to the Equipment Laboratory, Wright Field, reviewing the development, to date, of its solar still. The last paragraph refers to the experimental contract as follows: "Contract is to take effect March 9, 1944, although we only received the formal contract on May 1st for signature. We have not as yet returned this contract to Wright Field." It is to be noted that no reason was ascribed for the failure to sign the contract at that date.

r. On 15 April 1944, this Command requested Army Air Forces Board, AAFTC, Orlando, Florida, to conduct tests on the Gallowhur solar still. The Higgins still was not included within this request because the last Higgins model, submitted to Wright Field in February 1944, was not deemed satisfactory for test purposes, and up to 15 April 1944 Higgins had not submitted any improved models.

s. The test of the Gallowhur still was scheduled to be conducted at Eglin Field, Florida, on 1 May 1944. On or about 29 April 1944, Higgins submitted an improved model still to Wright Field. Upon seeing this still, Lt. Col. McKesson, Chief, Personal Equipment Laboratory, telephoned Col. J. B. Martin, Materiel Command Liaison Officer to the Proving Ground Command, and Major Lawrence Irving, Chief, Physiological Branch, Proving Ground Command, under whose direction the test of the Gallowhur still was to be conducted and who had the authority to determine whether or not the test could or would be postponed. At Major Irving's suggestion, he, together with Captain Scholander of his office, Dr. Fetcher, Lt. Col. McKesson, and Major Mayne of Wright Field, (who had flown to Eglin Field from Wright Field) flew to New Orleans on 2 May 1944 to examine the Higgins still. Based on this examination, Major Irving, at the request of this Command, concluded to postpone the Gallowhur test so that the Gallowhur and Higgins stills could be tested simultaneously and competitively. This was desirable for the following reasons:

(1) The test of the still required considerable equipment and personnel. The test, to be of value and significance, had to be conducted under conditions closely approximating those in which the still would actually be used in combat. The tests are conducted, not only on land, but at sea by men in rafts under all types of weather and atmospheric conditions. The tests conducted on and after 5 June 1944 ran for approximately 21 days.

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Colonel, J. W. Sessums, Executive, Office of AC/AS, M & S
SUBJECT: Gallowhur Inflated Type Solar Stills
17 August 1944

(2) The comparative merits of the Higgins and the Gallowhur stills could best be judged if they were tested under the same weather, sun, sea, and atmospheric conditions.

t. Higgins advised Captain Scholander of the Proving Ground Command that its still would be ready for test on or about 17 May, and the comparative tests of the Higgins and Gallowhur stills were scheduled by the Proving Ground Command for 29 May 1944. Because a test of other equipment of higher priority had to be completed, the tests were again postponed until 5 June 1944. As noted, they were then conducted for a period of about 21 days.

u. While awaiting the originally scheduled test of the Gallowhur still on 1 May 1944, Dr. Fetcher of Wright Field and representatives of Gallowhur conducted informal tests on the Gallowhur still. The formal tests subsequently held on and after 5 June 1944 indicated that in the interval Gallowhur had been enabled to improve the operation of, and the palatability of the water produced by, their still.

v. While Dr. Fetcher informed the Gallowhur representatives at Eglin Field that the taste of the water was of minor importance, his views did not conform to those of the Proving Ground Command who possessed final and exclusive authority to review and make decisions upon the tests it conducted.

w. By TWX dated 28 July 1944 the Proving Ground Command, Eglin Field, advised this Command of the results of the tests. Copy of this TWX, PD No. 404, is annexed. The "peppery tasting undrinkable water" produced by the Gallowhur still "when left deflated and wet with salt water for one week" was found to be a "serious defect (that) can be remedied." It was recommended Gallowhur stills be manufactured in limited numbers "but with defects corrected and with improved general workmanship," and that both companies continue improvement of their respective stills.

x. By TWX dated 11 August 1944, Gallowhur was advised of the results of the Eglin Field test and was requested to submit six stills of the type tested as soon as possible, and to send their technical representatives to Wright Field.

y. By TWX dated 11 August 1944, Higgins was advised that, as a result of the Eglin Field test, their still was not approved. Assistance of the Command was offered for further development.

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Colonel J. W. Sessums, Executive, Office of AC/AS, M & S
SUBJECT: Gallowhur Inflated Type Solar Stills
17 August 1944

z. A telegram, dated 11 August 1944, has been received by Wright Field from Higgins advising that its still has been reduced in bulk from 180 cubic inches to 51 cubic inches. By TWX dated 15 August 1944, Wright Field requested that two or three stills be submitted.

aa. On 16 May 1944 — that is after the originally scheduled Eglin Field test of the Gallowhur still had been postponed — Dr. Fetcher visited the Gallowhur Laboratories in New York. On this occasion Gallowhur, for the first time, indicated that the experimental contract might not be signed, that favoritism had been shown to Higgins, and that Dr. Fetcher had passed on to Higgins information concerning the design and operation of the Gallowhur still.

ab. At a meeting at Wright Field on 15 June 1944, Gallowhur representatives repeated these charges. At this meeting Gallowhur expressed the fear that, if they signed the experimental contract previously forwarded to them, the Reproduction Rights Clause might enable others, especially Higgins, to manufacture the solar stills at a price and delivery basis which Gallowhur could not meet. Gallowhur wanted an indication or an assurance that it would receive its share of the solar still business, which, obviously, could not and was not given.

ac. While Dr. Fetcher was, until his meeting with Gallowhur on 16 May 1944, under the misapprehension that Gallowhur had signed the experimental contract containing the reproduction rights clause, he denies categorically having transmitted to Higgins any information concerning the Gallowhur still.

ad. The Higgins still tested competitively with the Gallowhur still at Eglin Field does not utilize the unique features of the Gallowhur still. On the other hand, the Gallowhur still submitted for those tests incorporates many of the unique features of the still developed by Dr. Telkes of M.I.T., and, accordingly, is materially different from the Gallowhur models submitted to and tested by Wright Field in January and February 1944.

3. Based on the foregoing facts, it is the opinion of this Command that, in connection with the development and procurement of solar stills:

a. The best interests of the Government were protected:

b. No representatives of this Command acted improperly:

c. Gallowhur Chemical Corporation was not discriminated against; and

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Colonel J. W. Sessums, Executive, Office of AC/AS, M & S
SUBJECT: Gallowhur Inflated Type Solar Stills
17 August 1944

3. Favoritism was not shown to Higgins Industries, Inc.

4. Present and future requirements of solar stills are the subject of current inquiry and discussion between O.C. & R., Washington, D. C., and this Command. For present and future requirements, that is for multi-place life rafts in service, in stock, and on procurement, O.C. & R., on the basis of issue of two stills per type A-3 raft and three stills per type E-2 raft, estimate requirements at between 450,000 and 500,000 stills. On 16 August 1944, this Command recommended to O.C. & R. that the basis of issue be six stills for each type of multi-place rafts, and on this basis, present and future requirements aggregate approximately 1,000,000 stills. At present it is not contemplated to equip single-place life rafts with solar stills.

5. The first step in meeting requirements is to develop a satisfactory still. The Proving Ground Command, in its TWX of 28 July 1944 embodying the results of the tests, recommended limited procurement of the Gallowhur still "with defects corrected and with improved general workmanship." On 17 August 1944, representatives of Gallowhur submitted another model of their still, but, although they had been informally advised 6 July 1944 of the defects disclosed by the Eglin Field tests, in the model submitted few of the defects had been remedied. They agreed to make the changes required to improve the performance of, and the taste of the water produced by, their still and to submit new models at an early date.

6. Attention is invited to the fact that much of the information contained in paragraph 2 above was embodied in first indorsement, dated 1 June 1944, from Acting Chief, Engineering Division, Materiel Command, to Commanding General, AAF, Attention: AC/AS, MM & D, Development Engineering Branch, to basic communication, dated 20 May 1944, from Chief, Development Engineering Branch, Materiel Division, AC/AS, MM & D, to Commanding General, Materiel Command, subject: "Development of Salt Water Still"; and in first indorsement, dated 9 June 1944, from Acting Chief, Engineering Division, Materiel Command, to Commanding General, AAF, Attention: AC/AS, MM & D, to basic communication, dated 1 June 1944, from Chief, Development Engineering Branch, Materiel Division, AC/AS, MM & D, to Commanding General, Materiel Command, subject: "Gallowhur Inflated Type Solar Still."

For the Commanding General:

M. D. BURNSIDE
Colonel, I.G.D.
Air Inspector
AAF Materiel Command

2 Incls:
Incl 1 - Memo, O/ASWA, 8/8/44, w/att. ltr., 8/1/44, M. N. Donohue
Incl 2 - TWX FD No. 404, 7/28/44

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Capt. Jos H. Ober
JJO/HJP (2-8139)

21 August 1944

Gallowhar Inflated Type Solar Stills.

Commanding General
Army Air Forces
Washington 25, D. C.

Attention: Colonel J. H. Seamans, Executive,
Office of AC/AS/MCs.

1. Attached hereto is a letter which is in reply in detail to your letter of 9 August 1944, subject: "Complaint of the Gallowhar Chemical Corporation and Comments by the Office of the Assistant Secretary of War for Air".

2. Exclusive of the information in the attached letter which is in reply to certain allegations made by the Gallowhar Chemical Corporation, the following information is offered pertaining to Material Command's actions for providing drinking water producing equipment:

a.

Contract	Date	Item	Quantity	Contractor	Deliveries
W535-ac-278	5/17/43	Sunstill (Delano Model #1)	30,000	Gallowhar Chemical Corp.	Completed 5/19/44
W30-053-ac-1285	5/31/44	Kit, Desalting drinking water, Contractors Model #2	178,200	Permutit Co.	To start 8/12/44 None delivered to date.
W33-038-ac-3440	6/24/44	Kit, same as above	952,530	The Permutit Co.	To start November '44.

b. Class 03-F, Air Service Command informs that there are at present approximately five thousand (5,000) Sunstill (Delano Model #1) in depot stocks.

3. Using similar action which has been successfully followed in the development of other critical items for the Government, as for instance the self-sealing fuel tanks and hose jointly developed by practically all the rubber companies in the country as a precedent, it is recommended that all information presently available with regard to solar stills be pooled to the end that the best possible still be developed and made available promptly to the Government.

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Ltr to Commanding General, Army Air Forces
Date - 21 August 1944

4. In the event it is determined to procure the Gallowhur stills in quantity, it is suggested that an initial procurement therefore be placed with the Gallowhur Chemical Co. in accordance with the policy set forth in P R 224 (5/25/44).

5. It is further recommended that Gallowhur be requested to grant to the Government a royalty-free license to make, have made, use and dispose of for the duration of the present war and six (6) months the so called Gallowhur Solar Still. If Gallowhur declines to grant a license on a royalty-free basis, but is willing to grant a license on a royalty-basis, a license on a royalty basis, subject to the application of the Royalty Adjustment Act (P.L. 768, 77th Congress) should be negotiated. In either case, a license agreement, as recommended, will enable the Government to designate additional sources of supply without subjecting the Government to infringement claims. This Command is informally advised that the Gallowhur Co. has indicated its willingness to grant Government a royalty-free license in the event it receives a substantial part of the procurement by Government of such stills.

6. In the event Gallowhur is unwilling or refuses to grant such a license to or for Government, or is incapable of furnishing the stills in satisfactory quantities either on an initial procurement or on subsequent requirements because of delivery requirements, price or other factors, it is recommended that the Government authorize and consent to the manufacture of such stills by unlicensed sources under the provisions of the Act of 1910 as amended (35 U. S. C. 68).

7. The facilities of this Command are available for whatever assistance it may render in negotiating these licenses.

8. The patent situation with respect to solar stills generally is not clear due to recent changes and innovations in such stills and the lack of need for information with respect thereto until recent date. There is some difference of opinion as to the source of suggestions or improvements which have been recently made in these stills. This Command has been informally advised that Dr. Talbot and others of MIT and Government personnel have made suggestions or improvements of the solar stills, which suggestions may have been included in the latest type of Gallowhur Still. A confirmation of this information may well disclose that Government is entitled to a royalty-free license in improvements which have been made therein. This Command is presently undertaking an examination of the prior art and investigating the improvements recently made in solar stills in order to be able to determine finally what rights, if any, the Government has to make, have made, use and dispose of the Gallowhur or other stills. In the

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(Ltr to Commanding General, Army Air Forces
Subj - 21 August 1944

some time will elapse before this examination and investigation will be completed, it is suggested that there be no abeyance of the activities recommended in the paragraphs above, pending completion of such examination.

For the Commanding General:

CHESTER D. SEFTENBERG,
Lt. Colonel, Air Corps,
Technical Executive,
Office, Chief of Staff.

Incl:
Ltr dtd 17 Aug., w/2 incls.

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Major R J Bodine/fw-3631

AFDMA-2C
9 August 1944

Alleged Delays in Procurement of Solar Stills

Director, AAF Materiel and Services
Patterson Field, Fairfield, Ohio

Attention: Commanding General
Materiel Command

1. Reference is made to letter to Engineering Division dated 1 June 1944, subject: Gallowhur Inflated Type Solar Stills.

2. Inclosed herewith is a copy of Routing and Record Sheet dated 17 July 1944, subject as above, with four comments, and copies of correspondence between the Gallowhur Chemical Corporation and this Headquarters.

3. Since the inclosed copies of correspondence between this Headquarters and Gallowhur Chemical Corporation does not fully explain the cause of delay of the procurement of the Gallowhur Stills and since the Higgins Industries has also added their complaint of the alleged slowness of the Army Air Forces in adapting a solar still it is directed that this office be given the complete history of the development and procurement of solar stills. This information should cover the following:

a. Status of the procurement and distribution of the folding type Gallowhur Still.

b. History of Materiel Command's dealings with the Gallowhur Chemical Corporation and the Higgins Industries concerning the development and testing of the inflated type solar still.

c. Reasons for the alleged delays as complained by the Gallowhur Chemical Corporation and the Higgins Industries.

4. It is directed that the above information be forwarded to this office no later than 21 August 1944.

By Command of General ARNOLD:

Incl.
Cy R&R dtd 17
July w/4 comments
& 15/Incls.

J. W. SIBERT
Colonel, Air Corps
Executative, Asst. Chief of Air Staff
Materiel and Services

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A-13(1/200) 32.

NEW ORLEANS 19, LA.

b/cc: S. W. Eaton
Russell S. Hardy
Colonel J. H. Jouett
A. E. Uahakoff

August 24, 1944

Contracting Officer
Materiel Division, Air Corps
Wright Field
Dayton, Ohio

Ref: R-45-374/386992

Dear Sir:

In reference to the price that we are submitting on your Form 82-F:RHH:CVR:sam, dated August 19, 1944, in the amount of $60.00 each, we wish to submit this letter as part of the record:

The bid price as made of $60.00 each, represents a close estimate of the actual cost of labor, this including a relatively small proportionate amount for the materials used. This does not include the overhead, which is very high, or the use of the laboratory in which we have been developing and building these solar stills.

We find that our total investment in the development of these solar stills comes to the surprisingly large amount of $74,000. Were this sum to be amortized over the number of 15 stills, it would result in a price in excess of $6,000 each. For your further information, from a careful analysis of manufacturing costs of these stills in quantities, it would appear that a price of approximately $16.00, or even $15.00 each, would be possible.

We note that delivery is desired by September 1, 1944. In connection with deliveries, we wish to advise that we are immediately sending two of these stills to our representative, Mr. Russell S. Hardy, Mutual Home Building, Dayton, Ohio, with instructions to turn them over for tests, or such other use as the Materiel Command may desire, and we suggest that it be arranged that these two stills be accepted as part delivery against the 15 stills.

On the other hand, if it is not desired to give us the Purchase Order for 15 stills; nonetheless through our representative, Mr. Hardy, we will be glad to let the Materiel Command test the two stills that we are sending.

Inasmuch as we are supplying these stills as fast as we are making them in our laboratory to other services, we may not be able

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33.

NEW ORLEANS 19, LA

Materiel [illegible]ation
Wright Field, Dayton, Ohio

August 24, 1944

to ship all of the 15 stills in one lot, but will make partial deliveries in lots of three or four, and should be able to complete deliveries shortly after the first of September.

Very truly yours,

HIGGINS INDUSTRIES, INC.

Andrew J. Higgins, President

AJH/t
encs.

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Senate Investigation - Alleged Delays in Procurement of Solar Stills from Galloway Chemical Corporation.

[illegible], Legislative Services 24 Aug 1944

[illegible]/MAS, Material Division

Mr S E Jones/fw-3831

1. In receipt of Comment 4, the Material Command was instructed to furnish complete information on the following points:

a. Status of the procurement and distribution of the Delsing type Galloway stills.

b. History of Material Command's dealings with the Galloway Chemical Corp. and the Higgins Industries concerning the development and testing of the inflated type solar stills.

c. Reasons for the alleged delays as complained by the Galloway Chemical Corporation and the Higgins Industries.

2. The attached letter dated 17 August 1944, from the Material Command contains a chronological outline of all phases of this matter, and, in the opinion of this office, satisfactorily refutes the claims made that the Army Air Forces has been the cause of delay in the production of subject stills.

16 Incls.
Incls 1 to 15 - n/c
Added Incl 16 - ltr dtd
17 Aug 44 from Mat Command

J. K. [illegible]
Colonel, Air Corps
Executive, ACAS/MAS

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Senate Investigation - Alleged Delays in Procurement of Solar Stills from Gallowhur Chemical Corporation.

Office of Legislative Services

2 August 1944

Asst C/AS, OCR (AAF Board Control Office)

Maj Calhoun/vc/5466

1. Testing of subject equipment is being conducted by AAF Board under its Project No. (M-4) 595, subject: "Stills, Solar, Floating Vinylite Bag Type." The testing agency is Proving Ground Command. This is a comparative test of equipment manufactured by Gallowhur Chemical Corporation and Higgins.

2. Field testing is complete and attached hereto is copy of preliminary teletype report, attached to copy of R&R of this office to ACAS/M.S, approving the report with certain exceptions made necessary to conform to stated military requirements.

14 Incls.
Incl 1 to 13- n/c
Incl 14 (added) Cy of R&R Comment 1 subj as given abv, dtd 8-1-44 w/1 incl.

HALEIGH H. MACKLIN
Colonel, Air Corps

TO: Asst. Chief of Air Staff, Materiel & Services (Attn: Col. J. F. Seasums, Executive)

Date: 4 Aug 1944

FROM: Chief, Legislative Services

Comment No. 4
HGN:jrp 74489

1. Reference is made to comments No. 2 and 3, above. Inasmuch as the letter from Mr. Fulton to Mr. Anberg, dated 14 July 1944, suggests that the War Department may be subject to criticism for alleged delay in determining whether to enter into final arrangements for the production of solar stills. It is suggested that this office be furnished as full and complete explanation of the delay as it is possible to give. It is felt that the material received by this office to date does not explain the cause for delay.

2. Annexed also is copy of another letter from Hugh Fulton, Esq., Chief Counsel, Senate Special Committee investigating the National Defense Program, dated 24 July 1944, stating that the Higgins Industries have added their complaint to that of the Gallowhur Chemical Company. There is annexed also letter from Mr. Anberg, addressed to the Chief, Legislative Services, Army Air Forces, dated 3 August 1944 requesting that anything we may have to say with respect to Mr. Fulton's letter dated 24 July 1944, be incorporated with the material designed to answer his previous inquiry.

3. It is requested that the entire file be returned to this office with such additional explanation as you may have addressed particularly to the matter of delay.

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15 Incls.-
Incls 1 to 14 n/c.
Added Incl [illegible]
Fulton dtd 24 July 44.

(AFR 1-20) WARREN S. ECK
Chief, Legislative Services.

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Senate Investigation - Alleged Delays in Procurement of Solar Stills from Gallowhur Chemical Corporation

(1) ACAS/MRS, AAF Board Control Office, Attn: Col. Macklin 22 July 1944
(2) Office of Legislative Services

ACAS/MRS, Material Division 2

Maj E J Bodine/fw-3631

1. The solar stills mentioned in the inclosed correspondence from Mr. Hugh Fulton, Chief Counsel of the Truman Committee are stills which were developed at the request of the Army Air Forces for possible use in life rafts.

2. The subject stills are now undergoing field tests by the Army Air Forces Board to determine whether the stills meet the requirements of the Army Air Forces.

3. There has been considerable exchange of correspondence between Gallowhur Chemical Corporation and these Headquarters concerning the alleged delay in development and test of the subject still.

4. Inclosed herewith for your information are copies of correspondence between these Headquarters and Gallowhur Chemical Corporation.

5. It is requested that the Army Air Forces Board Control Office furnish information concerning the approximate date of completion of the field tests on the subject stills by the Army Air Forces Board.

Incls.
1 & 2 - n/c
Added:
11 Incls-
Cys correspondence
btwn Gallowhur & Hq
AAF as above(dup)

J. W. [illegible]
Colonel, Air Corps
Executive, Material and Services

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Senate Investigation - Alleged Delays in Procurement of Solar Stills from Calloshur Chemical Corporation

AC/AS, MR&D - Attn: Col. J. H. Sessums, Executive 17 July 1944

Office of Legislative Services 1

WSE/ec/6697

1. Annexed hereto are copies of letter dated 14 July 1944 from Mr. Hugh Fulton, Chief Counsel of the Truman Committee to Mr. Julius H. Amberg, Esq., Special Assistant to the Secretary of War, and memorandum dated 15 July 1944 from Mr. Amberg to the undersigned, both on the above subject.

2. You will note from Mr. Amberg's memorandum that it is not clear that the Army Air Forces is the agency involved in this particular situation. However, it is requested that the matter be given attention and that if this is an Army Air Forces negotiation, this office be furnished with the necessary information upon which to base a reply to Mr. Amberg.

WARREN S. EGE
Colonel, Air Corps
Chief, Legislative Services

2 Incls
Incl 1 - Cpy ltr frm H. Fulton to J. H. Amberg, 7/14/44
Incl 2 - Cpy ltr frm J. H. Amberg to Col. Ege, 7/15/44

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12.

Capt. Jon d. Chea
[illegible] (2-8139)

Wright Field, Dayton, Ohio.

31 August 1944

COM. GEN.
CH. STAFF
DEP. CH. STAFF
TECH. EXEC.
ADJ. GEN.
EXEC. PROC.
AIR. INSP.
INTELL.
COMPTROLLER
C. O.
BUD. OFF.
PERS. SEC.
ENG. DIV.
PROD. DIV.
INSP. DIV.
PROC. DIV.
OTHERS

100

TI-1624, Addendum 1.

Requirement for Water Producing Equipment on Life Rafts.

Production Division

1. **Problem Presented:**

a. To procure the Gallowhur Type Solar Still in order to equip multi-place life rafts of the Type A-1 and Type A-2 on the basis of two and three stills respectively per life raft.

2. **Authority:**

a. Commanding General, Army Air Forces. By letter dated 3 August 1944, (subject: "Project No. (W-4) 595, Subject: Stills, Solar, Floating, Vinylite Bag Type", received from Chief, Development Engineering Branch, Materiel Division, Office, [illegible].

3. **Action Desired:**

a. That which is stated under paragraph 1, Problem Presented.

b. Engineering Division will furnish necessary information for the procurement of the subject stills. These stills are to have the defects noted during the Army Air Forces [illegible] corrected.

By Command of Brigadier General [illegible]:

[illegible]
Colonel, Air [illegible],
[illegible]

cc: Engineering Division
Air Service Command (3)

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COPY

3 August 1944

Project No. (M-4) 595, Subject: "Stills, Solar, Floating Vinylite Bag Type"

Commanding General, AAF Materiel Command
Wright Field, Dayton, Ohio

Attention: Engineering Division

1. Reference is made to letter from this office to Engineering Division, 20 March 1944, subject, Water Producing Equipment for Life Rafts.

2. This Headquarters has reviewed the attached teletype from Army Air Forces Proving Ground Command containing preliminary conclusions and recommendations relating to the subject report and approves the recommendations with the following exceptions:

a. Recommendation No. 3. Multi-place life rafts of the Type A-3 and Type E-2 should be equipped with two and three stills respectively per life raft. In addition the chemical "Permutit Process" of sea water desalting should be placed in each multi-place life raft in sufficient quantity to supply potable water for five men for a period of ten days based on a requirement of one pint of water per day per can.

b. Recommendation No. 4. One man life raft should be equipped with the chemical "Permutit Process" of sea water desalting in bulk equal to the present bulk of one standard can of water (AN-R-5).

3. It is, therefore, directed that necessary action be taken by your office to provide the Gallowhur Type Still in Type A-3 and Type E-2 in quantities as stated in paragraph 2 a above.

4. It is also directed that action be taken by your office on the other recommendation of Eglin Field as approved by this Headquarters.

5. In regard to recommendation 1 (inclosed teletype) it is suggested that your office contact the project officer at Eglin Field to find out the defects noted in Gallowhur Still.

By Command of General ARNOLD:

R. C. WILSON
Colonel, Air Corps
Chief, Devel. Engr. Br., Mat. Div.
Office, Asst. Chief of Air Staff
Materiel and Services

Incl.
Cy teletype
dtd 28 Jul 44
frm Eglin Field

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4 SEP 1944

MEMORANDUM FOR JULIUS A. AMBROS, ESQ., Special Assistant to the Secretary of War.

Subject: Gallowhur and Higgins Solar Stills.

1. Reference is made to your memorandum, Subject "Senate Investigation -- Alleged Delays in Procurement of Solar Stills, Gallowhur Chemical Corporation," addressed to the Chief, Legislative Services, Headquarters, Army Air Forces, dated 15 July 1944, transmitting letter from Hugh Fulton, Esq., then Chief Counsel, Senate Special Committee Investigating the National Defense Program, dated 14 July 1944, and to your further memorandum, same subject, similarly addressed, dated 3 August 1944, transmitting letter from Mr. Fulton dated 24 July 1944.

2. Set forth below are the pertinent facts with regard to negotiations looking toward procurement of solar stills:

a. Contract W 2620 ac-270, approved 12 June 1943, was placed with Gallowhur Chemical Corporation for 30,000 "Sunstills" at a total price of $360,000. Initial tests conducted on sample stills were unsatisfactory and recommendations were made by the Army Air Forces for their improvement before production was authorized. On or about 1 November 1943, Gallowhur, having made improvements in its model still, was authorized to proceed with production. Final delivery of the stills under the before-mentioned contract was made on 19 May 1944.

b. On or about 7 September 1943, Higgins Industries, Incorporated, submitted to the Air Forces a model spherical, inflated, floating solar still designed for use on pneumatic life rafts. Though the tests on this model were unsatisfactory, the still was considered basically sound and, accordingly, negotiations were commenced with Higgins Industries, Inc., for an experimental contract. Higgins was unwilling to agree to a non-exclusive license clause and for this reason no contract was signed. However, development of the Higgins still proceeded.

c. On 8 December 1943, the Gallowhur Chemical Corporation informed the Army Air Forces that it had developed an improved inflatable type (Gallowhur Model B-3) and the company submitted a model to the Air Forces on the same date. Gallowhur was requested to submit further models immediately. During December 1943 and January 1944, the Air Forces conducted tests on the Higgins' spherical still, the Gallowhur Model B-3 still, and on a still developed at the Massachusetts Institute of Technology. All stills operated on the same basic principles, though each possessed distinctive mechanical and operational features. None of the stills tested met factory representatives of Gallowhur and of the Army Air Forces set

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on 17 January 1944, and the representatives of Gallowhur were encouraged to continue their developmental work. The possibility of an experimental contract was suggested to them. During the same month a representative of the Army Air Forces visited the Gallowhur laboratories in New York and inspected all types of inflatable floating stills being developed by Gallowhur.

g. On 4 March 1944, identical telegrams were sent to Gallowhur, Higgins and to one Dr. Talbot (who had developed a still at the Massachusetts Institute of Technology), requesting attendance of representatives at a meeting on 8 March 1944 to assist in the design of an acceptable still. Higgins refused to attend, feeling that its developmental rights would not be protected. Though Higgins was assured that it was the policy of the Air Forces not to divulge such information without the approval of the company concerned, Higgins adhered to the refusal to attend the meeting and the meeting was held on 9 March 1944 without a representative of Higgins being present. Gallowhur and Dr. Talbot exchanged information with respect to their respective stills. As a result of this meeting, negotiations were conducted between representatives of the Army Air Forces and of Gallowhur relating to an experimental contract, the negotiations being completed approximately 15 March 1944. Copies of the contract (W 33-038 ac-2528) were sent to Gallowhur on 27 April 1944. The contract contained Reproduction and License Rights Article, and, at Gallowhur's request, was to take effect on 9 March 1944. So far as is known, no representative of the Air Forces entered into an understanding with Gallowhur or gave that corporation any reason to believe that Higgins Industries would be excluded from any non-exclusive license which the Government might grant to others pursuant to the contract with Gallowhur. On the contrary, Gallowhur was informed that the Reproduction Rights clause was necessary to insure the use of adequate facilities to meet the requirements of the Government. Gallowhur never signed the contract.

g. On 15 April 1944, an Army Air Forces Board was requested to conduct tests on the Gallowhur solar stills. The Higgins' still was not included in this request because the last Higgins' model submitted in February 1944 was not deemed satisfactory for the purposes of the test and up to 15 April 1944 Higgins had not submitted any improved models. The test of the Gallowhur still was scheduled to be conducted on 1 May 1944. On or about 29 April 1944, Higgins submitted an improved model. On 2 May 1944, the Higgins still was carefully examined. Upon the basis of this examination, it was decided to postpone the Gallowhur test so that the Gallowhur and Higgins stills could be tested simultaneously. Simultaneous testing was desirable because:

(1) The test of the stills required considerable equipment and personnel. The test, to be of value and significance, had to be conducted under conditions closely approximating those in which the stills would actually be

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used in combat. The tests are conducted, not only on land, but at sea by men in rafts under all types of weather and atmospheric conditions. The tests conducted on and after 5 June 1944 ran for approximately 21 days.

(2) The comparative merits of the Higgins and Gallowhur stills could best be judged if they were tested under the same weather, sun, sea, and atmospheric conditions.

Higgins Industries advised the Army Air Forces that its still would be ready for test on or about 17 May 1944 and the comparative test of the Higgins and Gallowhur stills was then scheduled for 29 May 1944. Because a test of other equipment of higher priority had to be completed, the still tests were again postponed until 5 June 1944. As noted above, they were then conducted for a period of 21 days.

f. As a result of the tests, it was found that the "peppery tasting undrinkable water" produced by the Gallowhur still "when left unfinished and wet with salt water for one week" was a "serious defect (that) can be remedied". It was recommended that Gallowhur stills be manufactured in limited numbers "but with defects corrected and with improved workmanship." The Gallowhur Corporation was advised of the results of the tests on 11 August 1944 and was requested to submit six stills of the type tested as soon as possible and to send their technical representatives to confer with representatives of the Army Air Forces.

g. On the same date, Higgins Industries was advised that as a result of the tests their still was not approved. Both companies were urged to continue improvement of their respective stills. On the very same date Higgins advised that its still had been reduced in bulk from 180 cubic inches to 51 cubic inches. On 15 August 1944 the Army Air Forces requested that Higgins submit two or three stills.

h. On 16 May 1944, after the originally scheduled proving ground test of the Gallowhur still had been postponed, Gallowhur, for the first time, indicated to representatives of the Army Air Forces that the experimental contract offered it might not be signed, charging that favoritism had been shown Higgins in that information concerning the design and operation of the Gallowhur still had been passed on to Higgins. At a meeting between representatives of the Air Forces and of the Gallowhur Chemical Corporation on 13 June 1944, these charges were repeated and Gallowhur expressed the fear that if the experimental contract were signed, the Reproduction Rights Clause might enable others, especially Higgins Industries, to manufacture the solar stills at a price and on a delivery basis which Gallowhur could not meet. Investigation disclosed that information concerning the Gallowhur still was not transmitted

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to the Higgins Industries by the Army Air Forces personnel engaged in these negotiations.

4. The Higgins still which was tested competitively with the Gallowhur still does not utilize the unique features of the Gallowhur product. On the other hand, the Gallowhur still submitted for competitive tests incorporated many of the unique features of the still developed by Dr. Talbot of the Massachusetts Institute of Technology and, significantly, is materially different from the Gallowhur models tested in January and February 1944.

5. The first step in meeting requirements for solar stills is the development of a satisfactory still. As indicated above, it was recommended in July 1944 that the Gallowhur still be procured in limited quantities "with defects corrected and with improved general workmanship." On 17 August 1944 representatives of Gallowhur submitted another model of the still but though informally advised on 6 July 1944 of the defects disclosed by the competitive tests, few of the defects had been remedied in the model submitted on 17 August. Representatives of Gallowhur agreed to make the changes required to improve the performance of, and the taste of the water produced by, their still and to submit new models at an early date.

6. On the basis of the investigation made, it is believed that:

a. The representatives of the Army Air Forces have acted in the best interests of the Government.

b. There was no discrimination against the Gallowhur Chemical Corporation.

c. The "delays" complained of are explained by the need for developing a satisfactory still. It is believed that this development went forward as rapidly as possible considering the degree of cooperation on the part of both Gallowhur Chemical Corporation and Higgins Industries.

For the Commanding General, Army Air Forces:

Signed

RAY L. OWENS,
Brigadier General, U.S.A.,
Deputy Chief of the Air Staff.

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4 SEP 1944
AAG

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ARMY AIR FORCES
HEADQUARTERS OF THE MATERIEL COMMAND

Capt. Jon H. [illegible]
JJW/TSCSA (2- [illegible]

Wright Field, Ohio.

13 September 1944

TECHNICAL INSTRUCTIONS

Serial No.: TI-1628, Addendum No. 2.

Subject: Requirement for Water Producing Equipment on Life Rafts.

To: Procurement Division

1. Problem Presented:

a. To procure necessary water producing equipment to accomplish the following allocation of water producing apparatus for the Type A-3 and E-2 life rafts:

AFP 411648 347678
AFP 211534 33334 } (1) Six Solar Stills. Memo 45-3055

AFP 374732 952530
AFP 411741 190506 } (2) Six Desalting Kits. Memo 45-4575

(3) One Water Can.

2. Authority:

a. Commanding General, Army Air Forces. By teletype AFDMA-2C-2113, dated 8 September 1944, on the above subject, received from Chief, Development Engineering Branch, Materiel Division, ACAS/M&S.

3. Action Desired:

a. That which is stated under paragraph 1, Problem Presented.

b. This addendum cancels and supersedes TI-1628 and TI-1628, Addendum No. 1.

By Command of Lieutenant General KNUDSEN:

T. A. SIMS,
Colonel, Air Corps,
Chief of Administration.

1330's complete
closed out
12 Feb 1945

cc: Engineering Division
Maintenance Division (TSMOO)
Supply Division (TSSOO)
Liaison Office (TSLOO)

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T.I. 1628, Addendum 1.

TSBPE,
Aero. Equipment Branch,
1 Miscellaneous Unit,
Mr. T. J. Kincaid.

TSELA-5C1

19 September 1944
Dr. E. S. FETCHER
20839

1. Reference is made to Inter-Office Memorandum dated 9 September 1944 subject as above. Much of the information requested is contained in R&R dated 13 July 1944 to your office, subject, Requirements for Solar Stills for Life Rafts. References therein to the Higgins spherical pad still are, of course, not applicable to subject T.I.

2. The still referred to in the directive from Material and Services, on which subject T.I. is based, is the Galloshur Chemical Corporation part number, model B-6. A sample of this model will be forwarded to your office if desired. Complete engineering data are not yet available in this office because changes required by the Proving Ground Command report are being made.

3. For your information, an experimental order, P.C. No. [illegible] has been issued to the Galloshur Corporation for 15 of these stills. It is suggested that the stills on this order be accepted and that the first nine stills on a production order be submitted to this office before production is released.

JOHN P. HEALD, JR.,
Colonel, Air Corps,
Chief, Personal Equipment Laboratory,
Engineering Division.

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INTER-OFFICE MEMORANDUM

ARMY AIR FORCES

T.J. Kincaid
Ext. 2-8214

Wright Field, Dayton, Ohio

Date 9 September 1944.

TO: Chief, Engineering Division,
Personal Equipment Laboratory,
Emergency Rescue Branch,
Survival Unit.

E1251

SUBJECT: T.I. 1628, Addendum 1.

1. Subject T.I. states that Engineering Division will furnish necessary information for the procurement of Gallowhur type Solar Stills.

2. It is requested that this office be furnished with the information required, so that procurement may be initiated.

GEORGE E. PRICE,
Colonel, Air Corps,
Chief, Production
Engineering Section.

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(AFR 11-30)

Signature _____

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29.

AAFEC-665-Ae-TF-8-10-44-1500

INTER-OFFICE MEMORANDUM

ARMY AIR FORCES

M[redacted]

Office of The Commanding General

AIR TECHNICAL SERVICE COMMAND

Lt. T. H. Lehman
reh TSNPRAX 2-6218.

Wright Field, Dayton, Ohio

Date 21 September 1944.

TO: Chief, Aeronautical Equipment Sub-Section,
Production Section.
Attention: Lt. Colonel O. E. Kuhler.

SUBJECT: Minutes Of G.F.E. Committee Held On
20 September 1944.

1. The G.F.E. Committee meeting on Miscellaneous Equipment convened for the purpose of discussing the proposed procurement of Gallcher type sumstills. Addendum # 1 to G.T.I. 1628 directs that sumstills will be installed in the amount of two in each B-2 life raft and three in each A-3 life raft.

2. Addendum # 2 to G.T.I. 1628, currently in the process of preparation, will cancel and supersede Addendum # 1 and will direct that six sumstills will be installed in each B-2 and A-3 life raft. According to current procurement figures for life rafts this revised schedule will necessitate the procurement of approximately 600,000 sumstills, however, this figure of 600,000 cannot be considered as a basis for procurement action pending receipt of Supply Division's requirements.

3. It was the unanimous decision of the Committee to procure 100,000 stills for the time being in order to fulfill urgent current requirements and as soon as a definite requirement is received from Supply Division further procurement will be initiated. In order to protect the interest of the Government it was decided to request a patent licensing agreement from the Gallcher Chemical Company at the time that the initial order for 100,000 units is placed. Since the Gallcher Chemical Company has produced the only approved type still, the first procurement of 100,000 units will be placed on a sole source basis. A tentative delivery schedule of 25,000 stills per month was established. Delivery of the stills is to commence thirty days after receipt of a contract by the contractor. This delivery schedule is in accordance with Gallcher Chemical Company's estimates.

4. Present at the meeting were:

[redacted]
Major J. S. Butts
Major R. R. Clarkson
Captain Mansfield

Captain Turner
Lt. H. S. Kennedy
Lt. T. H. Lehman

Mr. Fotcher
A. R. Riesmann
T. J. Kindahl

R. R. CLARKSON,
Major, Air Corps,
Chief, Miscellaneous Branch,
Aero. Equip. Sub-Section.

Signature

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A-9 27.

CABLE "SKOL" NEW YORK

GALLOWHUR CHEMICAL CORPORATION

CHEMICAL AND PHARMACEUTICAL MANUFACTURERS

WINDSOR, VERMONT

SEND REPLY TO: 250 EAST 43rd STREET
NEW YORK 17, N.Y.
LEXINGTON 2-3720

September 27, 1944.

Director,
Air Technical Service Command,
Engineering Division,
Personal Equipment Laboratory,
Reference: TSELA-5C4,
Wright Field, Dayton, Ohio.

Subject: Solar Stills,
(Purchase Order No. 45-1588E.)

Dear Sir:

105

Acknowledging your communication of September 22, 1944, we thank you for your comments regarding the possibility of fabricating the envelope of the B-6 STILLS of Goodrich Koroseal.

Contact has been made with the Goodrich people with reference to this product and upon receipt of adequate samples, tests will be run by our laboratory and reports forwarded to you as the work of investigating this product progresses.

Yours very truly,
GALLOWHUR CHEMICAL CORP.,

Waldemar Dietz,
Technical Advisor.

WD:jm

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Address reply to ENVELOPE to:
A-10

28.

Director,
HEADQUARTERS, AIR TECHNICAL SERVICE COMMAND
Air Technical Service Command,
Engineering Division,
Personal Equipment Laboratory,
Reference:TSELA-5C4,
Wright Field, Dayton, Ohio.

E.S.Fetcher,Jr:pjc:TSELA-5C4
Extension 2-0139.

22 September 1944

Solar Stills,
(Purchase Order No. 45-1588E.)

Gallowhur Chemical Corporation,
250 East 43rd Street,
New York, New York.

1. In view of the shortage of Vinylite, it is suggested that attempts be made to fabricate the envelope of the B-6 Stills of Goodrich Koroseal. It is understood that this material is very similar to Vinylite. Such stills could be submitted on Purchase Order 45-1588E.

2. It is also suggested that new developments of solar stills be submitted to this Command as they become available in order that they may be evaluated, and, if found satisfactory, be service tested by the AAF Board.

3. Confirming conversations of 15 and 16 September 1944, it is requested that the failures of the Model B-6 pointed out in the AAF Proving Ground Command Report, be corrected. A copy of this report was handed to your representative on 15 September.

For the Director:

JOHN P. FRAIM, JR.,
Colonel, Air Corps,
Chief, Personal Equipment Lab.,
Engineering Division.

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C#1 1.

FROM: WAR DEPARTMENT
Air Technical Service Command
BUREAU Wright Field, Dayton, Ohio.

E.S.Fetcher, jr. rp/js: [illegible] Ext.3-0139
27 September 1944 11:30 a.m.

TELEGRAM

OFFICIAL BUSINESS—GOVERNMENT RATES

[illegible]
[illegible]
[illegible]
ATTENTION: MR. [illegible]

JOHN P. FRAIN, JR.,
Colonel, Air Corps.

[illegible] TASTE RESULTS ON WHOLE STILL NO. 15½ AND ON PARTS HEATED WITH WATER 48 HOURS 160° F. UNSATISFACTORY. YOUR WASHING PROCESS REDUCES SOMEWHAT MARKED PLASTIC TASTE NOR MARKED PEPPERY TASTE FROM VINYLITE. SARAN DOES NOT GIVE PEPPERY TASTE. YOUR WASHING DID NOT REDUCE ITS PLASTIC TASTE. CONFIRMING OF THIS TEST INDICATED BY SUBSEQUENT DISTILLATION OF PEPPERY WATER IN NO. 15½ AS AT FIRST. PACKED STILLS ARE BADLY DISCOLORED AND BADLY SOMEWHAT AFTER 48 HOURS AT 160° F. REQUEST IMMEDIATE ACTION BE TAKEN TO REMEDY THESE SERIOUS DEFECTS AND ATTENTD

AIR TECHNICAL SERVICE COMMAND, WRIGHT FIELD

SIGNATURE REQUIRED BUT OMITTED

B

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104-WF-11-15-41-30M sets of 4 ORIGINAL 15

Authority for Purchase

No. 211534

Lt. T.H. Lehman
dm:TSBPR&R Ext. 2-8210

VENDOR

CONTRACT No.

PURCHASE ORDER No.

DELIVERY | VIA | TERMS | METHOD | PROPOSAL

THE ABOVE SPACE TO BE USED BY THE PURCHASE BRANCH ONLY

Item	Quantity	Unit	Estimated Unit Price	DESCRIPTION OF MATERIAL OR SERVICES TO BE PURCHASED.	Unit Price	Total Price
1	33,334	ea	$33.00	Solar Still Kits - Gallowhur Chemical Company Drawing No. B-6 AAF-7. Each Kit to consist of three (3) stills packed in one aluminum container which is suitable to the procuring agency.	33.00	

Exhibit B attached.

Exhibit A attached

"Controlled Materials are involved and are expected to be available. In the absence of manufacturers inventory, mill capacity may delay the delivery schedule."

See reverse side

WALSH-KEALEY ACT
Min. Wage
Notices sent None

18,7/7/44

LRE

Budget Item #7.

11,7/15/44 modified

LRE

NEGOTIATIONS COMPLETED

AERNO: 45-3655

Total Estimated Cost $2,100,022.00

CLASSIFICATION 03-F

Total Actual Cost

B—FUNDS

EXPEND. ORDER No. / MISCL. CHARGE No. | Project No. | Item No.

A—FUNDS

Project No.	Item No.
110	970-7

C—FUNDS

Project No.	Class No.	Item No.

Increase of Funds to Actual Cost Approved

Section Chief

MATERIAL TO BE OBLIGATED FOR FY 1945 Program

WANTED NOT LATER THAN See Exhibit "A" (Date)

DELIVER TO To be furnished later.

Procurement Data / Number of Sets

DATE FURNISHED

Budget Officer

Remarks on the following matter marked with "X" appear in the space below:

1. Recommended Sources of Supply X 2. Government furnished material ..... 3. Tools, patterns, etc., loaned by Government .....
4. Should Serial Number be assigned ..... 5. Point of Inspection X 6. Increase Existing Orders ..... 7. General Remarks: X

11/3/44

(3233)

1. Gallowhur Chemical Company,
250 East 43rd Street,
New York, N.Y.

33-038 ac 6264

5. Source.

7. See Exhibit "A".

Incls:
#1 - Interim I.O.M. dtd 20 Sept. 1944.
#2 - R.&R. Sheet dtd 19 Sept. 1944 from Engineering Div.,Personal Equip.Lab.
#3 - Exhibit "A".

CLEARED 10-6-44

Proc. Auth. No. 212/50706 502-5/50? 110-09 5 33-038

Proc. Auth. No. AC P A

Proc. Auth. No. AC P A

Upon due inquiry made it was found that the articles enumerated hereon could not be procured from any other branch of the Government without transfer of funds, or the immediate need of these supplies or the remoteness of this station from point of supply precludes such purchase from any other branch of the Government.

Date 29 SEP 44 Initiated by T.H. Lehman

Signed Chief, Prod. Sec. Signed Chief, Proc. Div.

MiscBr.Ch: R.A. CLARKSON,Maj.,AC
Asst.Sub-SecCh: O.E.MOHLER,Lt.Col.AC GEORGE E. PRICE, Col.,AC ORVAL R. COOK, Brig.Gen.,USA

Coordinated by Production Engineering Sec.

Coordinated by Chief, Contract Sec.

Approved—Accounting Br.

Approved—Budget Officer

F.E.COYNE,JR.,Col.,AC

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21 16.

It is requested that a Letter Contract be issued to cover this procurement in order that allocations of critical materials used in the fabrication of this item (nylon) may be placed with as little delay as possible and the production of these urgently needed sun stills may be commenced.

Thos. H. Lehman
Initiator

10 Nov. 1944

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17.

EXHIBIT "A"

Lt. T.H. Lehman
dm:TSBPR4K Ext. 2-8210

27 September 1944.

Attached Hereto and Made a Part of A.F.P. 211534. 29 SEP 1944

7a. Recommended Source:

The Gallowhur Chemical Company is the only manufacturer who has manufactured acceptable Solar Stills. This source has stated that delivery can commence thirty days after receipt of an order. Accordingly, it is the coordinated recommendation of the G.F.E. Committee on Miscellaneous Equipment that an immediate procurement be placed with the Gallowhur Chemical Company for 100,000 stills, or 33,334 kits of 3 stills each. (See Interim I.O.M. dated 20 September 1944.) This procurement shall serve as a temporary measure to fulfill immediate requirements pending receipt of complete requirement data from Supply Division, at which time further procurement will be initiated. Since the Gallowhur Solar Still Model B-6 is a patented item, a patent licensing agreement will be included in this initial procurement. Consequently, further procurement for this item will be placed on the basis of competitive bidding.

7b. Patent Licensing Rights:

The procurement should be made expressly contingent upon the execution by the contractor of a contract containing a PARO Form 1-B, or a collateral agreement which can be approved by the Patents and Royalties Office as conferring the same rights upon the government.

7c. Delivery Schedule:

~~Jan 15 - Feb 15~~	~~Feb 16 - Mar 15~~	~~Mar 16 - Apr 15~~	~~April 16 - May 15~~	May 16 - June 15	June 16 - July 15
~~November~~	~~December~~	~~January~~	February		
667 ~~8333~~	2500 ~~8333~~	5166 ~~8333~~	8333 ~~8335~~	8334	8334

7d. Packaging:

~~Interior~~ Domestic, in accordance with U.S. Army Specification 100-11A.

7e. Air Worthiness Approval:

The final three (3) production articles shall be submitted to Engineering Division, Personal Equipment Laboratory, Emergency Rescue Branch, for first vehicle approval.

7f. Urgency:

[illegible], and Interim I.O.M. dated 20 September 1944.

7g. Other:

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[illegible] information [illegible] from [illegible] concerning [illegible] procurement. Spares [illegible].

7h. [illegible] and [illegible] A.F.P. No. 211485.

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24.

CABLE ADDRESS NEW YORK

GALLOWHUR CHEMICAL CORPORATION

CHEMICAL AND PHARMACEUTICAL MANUFACTURERS

WINDSOR, VERMONT

SEND REPLY TO: 250 EAST 43rd STREET NEW YORK 17, N.Y. LEXINGTON 2-3720

October 11, 1944.

Director,
Air Technical Service Command,
Engineering Division,
Personal Equipment Laboratory,
Reference: TSELA-5C4,
Wright Field, Dayton, Ohio.

Subject: Solar Stills,
(Purchase Order No. 45-1588E.)

Dear Sir:

With further reference to your letter of September 22nd, 1944, paragraph 2, our Research and Development Laboratory is actively pursuing work on the following problems at this time:

1. TASTE

Work is being diligently pursued to eliminate objectionable taste in an effort to determine which of several factors might be responsible for this condition and how to best remedy the cause.

2. CONSTRUCTION OF PAD

Investigations are being pursued on the relative merits of cellulose sponge as compared to other materials available. A close study of pad construction for purposes of obtaining maximum efficiency from materials used together with an appraisal of the most practical means of obtaining maximum results.

3. SELF FEED

Work is being continued to determine the relative merits of gravity feed v.s. wick feed(self feed). Original investigations are being continued for the purpose of disclosing relative merits of a variety of designs providing a means or method of efficiently applying either a gravity or self feed principle for the purpose of simplifying loading and re-loading of Solar STILL to permit continuous operation.

This activity is a continuation of the problem

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CABLE "SKOL" NEW YORK

GALLOWHUR CHEMICAL CORPORATION

CHEMICAL AND PHARMACEUTICAL MANUFACTURERS

WINDSOR, VERMONT

SEND REPLY TO: 250 EAST 43rd STREET
NEW YORK 17, N.Y.
LEXINGTON 2-3720

Air Technical Service Command
Reference: TSELA-5C4
Wright Field, Dayton, Ohio — 2. — October 11, 1944.

which was a subject of correspondence between ourselves and the AAF in May of this year. A Solar STILL which we developed over a year ago and which was tested in Florida in November 1943, concerned a cylindrical model with top feed but this was put aside because of specific instructions from Dr. Fetcher of Wright Field asking us to do no further work on this top-feed type, and to concentrate on our oriented model.

4. **ENVELOPE MATERIAL**
A variety of materials are being tested for their relative values as compared with Vinylite which is now being used. Special attention is being given to the use of Polyethylene and Koroseal.

5. **METHODS OF PACKING**
Work is continuing with the packing problem for the purpose of devising possibly better ways to fold the Solar STILLS so as to reduce bonding.

6. **SCREEN MATERIAL**
Work is being continued for the purpose of providing a better screen material than the Saran screen now being used.

7. **SPONGE**
Work with sponge material for the purpose of establishing standards of comparison between the cellulose sponge now being used and other materials.

As previously advised, you will be kept fully informed as to developments as promptly as they are reported by our laboratory. It being our specific intention in this letter to set forth for your information, the chief factors in Solar STILL construction and operation now holding the undivided attention of our Research and Development facilities. Should you have any further suggestions

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CABLE "BROL" NEW YO

GALLOWHUR CHEMICAL CORPORATION

CHEMICAL AND PHARMACEUTICAL MANUFACTURERS

WINDSOR, VERMONT

SEND REPLY TO: 250 EAST 43RD STREET
NEW YORK 17, N.Y.
LEXINGTON 2-3720

Air Technical Service Command
Reference: TSELA-5C4
Wright Field, Dayton, Ohio 3. October 11, 1944.

regarding research activities over and beyond those already designated, we would appreciate receiving your further comments. We are trying to reflect closest possible cooperation with you in attaining the desired objective and want you to feel free to confer with us whenever it suits your convenience.

Yours very truly,
GALLOWHUR CHEMICAL CORP.,

Waldemar Dietz

Waldemar Dietz,
Technical Advisor.

WD:jm

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Board Committee Investigation - Devices for Rendering Sea Water Potable

Chief, Legislative Services 19 October 1944

2

AC/AS-3, Material Division Mr R T Jones/fe-3831

1. The only equipment presently in use for rendering sea water potable in life rafts is the early Gallowhur type still known as the Delano solar still. This item consists of a black towel supported on a wooden frame, which, in turn, is covered by a transparent plastic window. The towel is saturated with sea water and solar energy is used to distill the water, the plastic cover acting as a condensing surface. The packed volume is 250 cubic inches and under optimum conditions produces one pint of water per day. In using this item it is necessary to closely supervise its orientation to the sun for best results. To date 15,000 have been shipped for overseas and ferrying use. No reports on Service use are available. 12,000 are on hand so that no requisitions have gone unfilled.

2. In order that the Committee may have complete information on drinking water supply for life raft use the following facts in addition to those asked for are submitted below:

a. There are under procurement 1,100,000 sea water desalting kits, on which deliveries are expected to start 15 November 1944. This item consists of a plastic processing bag and six desalting briquettes packed in tin containers. When the proper amount of sea water is processed with one briquette, the salts are precipitated and one pint of potable water produced. These kits will be issued for use in life rafts as they become available.

b. By far the most important source of drinking water for life raft survivors is rain water. A rain catching paulin is provided in each multiplace raft. Two-tenths of an inch of rainfall collected in this paulin provides 5 gallons of drinking water. Storage for this amount is provided by four plastic water bags. 36,000 of these storage bags have been delivered and 322,000 are on order. Of the required drinking water, 30 to 60% is provided by rain water. An additional 20 to 30% is expected from the improved solar still now under procurement.

c. In addition to all of the above water sources, seven eleven-ounce cans of water are also provided in each multiplace raft.

J. F. PHILLIPS
Colonel, Air Corps
Chief, Material Division

Incls. n/c

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Head Committee Investigation - Devices for Rendering Sea Water Potable

AC/AS, Material & Services, Att: Lt. Col. Tappan, Material Div.
Office of Legislative Services

17 Oct 1944

1
HGR/ec/74480

1. Annexed is memorandum from Julius H. Amberg, Esq., Special Assistant to the Secretary of War, subject as above, addressed to the Chief, Legislative Services, Hqs., AAF, dated 14 October 1944, transmitting copy of a letter from Rudolph Halley, Chief Counsel, Senate Special Committee Investigating the National Defense Program, dated 12 October 1944, copy of which is also annexed.

2. Under date of 4 September 1944, General Owens addressed a memorandum having to do with Solar Stills and complaints of the Gallowhur Corporation and Higgins Industries,(copy annexed).

3. Mr. Halley now requests information as to devices of any type currently used for rendering sea water potable under emergency conditions, together with a description of the same and a statement of the extent to which they are used.

4. Please prepare report upon the matter requested by Mr. Halley, in form as full and complete as possible so that adequate reply may be promptly made to the Committee. Your report should reach this office, if at all possible, by not later than 25 October 1944.

BARTON S. EGE
Colonel, Air Corps
Chief, Legislative Services

Incls:
1 - Cpy Memo frm J. H. Amberg to Col. Ege, 10/14/44
2 - Cpy ltr frm R. Halley to Mr. Amberg, 10/12/44
3 - Cpy Memo frm Gen. Owens to Mr. Amberg, 9/4/44

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Solar Stills
E.O. 12-14-(B)(4)(g)

UNITED STATES SENATE

October 12, 1944

Mr. Julius H. Amberg
Special Asst to
the Sec. of War
3E738, Pentagon Bldg.
Washington, D. C.

Dear Mr. Amberg:

Reference is made to your letter of September 5, enclosing a memorandum of Brig. General Ray L. Ewend with reference to the production of solar stills.

The Committee would appreciate receiving a statement showing whether or not any devices of any type are in use for rendering sea water potable under emergency conditions, and if so, a description of such devices and a statement of the extent to which they are used.

Yours very truly,

ELMER B. HADLEY
Chief Counsel

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Dr. Carl Stills
E.O. 13-14-4/apg

October 14, 1944

MEMORANDUM FOR: The Chief, Legislative Services, AAF
Attn: Colonel Warren T. Ege

Subject: Mead Committee Investigation -
Devices for Rendering Sea Water Potable.

Reference is made to prior correspondence having to do with solar stills and complaint of Calloway Chemical Corporation and Higgins in this connection.

On September 4, 1944, General Owens sent me a memorandum on the subject which was forwarded to Mr. Bailey, Chief Counsel of the Mead Committee, on September 5, 1944.

There are annexed two copies of letter of October 12, 1944, addressed to me by Mr. Bailey, in which he requests information as to devices of any type now in use for rendering sea water potable under emergency conditions, together with a description of the same and a statement of the extent to which they are used.

Will you please furnish me such information to send to the Committee.

JULIUS H. AMBERG
Special Asst to the
Secretary of War

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Head Committee Investigation - Devices for Rendering Sea Water Potable

Chief, Legislative Services

26 Oct. 1944

4

ACAS/M&S, Materiel Division

Major F C Oakley/fw-3831

Answers to questions raised in Comment 3 are given below with paragraph numbers corresponding to those in Comment 3:

1. The 30,000 Gallowhur type stills do render sea water potable. The "apparent testing undrinkable water" referred to was produced by a new type Gallowhur still in process of development on or about 5 June 1944. The statement quoted does not apply to the 30,000 stills delivered to the Army Air Forces for use.

2. Sea water desalting kits do render sea water potable.

3. The still now under procurement has been improved to the extent that it will render sea water potable. Trouble has been experienced in wholly overcoming a certain plastic taste which is present under certain circumstances. This taste when it occurs does not make the water undrinkable. Work is continuing in the direction of entirely eliminating this taste under all conditions of use.

110

J. F. PHILLIPS
Colonel, Air Corps
Chief, Materiel Division

Incl. n/c

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Head Committee Investigation - Devices for Rendering Sea Water Potable

Asst Chief of Air Staff, Materiel & Services — 24 October 1944
Materiel Division (Attn: Lt. Col. Tegman)
Chief, Legislative Services

3
KLW/jrp 74480

1. Advice is requested as to whether the 30,000 Wallachur type stills referred to in paragraph 1, Comment No. 2, above, do in fact render sea water potable. According to the letter from the Air Inspector, AAF Materiel Command (now AAF Technical Service Command), dated 17 August 1944, final delivery of the 30,000 stills mentioned in paragraph 1 of Comment No. 2, above, was completed 17 May 1944. In paragraph 2 t and 2 w of the letter dated 17 August 1944, it is stated that as a result of tests made on or about 5 June 1944, the "peppery tasting undrinkable water" produced by the Wallachur still, as of that date, continued to be a "serious defect that can be remedied."

2. In paragraph 2 a of Comment No. 2, above, reference is made to the use of sea water desalting kits. Advice is requested as to whether these sea water desalting kits produce water that is potable.

3. In paragraph 2 b of Comment No. 2, above, reference is made to "the improved solar still now under procurement." Advice is requested as to whether the improved solar still now under procurement has been improved to the extent that it will render sea water potable.

4. It is believed that definitive answers to the above questions are required before a satisfactory reply can be made to the Head Committee. Please furnish this office with the answers to the above questions, if at all possible, by not later than 30 October 1944.

MARVIN S. [illegible]
Colonel, Air Corps
Chief, Legislative Services.

Incls. n/c

Yes. except that trouble has been experienced [illegible] Take what may occur under [illegible]

10/26 - Referred to the chief [illegible]

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A-5C114QR1 17.

Address reply & [illegible] to:

Director,
Air Technical Service Command,
Engineering Division,
Personal Equip. Lab., [redacted]
Reference:TSELA-5C4, [redacted]
Wright Field, Dayton, Ohio.

E.S.Fetcher:jr:pjs:TSELA-5C
Extension 2-0139

HEADQUARTERS, AIR TECH. SERVICE COMMAND

27 October 1944

Higgins Industries, Inc.,
521 City Park Avenue,
New Orleans, Louisiana.
Attention: Mr. A. E. Ushakoff.

Gentlemen:

Still #5 has been received and has undergone limited performance tests. Your Dayton representative, Mr. Hardy, has also furnished a copy of your letter to him dated 13 October 1944 concerning this still and several conversations have been held with him. The program outlined for production of experimental stills is satisfactory.

This model appears to be a great improvement over previous samples. Without pyrheliometer measurements, it is estimated that the production rate is approximately 1.4 times that of previous stills. After having been run for several days, the still was allowed to dry out for a day in the sun. When water was put in the salt water reservoir, the pad was readily wetted.

It may be assumed that approximately 300 cubic inches will be available for solar stills in life raft accessories. It is probable that the handling of more than six stills from one raft would become awkward. Neither should the stills be too large to handle; certainly no larger or heavier than they now are.

In order to make the best use of the available space and yet retain the necessary flexibility and safety factors, it is suggested that the six stills be divided between two containers of approximately 150 cubic inches outside dimension each. The containers should be strong enough to protect the stills from excessive bending at extreme low temperature in the event of impact from shifting cargo. The containers should have no sharp corners or edges, nor unprotected sharp projections. Obviously, the most economical form would be hexahedral. There should not be two dimensions greater than six inches, and no dimensions greater than fourteen inches.

It is recommended that a plug be supplied which could be used to plug the reservoir tube so that the reservoir would not have to be drained if the still were stowed in board; the draining is an

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Ltr. to Higgins Industries

Re: Solar Stills.

27 October 1944.

outward operation. Attempts to patch the cloth drain with "Utilitape" have been unsuccessful; perhaps because, although the drain was thoroughly dried, in patching it it was necessarily pressed against the wet black pad. It is not clear whether the drain should be slit along the portion that is covered with transparent material in No. 8. It is considered that the cloth should not be pre-slit. It may well be desirable to increase the length of the drain tube a foot so that it will be easier to drink from it. It would be desirable if a method could be devised to drain the fresh water into a storage container, rather than sucking on the tube, or lifting the still out of water. It is understood from conversation with Mr. Hardy that reinforcement of the top-tube has been accomplished.

It is considered that stills similar to No. 8 would be suitable for service test with the changes and packaging indicated. Not less than six stills would be required; at least one finished, packed container would be necessary. It would be of assistance if an approximate date could be given as to when these stills would be ready.

As noted in conversation with Mr. Hardy, two of the first seven stills received were inoperable. It is desired to know whether these should be returned for modification; or whether others of the No. 8 variety will be substituted.

Your interest and cooperation will be appreciated.

Very truly yours,

W. C. HANSEN,
Lt. Colonel, Air Corps,
Chief, Personal Equipment Lab.,
Engineering Division.

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A-5 (2/4001)

I have had this copy made for 19.
your files.
Russ

HIGGINS INDUSTRIES INCORPORATED
New Orleans, La.
October 13, 1944

Mr. Russell F. Hardy
Higgins Aircraft Inc.,
Mutual Home Building
Dayton, Ohio

Dear Russ:

Still No. 8 was shipped to you by air express Wednesday, October 11th. This still has several important advantages which I want to enumerate:

1. The area of the black sphere or pad has been increased so that the amount of water produced is 30% greater than the previous stills sent to you The packed volume is the same.

2. The cup is permanently attached to the sphere, eliminating the possibility of leakage, which the Eglin Field report objected to.

3. The drain has been redesigned so that the still will operate satisfactorily on land as well as in water. Moreover, it will maintain constant air pressure inside regardless of the roughness of the water.

4. This drain also acts as a safety valve, making it impossible to over-inflate the still.

5. The large surface of the drain allows rapid and complete removal of salt water.

6. This construction allows for rapid filling and emptying of the still with water should it be desired to wash the still. The water is admitted to the still, or removed through the cloth drain.

7. The still can be packaged in a square package or rolled up depending on requirements.

Means are provided in the drain for slitting it open in case of emergency, the slit being re-sealed by sealing it with a piece of pressure sensitive tape, which will be provided in the repair kit. Should it be desired the still can be furnished with the opening already provided and sealed, in which case it will be merely necessary to pull the pressure sensitive tape off and then re-sealing it.

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To place the still in operation the cloth drain should be wetted before the still is inflated.

The most important improvement, of course, is the fact that even though the packed volume remains the same the amount of water produced by still No. 8 is at least 30% more than before. It was possible to accomplish this through the saving in volume effected in glueing the cup directly to the sphere which saved us some 10 cubic inches. We could, of course, leave the amount of water produced the same as before, in which case the packed volume of the still would be reduced by 10 cubic inches more, making the packed bulk of the still around 40 cubic inches instead of 50 cubic inches.

Still No. 8 is not intended to be cooked in the oven, since no attempt was made to package it properly, but is intended for performance tests. We feel that the problem of testing these stills can be properly divided into two categories, one concerned with the performance and the behavior of the still under actual operating conditions, the other with testing of the same still when exposed under packed conditions to the required limits of temperature variation. Time will be saved if the still is tested for operational performance while we are investigating practical means, from the production point of view, of insuring satisfactory results when the same still is packed and exposed to low and high temperatures.

Although you mention in your letter of September 30th that it will be satisfactory to Dr. Fetcher if we can postpone the production of a sphere which will not distort when exposed to high temperature, I find as a result of tests we have made during the past week that we have a very good chance of submitting a shpere shortly which will pass all the high temperature tests without deformation or sticking, and which we will be able to accomplish without going to the expense of making production molds. If it is satisfactory to Dr. Fetcher I would like to make this non-shrinking, non-sticking still No. 14 or No. 15 in our series in order to give us time to thoroughly test the still under high temperature conditions extending over a period of at least 200 hours. Meanwhile, the intermediate stills which we will ship to you will be strictly for perfromance tests only, and we shall incorporate whatever improvements Dr. Fetcher suggests. Incidentally, we have taken steps to increase the thickness of the gussets through which the string passes as was suggested by him. This change is best made by incorporating the change in the mold and this is being done now.

Sincerely,

HIGGINS INDUSTRIES, INC.

Alexis E. Ushakoff
Director of Research

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H-6 21.

GALLOWHUR CHEMICAL CORPORATION

CHEMICAL AND PHARMACEUTICAL MANUFACTURERS

WINDSOR, VERMONT

SEND REPLY TO: 250 EAST 43rd STREET
NEW YORK 17, N.Y.
LEXINGTON 2-3720

October 27, 1944.

Commanding General,
Materiel Command,
Wright Field,
Dayton, Ohio
Engineering Division,
Equipment Laboratory,
Dept. 54-6 - E. S. Fetcher, Jr.,

Dear Dr. Fetcher:

Some time ago we received a 12 oz. sample of the water obtained from a Solar Still after being subjected to 160° for 48 hours. This water was claimed to have the objectionable peppery taste and, as related to you over the telephone, we had this particular sample subjected to micro-analysis.

The results of this analysis are very interesting but not too informative. The investigation showed that no cyclohexanone is present in the water. However, during the analysis a residue was extracted from the water. This residue is of oily or waxy nature; it smells like a wax or like a candle. There is no peppery taste at all. This residue might represent a high molecular fatty acid or a mixture of several acids. Undoubtedly this was responsible for the taste in the water. We are now trying to establish the origin of this residue and are continuing our work. Just as soon as any further facts have been developed or further conclusive evidence established, we will keep you posted.

Yours very truly,
GALLOWHUR CHEMICAL CORP.,

W. Rademar Dietz,
Technical Advisor.

WD:jm

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SUBSIDIARY COMPANIES:
SKOL COMPANY, INC. PURATIZED, INC. SKAT INSECT REPELLENT CORP.
SUNSTILL, INC.

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Address reply to [redacted] 16.

Director,
Air Technical Service Command,
Reference: [redacted] (TSEAL-2B)
Wright Field, Dayton,
Ohio.

[redacted] R.S. [redacted], Major: TSEAL-5E
[redacted] Extension 2-0139
Headquarters, Air Technical Service Command

3 November 1944

Collector Chemical Corporation,
230 E. 43rd Street,
New York, New York.

Gentlemen:

In confirmation of conversation with representatives of your Company on 1 November 1944, it is requested that several stills be delivered on the experimental order as soon as possible. These stills should be as nearly like production models as possible. At least one group of three should be packed so that they can be subjected to high and low temperature tests. It is suggested that at least nine stills be furnished at this time, bringing the total delivered to ten. Of the first four delivered, two were unserviceable and unacceptable because of poor workmanship. As noted in conversation, this Command has not yet seen stills which could be considered satisfactory for production, and which incorporate the recommendations of the AAF Board; the latter were first given informally to a representative of your Company on 6 July 1944. It is recommended that the stills remaining to be delivered on the experimental order be held for possible further modification.

It was stated by a representative of your Company that no significantly different stills had been developed to a point such that they would be suitable for service test in the near future. Minor changes in marking of the stills were requested; namely, rearrangement of the tab numbering, omission of the word "Top", and the printing of an arrow perpendicular to the pad at each end of the envelope.

Your interest and cooperation are appreciated.

Very truly yours,

W. R. [redacted],
Lt. Colonel, Air Corps,
Chief, Personal Equipment Lab.,
Engineering Division.

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13.

C O P Y

HIGGINS INDUSTRIES, INC.
NEW ORLEANS 19, LOUISIANA.

November 4, 1944

Reference: TSELA-5Ch.

Director,
Air Technical Service Command.
Engineering Division,
Personal Equipment Laboratory,
Wright Field, Dayton, Ohio.

Dear Sir:

We are referring to your letter of October 27, and are glad that you find that our Still No. 8 is an improvement over stills previously sent to you.

We have noted the various suggestions made in your letter and will take steps to make these improvements.

We note that you experienced some difficulty in draining the ballast tube and that you recommend that a plug be used, so that the tube will not have to be drained. We would like to mention that if draining is accomplished before the still is deflated, by turning the inflated still upside down, the operation is more easily performed. There is some difficulty in draining this tube if the still is first deflated. The correct method for draining will be described in instruction sheet furnished. If in your experiments this tube was drained after the still was deflated we would suggest that you try draining it while it is still inflated, and let us know whether any difficulty is experienced. If so, we will provide a suitable plug as you suggest.

The cloth drain should be slit along the portion which is covered with transparent material in Still No. 8. Following your suggestion we will supply the stills with this cloth not pre-slit. Likewise, we will increase the length of the drain tube. We are also working on a method of draining the water into a storage container, so that the water may be removed from it without lifting the still out of the water or sucking through the drain tube.

From conversations with Mr. Hardy we understand that, because of the equipment required and large number of personnel concerned, at least thirty days will be required before service tests can be conducted at Eglin Field. We believe, therefore, that a date set five or six weeks from now would be convenient as

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Far as we are concerned. It will be appreciated if we are notified as to the exact date of these tests as far in advance as possible, in order that we may be fully prepared for these tests.

With regard to the first two stills which were inoperable, two others will be sent to you similar to the No. 8 type.

Very truly yours,

HIGGINS INDUSTRIES, INC.

Alexis E. Ushakoff,
Director of Research.

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C O P Y

Dr Fletcher

GALLOWHUR CHEMICAL CORPORATION

250 East 43rd Street,

New York 17, New York.

Nov. 22, 1944.

Director,
Air Technical Service Command
Reference: TSENG (TSEAL-5E)
Wright Field, Dayton, Ohio.

Gentlemen: Attention: Dr. E. S. Fetcher, Jr.

Acknowledgment is made of your letter to us dated November 3rd.

Additional stills will be delivered against the experimental order in the near future. To have these as nearly like production models as possible, we have ordered production molds, jigs and fixtures which are in the process of being secured and set up. A group of three in the finished container will be submitted as soon as molds for the container are completed and sample received. We were under the impression that the package of three submitted to you in a hand made container did meet your high and low temperature tests.

It is our understanding you have seen laboratory samples which are satisfactory for production and which incorporate the recommendations of the A.A.F. Board, and it is our understanding that such models were the basis for your specifications leading to the initial procurement.

115

Reference is made to your statement that no significantly different stills have been developed to a point such that they would be suitable for service testing in the near future. In this connection, we wish to point out that we are continuing the development of improved model Sunstills. We are continuing, for instance, investigations of the wick or self-feed models which we developed over a year ago, and which was tested in Florida in November, 1943. I believe this problem was the subject of correspondence with you in May of this year.

Further, we are working on a combined pressure and gravity feed model which we believe has good promise. While we can't state definitely how soon in the near future these will be ready for service testing, we will keep you advised as to our progress.

FOR O[illegible] ONLY

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Very truly yours,
GALLOWHUR CHEMICAL CORPORATION

Clifford F. B[illegible]
Exec. Vice President

CFB:ao

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15.

IN REPLY ADDRESS BOTH COMMUNICATION AND EN- VELOPE TO ATTENTION OF FOLLOWING OFFICE SYMBOL: TSEMO (TSEAL-5E)

HEADQUARTERS, AIR TECHNICAL SERVICE COMMAND

K.S.Fletcher, Jr./jc: Extension 2-0139

11 November 1944

AAF Board Project (M-4) 595 Solar Still.

The President,
AAF Board,
Orlando, Florida.

1. In compliance with recommendation b of the AAF Proving Ground Command Report on subject project, this office has continued development of solar stills. The Higgins Industries has now fabricated a still which is considered to be a signal improvement over models previously tested. Present information is that enough of these stills for service test will be ready approximately 15 December. Discussion with representatives of other companies indicates that no other new stills will be sufficiently developed for service test for some months. It is therefore recommended that the Higgins stills be tested in accordance with already established test procedures and programs.

2. Reference is made to paragraph 5i of AAF Board Report on subject project. Manufacturers state that simple equipment for repacking stills is not practical at present. It is considered that inspection will have to be made by sampling; replacing sampled stills.

For the Director:

F. O. CARROLL,
Brig. General, U. S. A.,
Chief, Engineering Division.

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IN REPLY ADDRESS BOTH COMMUNICATION AND ENVELOPE TO ATTENTION OF FOLLOWING OFFICE SYMBOL: TSEAL-5E.

XXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXX
Headquarters, Air Technical Service Command

E. S. Fetcher, Jr.,:pjc:Ext.20139

25 November 1944

Gallowhur Chemical Corporation,
250 East 43rd Street,
New York 17, New York.

Gentlemen:

It is anticipated that additional service tests of solar stills will be conducted. Although it was not anticipated by representatives of your Company that new models would be sufficiently developed for service test, it is suggested that, if any are available, they be submitted.

It is also desired to have at least six model B-6 stills available for comparison; these should be production models. Any stills should reach this office not later than 20 December 1944.

Your interest and cooperation are appreciated.

Very truly yours,

W. C. WARNER,
Lt. Colonel, Air Corps,
Chief, Personal Equipment Lab.,
Engineering Division.

Copy to: Miss Fox, Historical Office, ZNI-3

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IN REPLY ADDRESS BOTH COMMUNICATION AND ENVELOPE TO ATTENTION OF FOLLOWING OFFICE SYMBOL: TSEAL-5E

XXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
Headquarters, Air Technical Service Command

E.S.Fetcher,Jr.:pjc:Ext.2-0139

25 November 1944

Higgins Industries, Inc.,
521 City Park Avenue,
New Orleans, Louisiana.
Attention: Mr. A. E. Ushakoff.

Gentlemen:

It is anticipated that additional service tests of solar stills will be conducted. It is requested that stills submitted for service test reach the Air Technical Service Command not later 20 December 1944. Stills should be in accordance with letter to your Company dated 27 October 1944.

Your interest and cooperation are appreciated.

Very truly yours,

W. C. WARNER,
Lt. Colonel, Air Corps,
Chief, Personal Equipment Lab.,
Engineering Division.

Copy to: Miss Fox, Historical Office, CHI-3

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A-2-(1/200) 6 Dr. Fletcher

[redacted]

Air, Technical Service Command

E.S.Fletcher,Jr:pjs:Ext. 2-0139

2 December 1944

Ref.

Gentlemen:

Reference is made to your letter dated 22 November 1944. Reference is further made to telegram to your Company dated 27 September 1944, which stated, among other things: "Tested stills all badly discolored and badly bonded after 48 hours at 160°F." Thus these stills did not meet the high temperature requirements. During the visit of a representative of the AFSC to your laboratories on 16 November 1944, a still, passed for the Navy and which had been at high temperature, was unpacked; the still was markedly bonded. During this visit methods of preventing bonding were discussed.

As noted in referenced telegram, in conversations and in letter dated 3 November, the four stills received 15 September on the experimental order, though showing certain improvements over the models tested by the AAF Board, cannot be considered as finished, professional articles in accordance with Section C-2 of the tentative specification. Since these and few earlier models are the only stills which have been received for examinations since the AAF Board tests, they necessarily are the basis for this opinion. An envelope, partially complete, was seen at the time of the visit referred to. This was stated to be a production article. The workmanship on this envelope appeared to be improved, although the ends of the "H" trap were not well molded. It is pointed out in the AAF Board report on the stills, a copy of which was furnished your representative on 15 September 1944, that water from the Higgins stills did not have a "peppery" taste after the same treatment undergone by the Model B-6; and that "The taste of the water was generally somewhat better in the Higgins Stills". This continues to be the case with the more recent B-6 samples as compared to Higgins Stills.

The models tested by the AAF Board, as well as subsequent ones were, of course, the basis of the tentative specifications. However, these models were admittedly imperfect.

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Gallagher Chemical Corporation
Sun stills. .
2 December 1944.

Specifications, of necessity, are attempts to formulate the desirable features of a model and to exclude or modify the undesirable features of that model.

The information concerning the newer developments of stills is of interest to this Command. As in the past, this Command is ready to be of assistance in such developments as are its concern.

Your interest and cooperation are appreciated.

Very truly yours,

W. C. WASHER,
LA. Colonel, Air Corps,
Chief, Personal Equipment Lab.,
Engineering Division.

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AAF-WF-2-26-43-500M

INTER-OFFICE MEMORANDUM
ARMY AIR FORCES
[redacted]
AIR TECHNICAL SERVICE COMMAND

Col Alfred L. Ferguson, Jr.
ia/TSBPR6E
Ext 2-5203

Wright Field, Dayton, Ohio
Date 12 December 1944

TO: TSBPR4

SUBJECT: Contract W33-038 ac-6264 for Sun Stills
Gallowhur Chemical Company

1. Subject contract is still in letter form, has been signed by the contractor and the Contracting Officer, but approval thereof has been held up pending approval of the contractor's financial condition by the Fiscal Branch.

2. Subject contractor appears to be in very weak financial condition, showing a deficit in net working capital of $317,000.00 as of 30 June 1944. Contributing primarily to this condition are amounts owing for renegotiation refund of $174,000.00 and Federal Income Taxes payable of $180,000.00. The Fiscal Branch is taking the position that the contractor's financial position is such that, even should advance payments be made, the amount advanced might not be entirely recouped, and that, therefore, approval cannot be given to the award upon a sound financial basis.

3. A meeting was held 12 December 1944 in your office, presided over by Lt. Colonel Miller of your Sub-Section. The following were also present: Lt. Colonel Bowes, Chief, Services Sub-Section, Lt. Colonel Ferguson and Captain McLeod representing the Fiscal Branch, Lt. Colonel Fenwick and Major Lane representing Patents and Royalties Branch, and Captain Turner and Lt. Weaver of your Sub-Section. At this meeting, representatives of your Sub-Section stated that the total procurement of the subject supplies (Sun Stills for Life Rafts) would probably run to approximately one million items, and that subject procurement was for approximately one-tenth of that amount, that said supplies were essential to the war effort, and that, as stated in Exhibit "A" to AFP No. 211534 covering this procurement, the subject contractor is the only manufacturer who has manufactured acceptable Sun Stills, and is the only present source from which such supplies can be obtained immediately.

4. The representatives of the Patents and Royalties Branch stated that drawings on these Stills can be released for the purpose of securing additional sources once the subject letter contract is approved, inasmuch as it contains necessary license right forms.

5. In view of the above facts, representatives of the Fiscal Branch stated that, subject to the approval of the Chief, Procurement Division, it would authorize advance payments of between forty and fifty percent (depending upon figures now in transit from the company to Wright Field), and would

Signature _____

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To: TSBPRL. 12 December 1944
Subject: Contract W 33-038 ac-6264, Gallowhur Chemical Company

immediately notify the Eastern District to take steps necessary to give this account unusually careful supervision with countersignature on individual checks drawn by this company to its suppliers and subcontractors, and that all additional restrictions and safeguards which may be possible will be imposed. Inasmuch as the subject supplies will be largely subcontracted, with the subject contractor doing merely assembly work, it is believed that funds advanced on this contract can readily be confined solely to the use thereunder. The Eastern District would also be instructed to contact the Federal Tax officials concerned to arrange a plan whereby a demand for tax payments would not upset the operations of the company during the performance of the contract, and to contact the Ordnance officials involved in the renegotiation refunds due from this company to make sure that demand from that source would not interfere with such operations.

6. The Fiscal Branch desires to point out that, from the above facts, there is obviously some doubt as to the contractor's ability to fully perform subject contract, and that, therefore, other sources should be developed for additional procurements of such supplies, as the same may be needed. Lt. Colonel Miller, in the meeting above referred to, stated that additional sources would be investigated immediately upon release of the drawings by reason of the approval of this contract.

Alfred L Ferguson

ALFRED L. FERGUSON, Jr.
Lt. Colonel, Air Corps
Acting Chief, Fiscal Branch
Procurement Division

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Subj: ac-6264 for Sun Stills
Gallowhur Chem. Co. 1st Wrapper Ind.

LT.COL.J.G.SCARFF
imh: Tel.27211

TSBPR2

To: TSBPR. Attn: Col. Shepard

It is recommended that advance payments between 40 and 50% be authorized with respect to contract W33-038 ac-6264 for Sun Stills, Gallowhur Chemical Company. It is noted that this advance will receive careful supervision from the Eastern District. While the company is obviously over extended, it is believed that it is entirely solvent. My appraisal of the risk would be somewhat better than that contained in the basic communication.

JAMES G. SCARFF
Lt. Colonel, Air Corps
Procurement Executive
Production Section

cc: TSBPR6E
(Col Ferguson)

Lt. Col. L. Frank/amo
TSBPR1 Ext. 2-9105

2nd Wrapper Ind.

TSBPR. 18 December 1944.

To: TSBPR4.

1. Recommendation contained in 1st Wrapper Ind. is concurred in. Request necessary action be taken accordingly.

H. A. SHEPARD
Colonel, Air Corps
Acting Chief, Production Section

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cc: TSLPR6E
(Col Ferguson)

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GALLOWHUR CHEMICAL CORPORATION

CHEMICAL AND PHARMACEUTICAL MANUFACTURERS

WINDSOR, VERMONT

SEND REPLY TO: 250 EAST 43RD STREET
NEW YORK 17, N.Y.
LEXINGTON 2-3720

December 15, 1944.

Army Air Forces
Headquarters,
Air Technical Service Command
Wright Field, Dayton, Ohio.
Ref. E.S. Fetcher, Jr.

Gentlemen: Ref: TSEAL-5E

Reference is made to your letter to us dated November 25th.

The new models on which our laboratory are working are not yet sufficiently developed for service tests, but we believe that these improved models will be available to you for tests in about thirty days' time. However, we can advise that these models will apparently provide increased production of water and yet be packed into a smaller container.

In regard to your request for six production models, we would be happy to send these to you but we regret they will not be ready by December 20th, 1944. Indications are that they will not be available until the latter part of January, 1945 due to the reasons outlined to you in our letter of November 22nd. Neither sufficient materials nor complete production molds, jigs, and fixtures have yet been received and set up to start manufacture of production models in accordance with your specifications.

Very truly yours,
GALLOWHUR CHEMICAL CORP.

Clifford F. Raye

Clifford F. Raye
Exec. Vice President

CFR:ao

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SUBSIDIARY COMPANIES:
SKOL COMPANY, INC. PURATIZED, INC. SKAT INSECT REPELLENT CORP.
SUNSTILL, INC.

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Higgins
INDUSTRIES INCORPORATED
New Orleans 19, U.S.A.

CABLE ADDRESS "HIGGINS"

AIR MAIL

December 15th, 1944

Lt. Colonel J. B. Martin,
Materiel Command,
Wright Field,
Dayton, Ohio

Dear Colonel:

We have kept Dr. Ushakoff and the men continuously working at the West End laboratory on the Solar Still. In checking up on how much our research, development and manufacturing costs are, I am dumbfounded to find that it comes to way over $100,000. Now, if these stills ever got in use, and one of them happened to save my own boy's life, I would say that was pretty cheap. Again, I guess it would be pretty cheap if anyone elses boy's life was saved, by the use of one; but it is damn aggravating to know that we have had this still developed for such a long time, and then to occasionally read and frequently hear of some man's son dying, for want of drinking water, or to hear of fellows having disease from drinking impure water.

Of course, the still as it is today, is a whole lot better than it was six months ago, and it is a whole lot better than it was 18 months ago; but the one we built 18 months ago would still have saved lives.

Now, we have been encouraged to keep on with this still, and I am aware of the continued expense, and I have authorized it; but I am reaching the point of becoming disgusted, unless we hear from those at Wright Field soon, that they really want something, or that there is some good purpose in our wasting all this money, all this talent, and all this manpower, I am going to terminate all still work on the Solar Still.

For six months I have been hearing that in the next thirty days they were going to have some final tests, always to be made at Eglin Field. The first of November, I heard they were going to have a test in 30 days; the middle of November I heard the test was going to be in 20 days; around the first of December, I heard there was going to be a test on the 20th of December. Do you know if there has been some conclusion reached as to when the stills will definitely and finally be tested? Of course, I would be very glad to hear, that

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P 122.

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Higgins
INDUSTRIES INCORPORATED
New Orleans 19, U.S.A.

AIR MAIL

CABLE ADDRESS "HIGGINS"

December 15th, 1944

Lt. Colonel J. B. Martin,
Materiel Command,
Wright Field,
Dayton, Ohio

Dear Colonel:

We have kept Dr. Ushakoff and the men continuously working at the West End laboratory on the Solar Still. In checking up on how much our research, development and manufacturing costs are, I am dumbfounded to find that it comes to way over $100,000. Now, if these stills ever got in use, and one of them happened to save my own boy's life, I would say that was pretty cheap. Again, I guess it would be pretty cheap if anyone elses boy's life was saved, by the use of one; but it is damn aggravating to know that we have had this still developed for such a long time, and then to occasionally read and frequently hear of some man's son dying, for want of drinking water, or to hear of fellows having disease from drinking impure water.

Of course, the still as it is today, is a whole lot better than it was six months ago, and it is a whole lot better than it was 18 months ago; but the one we built 18 months ago would still have saved lives.

Now, we have been encouraged to keep on with this still, and I am aware of the continued expense, and I have authorized it; but I am reaching the point of becoming disgusted, unless we hear from those at Wright Field soon, that they really want something, or that there is some good purpose in our wasting all this money, all this talent, and all this manpower, I am going to terminate all still work on the Solar Still.

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AIR TECHNICAL SERVICE COMMAND
LIAISON OFFICE

PPD:JBM:mk

Eglin Field, Florida
23 December 1944

Mr. Andrew J. Higgins, President
Higgins Industries, Incorporated
New Orleans 19, Louisiana

Dear Mr. Higgins:-

Your letter dated 15 December, addressed to me at Wright Field, has been received this date.

After investigating plans for testing this new and improved Solar Still, it appears that the Personal Equipment Laboratory at Wright Field will test one or two other features of your Item #8, submitted by Dr. Ushakoff, after which the Army Air Forces Board at Orlando will be notified, who, in turn, will notify this Headquarters (AAF Proving Ground Command, Eglin Field).

When notification has been received at Eglin Field that the other two army agencies are prepared for test, plans are for all concerned to be notified via long-distance telephone, then several test items will be requested, together with an engineer from your organization. Frankly, I anticipate the re-activation of tests on Solar Stills within the next few days.

The paper work requesting that test be set up was forwarded to the Army Air Forces Board Headquarters, Orlando, Florida, under date of 11 November 1944.

Any information coming through channels to this Headquarters will be expedited with the least practicable delay.

You and Dr. Ushakoff, Messrs. McGuire and Ted Sprague, all have our best wishes for a very pleasant and more progressive New Year.

Very sincerely,

J. B. MARTIN, Lt. Col., Air Corps,
Liaison Officer (at Eglin Field),
Air Technical Service Command.

(AFR 11-30)

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AAF Material Command
Letting Contract

ARMY AIR FORCES
AIR TECHNICAL [redacted] SERVICE COMMAND
[redacted]
Office of the Director

TSEPR6C4:BWZ:VLS

Contract No. W 33-038 ac-6264 (13233)

Wright Field, Dayton, Ohio

13 November 1944

By authority of the War Production Board the preference rating indicated has been assigned to the delivery on this purchase order or contract.

NAME: Gallowhur Chemical Company

ADDRESS: 250 East 43rd Street
New York, New York

Dear Sirs:

1. An order is hereby placed with you for the furnishing to the Government of the following supplies or services:

Item 1 - Thirty-three Thousand Three Hundred Thirty-four (33,334) Solar Still Kits, each complete and manufactured in accordance with Contractor's Drawing No. B-6 AAF-7, and with the requirements of Exhibit "A" attached hereto and hereby made a part hereof. Each kit shall consist of three (3) stills packed in one (1) aluminum container which is suitable to the procuring agency (A. E. Reference No. 45-3655).

At a total estimated price of $1,222,564.45.

1a. The first three (3) kits produced under this Contract shall be submitted to Engineering Division, Personal Equipment Laboratory, Emergency Rescue Branch, Wright Field for approval. The delivery of the remaining kits called for hereunder shall not be made prior to the receipt of such approval.

2. Except as otherwise expressly provided to the contrary herein, you are directed, upon your acceptance of this order (or upon its approval if required by paragraph 9) to proceed immediately to procure the necessary materials, and to commence the manufacture of the supplies or performance of the services, called for in paragraph 1, and to pursue such work with all diligence to the end that the supplies may be delivered or services performed at the earliest practicable date.

3. All applicable articles (other than the article "Termination at the option of the Government") now required by Federal Law, Executive Order, or War Department Procurement Regulations to be included in contracts for supplies or services of the kind herein described are incorporated herein by reference. There is also incorporated herein by reference the article prescribed by Paragraph 365.1-A of War Department Procurement Regulations in effect at the date of this Letter Contract.

4. By your acceptance hereof, you undertake without delay to enter into negotiations with the War Department looking to the execution of a definitive contract which will include all applicable articles then required by Federal Law, Executive Order and War Department Procurement Regulations to be included in contracts for supplies or services of the kind herein described. The definitive contract will also contain a detailed delivery schedule and prices, terms and conditions as agreed to by the parties, which may or may not be at variance with the provisions of this order. It is expected that such definitive contract will be placed with you prior to 15 January 1945

5. You are not authorized to expend or obligate in furtherance of your performance hereunder, more than $ 366,769.33 in the aggregate. Pending the execution of a definitive

Letter Contract (1-b)

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7. After your acceptance hereof, partial and advance payments, in accordance with regulations from time to time applicable, may be made to you upon your application.

8. Any claim arising under this order may be assigned subject to the terms of the Assignment of Claims Act of 1940 unless the subject matter of this order has been classified as secret, confidential or restricted, and any claims arising under this order shall not be subject to reduction or set off for any indebtedness of the assignor to the United States arising independently of this order.

9. Your acceptance of this order will be indicated by affixing your signature to this letter and two copies thereof and returning the executed original and two executed copies to the Contracting Officer not later than 22 November, 1944. Such acceptance will constitute this order a contract on the terms set forth herein, subject to the written approval of the Secretary of War or such individual as said Secretary may designate.

10. This instrument is authorized by and has been negotiated under the First War Powers Act, 1941, and Executive Order No. 9001.

11. See Paragraph 11 below.

12. See Paragraph 12 below.

UNITED STATES OF AMERICA

By Clifford F. Turner

CLIFFORD F. TURNER, CAPTAIN, AIR CORPS
Contracting Officer

ACCEPTED November 10, 1944

GALLOWHUR CHEMICAL COMPANY
(Contractor)

By Clifford F. Kaye
(Name, Official Title)
CLIFFORD F. KAYE
Exec. Vice-President

The Finance Officer, U.S.Army, Court Square Bldg., 2 Lafayette St., New York 7, N. Y. is designated as the officer to make payments in accordance with this contract.

The sums to be expended by the Government hereunder are chargeable to the following allotments, the available balances of which are sufficient to cover the same:

212/50705, 502-5150 P 110-09 S 33-038

11. The articles entitled "Reproduction and License Rights", PARO Form No. 1-B, dated 2/17/44 and "Patent Indemnity", PARO Form No. 11, as modified, dated 7/15/44, are hereby attached hereto and made a part hereof.

12. The estimated price does not include any royalties, and the Government does not agree to pay any royalties unless first approved by Royalty Adjustment Branch, AAF, ATSC.

F. O. B. Point New Rochelle, New York
Type Contract Contemplated Fixed Price
Authority for Purchase No. 211534
Priority Rating C/2 AA-1
Equipment Class 03-F
Classification None
Program MY 1945

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S 33-038 ac-6264

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Letter Contract (Sub)

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ARTICLE - REPRODUCTION AND LICENSE RIGHTS

The contractor agrees to, and by the execution of this contract does, grant, sell and convey to the Government, a non-exclusive, irrevocable and royalty-free right and license (a) to make, have made, use for all Governmental purposes and sell or otherwise dispose of in accordance with law, any and all **Solar Still Kits** of the type made or developed by the contractor in the performance of this contract and any modifications or improvements thereof hereafter made, under any and all patent or other rights now or hereafter owned or controlled by the contractor or under which the contractor has the right (without obligation to make payment to others) to grant licenses and (b) to practice and cause to be practiced, and to make, have made, use and sell articles embodying, any and all discoveries, inventions or improvements made, or first reduced to practice by the contractor, its representatives or employees in the performance of this contract, under any and all patent or other rights based upon such discoveries, inventions or improvements. The right and license hereby granted shall extend throughout the United States and its territories, and (insofar as the contractor has the right to grant such licenses therein) throughout all foreign countries, and shall remain in full force and effect during the full term of the patent or other rights under which the grant to the Government is or shall be made as herein set forth; except that as to the rights referred to in Clause (a) hereof, the license herein granted shall be limited in term to the duration of hostilities in any war in which the Government is now engaged plus six (6) months thereafter, provided that contracts entered into before the end of such period may be completed and any articles on hand at the end of such period may be used, sold or disposed of without restriction. The contractor agrees (1) to make to the Government, prior to final settlement under this contract, a complete disclosure of all discoveries, inventions and improvements made or first reduced to practice in the performance of this contract (2) to designate in writing which of said discoveries, inventions and improvements have been or will be covered by applications for Letters Patent filed or caused to be filed by the contractor (3) to furnish to the Government, upon request, copies of any applications for Letters Patent filed or caused to be filed by the contractor with respect to any such discoveries, inventions or improvements (4) to grant to the Secretary of War of his duly authorized representative, upon request, a power to inspect the papers involved in the prosecution of any such application for Letters Patent, (5) to execute or to procure the execution of all papers necessary to enable the Government to obtain (subject to a non-exclusive, royalty-free license retained by the contractor) Letters Patent covering such of said discoveries, inventions or improvements as are not covered or to be covered by applications for Letters Patent filed or caused to be filed by the contractor and (6) to execute or procure and deliver to the Government such confirmatory licenses as the Government may request under patents under which the Government becomes entitled to License Rights as herein provided.

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(AFR 11-30) W 33-038 ac-6264

PARO Form 1-B 2/17/44

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Higgins J-1(2)(r)(3) 10

DATE

December 15th, 1944

Lt. Colonel J. B. Martin

if and when the test is finally made, the one that we developed would happen to fill the bill. But we will have to hear something, one way or another, soon or we will discontinue this expense, as being frivoleus thing, from beginning to end, and our sincerety in purpose in trying to get something to save lives, has been abused.

I would appreciate it a lot, Colonel, if you can tell me anything definite about plans made for tests.

Sincerely yours,

HIGGINS INDUSTRIES, INC.

Andrew J. Higgins

Andrew J. Higgins, President

AJH/ld

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File

Letter Contract No. W 33-038 ac-6264

CALLOWHUR CHEMICAL COMPANY
New York, New York

6264

APPROVED: [illegible] 1944.
By Direction of the Secretary of War
under the Provisions of the First War
Powers Act, 1941, and Executive Order
9001, dated 27 December 1941.

K. B. WOLFE
Brigadier General, U. S. A.
Chief of Engineering and Procurement

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itive contract, each expenditure, order, subcontract or commitment made by you in furtherance of your performance hereunder, if for an amount that shall exceed either five per cent (5%) of the amount last above stated or $25,000.00, whichever is less, for tools, dies, jigs, fixtures, materials, supplies, parts, equipment, engineering assistance or reproduction or other license rights will be subject to written approval by the Contracting Officer. No contract, regardless of the amount thereof, shall be made by you with any other party for furnishing any of the completed or substantially completed articles, spare parts or work herein called for, without the written approval of the Contracting Officer as to sources.

6. **Termination**—(a) In case a definitive contract is not executed by the date specified in paragraph 4 hereof, (or any subsequent date at any time mutually agreed upon) because of the inability of the parties to agree upon a definitive contract, this order will terminate on the stated date or such subsequent date, as the case may be.

(b) The Government may at any time terminate this order in whole or in part for its convenience by giving you written notice of such termination.

(c) In the event of any termination pursuant to either paragraph 6 (a) or paragraph 6 (b) of this order, you and the Contracting Officer will attempt to agree by negotiation upon a settlement estimated by the parties to be the aggregate amount (less payments previously made to you) of the costs incurred by you in the performance of this order and the amounts paid or to be paid by you or for your account in settling with the approval of the Contracting Officer your obligations for commitments made in the performance of this order. In case of termination pursuant to paragraph 6 (b), such negotiated settlement may include a reasonable allowance for profit. Any such negotiated settlement shall be embodied in a Supplemental Agreement.

(d) If you and the Contracting Officer are not able to agree upon such a negotiated settlement within 90 days after the effective date of the termination (or within such longer period as at any time may be mutually agreed upon), the Government binds itself (without duplication of any of the following payments or of payments previously made) to reimburse you (1) for the costs incurred by you in the performance of this order, (2) for any amounts paid by you or for your account in settling with the approval of the Contracting Officer your obligations for commitments made in the performance of this order, and (3) for expenditures made and costs incurred by you with the approval of the Contracting Officer after the date of the termination for the protection of Government property and for other necessary purposes in connection with the settlement of this order. In lieu of reimbursing you for expenditures made by you in settling any of your obligations for commitments, the Government, in the discretion of the Contracting Officer, may assume such obligations or any of them. The total of such reimbursement (and of all payments previously made), together with the amount of any obligations assumed, shall not exceed the amount specified in the first sentence of paragraph 5. If such termination shall take place pursuant to paragraph 6 (a) of this order no allowance of profit will be made to you. If termination shall take place for the convenience of the Government pursuant to paragraph 6 (b) of this order, such allowance of profit will be made to you with respect to the work done by you prior to the effective date of the termination as the Contracting Officer may find to be reasonable under all the circumstances.

(e) The Government may permit you to sell or retain at prices or on terms agreed to by the Government any equipment, completed supplies, materials or work in process and the proceeds of any such sale, or such agreed prices, shall be paid or credited to the Government in such manner as the Contracting Officer may direct.

(f) Upon payment or reimbursement to you pursuant to paragraph 6 (c) or 6 (d) of this order, title to all equipment, completed supplies, work in process, materials, plans, information, and other things, for which you are so paid or reimbursed (except such property as may be sold or retained by you as above provided) will vest in the Government (if title thereto has not already become vested in the Government). The Government will also become entitled to any rights under any commitment which it may assume, or for the settlement of which it shall have reimbursed you.

(g) Any dispute which arises under this paragraph 6 regarding a matter of fact (including any dispute (1) as to whether termination has in fact taken place for the convenience of the Government or because of the inability of the parties to agree upon a definitive contract, or (2) as to the extent of any allowance of a profit in the event of a termination for the convenience of the Government) will be treated and resolved as a dispute under the "Disputes" article incorporated in this order by reference.

(h) Partial payments on account of any amount admittedly due to you pursuant to this paragraph 6 may be made by the Government at any time in the discretion of the Contracting Officer.

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ARTICLE - Patent Indemnity.

The Contractor agrees to indemnify the Government, its officers, agents, servants and employees, against liability including costs and expenses for infringement upon any Letters Patent of the United States (except Letters Patent issued upon an application which is now or may hereafter be ordered to be kept secret under the provisions of the Act of October 6, 1917, as amended, 35 U.S.C. 42) occurring in the performance of this contract or in the use or disposal by or for the Government of any article or thing whose delivery the Government accepts under this contract, provided that this Article shall not apply to discoveries, inventions or improvements made or first reduced to practice by the Contractor, its representatives or employees in the performance of this contract and embodied in the items procured hereunder.

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AAFMC-16-A-WF-6-18-42-500M sets of 2

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Dr Filter

ROUTINE

TELEGRAM

OFFICIAL BUSINESS—GOVERNMENT RATES

FROM: WAR DEPARTMENT

~~BUREAU~~ KNUDSEN, ATSC

E.S.FETCHER,JR:pjc:Ext.2-0139 (TSEAL-5E)

6 January 1945 10:30 a.m.

HIGGINS INDUSTRIES, INC.,
WEST END LABORATORIES,
NEW ORLEANS,LOUISIANA.

W. C. WARNER,
Lt. Colonel, Air Corps.

ATTENTION: MR. A. B. USHAKOFF

TSEAL-5E-1-195. CONFIRMING TELEPHONE CONVERSATION 4 JANUARY 1944 REQUEST THAT STILLS FOR SERVICE TEST BE AT EGLIN FIELD, FLORIDA ON MORNING 8 JANUARY 1945. IT WILL BE ACCEPTABLE FOR REPRESENTATIVE TO BE PRESENT DURING FIRST DAYS OF TEST SIGNED ENGINEERING DIVISION

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Authority for Purchase No. 411648, Solar Stills

TSRPH TSBPR4K 1-20-45

1. In accordance with telephone instructions this date from Colonel D. C. Swatland, procurement action is being withheld on subject Authority for Purchase until report is received on tests of the Higgins Solar Stills from Eglin Field.

2. For your information, subject Authority for Purchase covers total present requirements and calls for 347,678 kits of three (3) stills each to be made in accordance with requirements of tentative AAF Specification and Gallowhur Chemical Company drawings B-6 and AAF-7.

3. The Gallowhur still is the only approved article and patent rights were obtained with the Letter Contract to Gallowhur Chemical Company for 33,334 kits of three (3) stills each by Chief, Engineering and Procurement on 21 December 1944.

4. On present procurement invitations to bid were mailed out 19 January 1945 to a total of twenty-one recommended sources, which included Higgins Industries.

5. Authority for above procurements was contained in Addendum 2 to TI-1628 dated 13 September 1944.

R. R. CLARKSON
Major, Air Corps
Chief, Miscellaneous Branch,
Aero Equipment Sub-Section.

(Maj.R.R.Clarkson:gvb - 2-8214)

cc: TSBPR4
TSBPR4B

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ATSC Form No. 43 (16 SEP 44)

28.

IN REPLY ADDRESS BOTH [illegible] AND RE-FER TO ATTENTION OF FOLLOWING OFFICE SYMBOL: TSEMO (TSEAL-5R)

AIR INSPECTOR
MGT. CONTROL
CHIEF OF ADMN.
SPECIAL STAFF
CHIEF, ENG. & PROC.
CHIEF, SUPPLY & MAINT
PERS. & BASE SERV. DIV.
MAINT. DIV.
SUPPLY DIV.
ENGINEERING DIV.
PROCUREMENT DIV.
READJUST DIV.
OTHER

xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
Hdqs., Air Technical Service Command

R.S.Fetcher,Jr:pjc:Ext. 20139

24 January 1945

AAF Board Project J-284, Still, Solar, Floating - Supplement.

635

The President,
AAF Board,
Orlando, Florida.
Attention: Equipment Section,
Lt. Colonel L. H. Roth.

1. Further information is submitted concerning the solar stills made by Higgins Industries to be tested under subject project.

a. The construction is very much lighter and simpler than the Higgins stills tested in June 1944. The packed bulk of the present stills is approximately 50 to 55 cubic inches instead of 160 cubic inches for the earlier models. This reduction in volume brings these stills within the "usable" range, especially as the yield is expected to be 25 to 50% greater than the Gallowhur stills.

b. In reducing the bulk, materials and construction have been necessarily considerably lightened. (The vinyl envelope is approximately 0.005 inches thick). Service tests should show whether or not the construction is too light, overall, or only in specific locations.

c. The excess sea water drain consists of a cloth disc at the bottom of the still. This permits water to flow through; but, because of the surface tension of water, air does not leak out at the operating pressure of the still. The service test will determine whether or not, with the still partly deflated, sea water will flow into the still and render it dangerously heavy.

d. Certain minor faults of the service test models received at this office were pointed out to the manufacturer; some of these may have been corrected before the samples were delivered to the Air Technical Service Command. The more important of these defects are the following:

1) Plastic sleeves at the base of the sea water [illegible] broken.

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Ltr. to AAF Board dtd 24 Jan 45, Subj: "AAF Board Project 31234, Still, Solar, Floating - Supplement".

(2) The heat test (160° F. for 48 hours) showed serious bonding at the fresh water reservoir; and the fresh water drain tube was badly distorted making it difficult to use. The latter condition could be improved by more careful packing.

(3) Aluminum grommets were used for tying; these would corrode rapidly.

2. In addition to the Higgins stills delivered for service test, the following stills and accessories were forwarded for comment (or inclusion in the test if desirable).

a. Two Gallowhur stills, Nos. 154 and 156. These have a new construction of pad, using double sponges sealed to a Nylon screen. The top inside vinyl surface is treated with silica gel so as to be wetable.

b. Recently designed clips and hooks for the above.

c. Gallowhur still No. 127, very similar to those tested in June.

d. Filling scoop for Gallowhur stills.

e. Higgins stills No. 9 which had been exposed to 160° F. for 48 hours.

f. Photostat of draft of instructions. These include method of orienting stills in vertical angle.

3. It is important that the above material be returned to this office for use as samples for potential manufacturers. It is requested that this be done as soon as possible. It is also requested that all extra stills, Higgins and Gallowhur, which have been furnished by this office be returned to it at the completion of the test.

4. Every effort had been made to provide production model stills for this test. These were not available, however.

By direction:

CHARLES Y. SMITH
Lt. Colonel, Air Corps
Chief, Engineering Standards
Engineering Division

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ATSC Form No. 10-3
(17 Oct 44)

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ROUTING AND RECORD SHEET AIR TECHNICAL SERVICE COMMAND

Use this form for inter-office correspondence within headquarters.

Use authorized office symbols to designate addressor and addressee.

Place initials of dictator and typist, telephone number and location to right of signature.

Use entire width of sheet, both sides.

Separate comments by horizontal lines across page.

SUBJECT: Authority for Purchase No. 411648, Solar Stills

TO: TSBPR4K
Att: Major Clarkson

FROM: TSBPR4
Lt.Col.O.E.Mohler:emb
Tel. 2-2254

DATE: 6 Feb. 1945 COMMENT NO. 1

1. It is requested that you submit any information you may have on the status of the tests on the Higgins Solar Still; also, your recommendations on placing part of this business pending results of the tests on Higgins Solar Stills.

ORVILLE E. MOHLER
Lt. Colonel, Air Corps
Chief, Aeronautical
Equipment Sub-Section
Production Section.

TSBPR4
Lt. Col. Mohler

TSBPR4K

2-10-45

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1. First hand information received early this week from Lt. George Llano from Eglin Field, who is conducting tests on the Higgins Still in comparison with the Gallowhur Still, is that he anticipated completion of tests in approximately twenty (20) days providing the weather conditions are satisfactory. Lt. Llano would express no definite opinion on the Higgins Still other than that results of tests so far look encouraging but not sufficiently satisfactory to justify approval.

2. In view of the somewhat indefinite time element, it is the recommendation of this office that at least half the present procurement be placed on the Gallowhur Still as soon as sources are established other than the Gallowhur Company. In the event that the tests on the Higgins Still are successful, and the item approved, the remainder of the procurement could be placed for the Higgins Still, and should the Higgins Still prove superior it would be possible to convert contracts already placed on the Gallowhur still to the Higgins type since it is understood that similar materials are used in the construction. This, of course, is also assuming that Higgins would release any patent rights to the Government.

R. R. CLARKSON
Major, Air Corps
Chief, Miscellaneous Branch.
(Maj.R.R.Clarkson:gvb - 2-3214)

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AAF Form 10-20-44-1 [illegible] CONTINUE TO COMMENT NO.

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ROUTING AND RECORD SHEET

AIR TECHNICAL SERVICE COMMAND

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Use entire width of sheet, both sides. Number all comments consecutively. Separate comments by horizontal lines across page.

SUBJECT: Authority for Purchase No. 41548, Solar Stills

TO: TSBPR4 ATTN: Major Clarkson

FROM: TSBPR4, Lt. Col. C. E. Mohler; DATE: 10 Feb. 45; COMMENT NO. 3

RR Tel. 2-3254

1. I discussed the release of part of the requirements on the Gallowhur type Still with Colonel Scotland. He agrees with me that we should make procurement on a portion of the present requirements for the Solar Stills so it is requested that you proceed accordingly. However, it is desired that a reasonable quantity of requirements be left unprocured pending the results of the Higgins Still. I also suggest that effort be made to get Higgins to quote on the Gallowhur type Still pending the results of their test. Let me know the action you have taken in regards to this matter.

CHARLES E. MOHLER
Lt. Colonel, Air Corps
Chief, Aeronautical Equipment
Sub-Section, Production Section

TSBPR4 TSHPR4K 2-27-45 4

Attn: Lt. Col. Mohler

1. Recommendations of award of contracts are being made on Gallowhur Stills in the following quantities and to the following sources:

a. 50,000 kits to S. Buchsbaum Company, Chicago, Illinois

b. 50,000 kits to Watertight Slide Fastener Corporation, New York, N. Y..

2. Since the original procurement calls for 347,678 kits, 247,678 will remain unprocured and will await the report now being conducted on the Higgins Still.

3. Copy of Minutes of G.F.E. Meeting held to determine partial award of procurement is attached.

R. R. CLARKSON
Major, Air Corps
Chief, Miscellaneous Branch.

Attach.
Cy. GFE Meeting Minutes

(Lt. Weaver:gvb - 2-3227)

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AF Form 19 (16 SEP 44)

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[redacted]
Hdqs., Air Technical Service Command

K.E.Fetcher,Jr.pjc,Ext. 2-0139

12 February 1945

IS DOUBLE ALPHA 9-7TH COMMUNICATION AND IN-VESTIGATION OR DEP. TMENT R OF FOLLOWING OFFICE SYMBOL: AND INSPECTOR (TSEAI-5E)

MAT. CONTROL

CHIEF OF ADMIN

SPECIAL STAFF

CHIEF, ENG. & PROC.

CHIEF, SUPPLY & MAINT.

FIRE & SAFE GUARD DIV.

MAINT. DIV.

SUPPLY DIV.

ENGINEERING DIV.

PROCUREMENT DIV.

MEDAIST DIV.

OTHER

Service Test of Solar Stills,
AAF Board Project 4.224.

Commanding General,
AAF Proving Ground Command,
Army Air Base,
Eglin Field, Florida.

Attention: Proof Division.

1. The cooperation of your Command in sending the Test Officer of subject test, Lt. George Llano, to this Command for consultation is appreciated. The subject was reviewed in detail by this officerwith the Chief and Deputy Chief of the Engineering Division, the Chief of the Personal Equipment Laboratory and the Project Engineer; it was also reviewed with representatives of the Gallowhur Chemical Corporation and of Higgins Industries. During the discussions, questions which have arisen in both your Command and this, were cleared up. The test procedure proposed by the Test officer was considered good.

2. It was evident that one of several reasons for the incompleteness of the test results was the uncertain status of the Gallowhur stills tested. When reactivation of the solar still project was requested of the AAF Board, 11 November 1944, it was expected that complete production models of Gallowhur stills would be available as a basis for comparison of the Higgins stills. However, because ofprocurement difficulties, they were not, and the AAF Board was advised of this in a letter dated 16 January 1945, a copy of which was sent to your Command. As a substitute, it was considered that older, hand-made samples, such as had been tested and approved in June 1944, or somewhat modified ones would be suitable. This did not prove to be the case, especially as there were but few of these available. Because it was desirable to test a more fully developed still than the hand-made samples, this Command arranged to provide your Command with six (6) stills produced by Gallowhur for the Bureau of Aeronautics. These were turned over to the Test Officer on 5 February 1945. They differ from the stills being procured for the AAF in several respects, the more important of which are the following:

Copy to: AAF Board, Orlando, Florida.

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Ltr. to: CG, [illegible] dtd 12 February 1946. Subj: "Service Test of Solar Stills, AAF Board Project [illegible]".

a. The stills are packed individually in vinyl bags instead of in sets of three in a metal container. (This vinyl bag is understood to be provisional with the Bureau of Aeronautics, which plans to use a more compact metal container as soon as possible). Because of this individual, flexible, packaging these stills are more bulky than those for the AAF; the bulk of three of these, packed, is specified as not greater than 165 cubic inches; the maximum weight is specified as 69 ounces.

b. The AAF specification requires special treatment of the stills to reduce taste. The Bureau of Aeronautics stills provided have not been so treated; so they should be thoroughly washed before use, or allowance made for a stronger "plastic" taste than is permitted in the AAF stills.

c. Each kit of three AAF stills will be provided with a complete, illustrated instruction booklet as recommended in the Board report on the previous test. Unfortunately, copies of these are not available at present. However, a photostatic copy of a rough draft of the booklet has been forwarded to your Command for general guidance (See [illegible] letter referenced above). The instructions in each Bureau of Aeronautics still are perhaps adequate in the main, but they are not as direct and easy to follow as the booklet now being printed. Furthermore, they refer only to the operation of a single still, whereas the AAF booklet considers the use of groups of three and six stills.

d. In addition to the booklet, AAF stills will have printed on one end a summary of necessary instructions in case the booklet is lost. An arrow printed on each end will assist in orientation of the still. The Bureau of Aeronautics stills do not have these markings.

e. An effective and safe snap hook is to be provided in the AAF stills and also more satisfactory towlines than those included in the Bureau of Aeronautics version. Six connector clips, two towlines with hooks, and one towline without hook will be provided in each kit of three stills. Samples have been forwarded your Command. Two towlines with hooks are furnished with each Bureau of Aeronautics still.

f. It is not known to what extent the Bureau of Aeronautics stills have been Government inspected or tested at the factory. A hurried examination of one of them in this office showed no obvious faults other than those mentioned above.

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Ltr. to CO, AAFTOC dtd 12 February 1945, Subj: "Service Test of Solar Stills, AAF Board Project J1284".

3. For your information, the official designation of the so-called Callendar stills is Kit, Sea Water Distillation, Type LL-1. The kit comprises three stills, accessories, instructions and container.

4. Information has just been received that stills more nearly like production models may be available in the immediate future. These will be forwarded for inclusion in the test if possible. These will include stills which have been treated to reduce taste.

5. The attitude of this office toward the service tests is that an experimental still (the Higgins still) is being compared to an approved, essentially standard, still; that the purpose of the tests is to determine whether or not the experimental still is superior to the present standard, and in what degree. For your information, the decision reached by your Command and by higher echelons will determine the relative numbers of each type of still procured. For example, if the stills are judged approximately equivalent, the relative numbers will be determined largely on a cost and rate of production basis.

For the Director:

HARLAN Y. SMITH
Lt. Colonel, Air Corps,
Chief, Engineering Standards,
Service Engineering Section,
Engineering Division.

(AIR U-30)

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DWD W UARD NR164 WD

BASE SIGNAL
PATTERSON

FROM GRADNER CGJ AFPGC EGLINFIELD FLA 22[illegible]

TO DIRECTOR AIR TECHNICAL SERVICE COMMAND WRIGHT FIELD [illegible]

GREENWICH [illegible] GMT

WD NO 180 ATTN TSENG SUMMARY OF TEST OF HIGGINS AND GALLOWHUR NAVY SOLAR STILLS INSCATES THAT THE HIGGINS STILL PRODUCES ABOUT TWO POINT FIVE TIMES AS MUCH POTABLE WATER PER UNIT OF PACKED VOLUME AS TGE GALLOW UR STILL STOP HIGGINS STILL IS SIMPLER TO KEEP IN OPERATION STOP THE HIGGINS STIL IS CONSIDERED SUTAPLE FOR USE ON BASISOF ONE STILL PER MAN RALIPES OLIFE RAFTS END

ON ALL TYPES OF LIFE RAFTS

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AAFMC-265-WF-2-26-45-500M

INTER-OFFICE MEMORANDUM

ARMY AIR FORCES
MATERIEL CENTER

Hdqs., Air Technical Service Command, Wright Field, Dayton, Ohio — E.S.Fetcher, Jr:pjc:Ext. 2-0139

Date 26 February 1945

TO: TSBPR-4K

SUBJECT: Higgins Solar Stills.

1. A telegram has been received by this office to the effect that the Higgins stills which have been under test by the Proving Ground Command have been found suitable for use in all life rafts; that they produce about 2-1/2 times as much potable water per unit of packed volume as the Gallowhur stills; and that they are simpler to keep in operation. The basis of issue recommended by the Proving Ground Command is one still per man. This would be the same basis as at present; i. e. six stills per multiplace raft.

2. Engineering data are now being prepared by this office. They will be forwarded as soon as possible; perhaps by 1 March 1945.

3. The above information is submitted in order that your Office may be kept fully informed, and to indicate that the Higgins still has been approved from an engineering standpoint.

Paul H. Kemmer
P. H. KEMMER,
Colonel, Air Corps,
Chief, Airc. & Phys. Req. Sub-Div.,
Engineering Division.

Received by TSBPR4K-2
28 Feb. 1945

Signature

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Date: 24 February 1945.

Subject: Award of Procurement on Kits, Solar Stills Quantity, 347,678 units.

Authority: A.F.P. No. 411648.

Sources and Bids Submitted: In response to 29 invitations to bid, four bids were received:

(1) Gallowhur Chemical Corp., New York, N. Y.
Price, $31.44 per unit. Bid on entire quantity.

(2) Robert Vincent, Inc., New York, N. Y.
Price, $49.00 per unit on 25,000; $48.00 on 50,000, and $46.00 on 100,000.

(3) S. Buchsbaum & Co., Chicago, Ill.
Price, $36.18 per unit on 50,000.

(4) Watertight Slide Fastener Corp., New York, N. Y.
Price, $45.51 on 50,000.

Present at Meeting:
Major R. R. Clarkson
Captain C. F. Turner
Captain J. B. Mach
Lt. T. H. Lehman
Lt. G. W. Weaver
Mr. E. H. Perry
Mr. J. M. Tatum

Factual Data:

a. Delivery schedule in accordance with A.F.P.:

March,	1945	 38,340
April,	"	 40,000
May,	"	 50,000
June,	"	 50,000
July,	"	 50,000
August,	"	 50,000
Sept.,	"	 50,000
Oct.,	"	 19,000

b. A Routing and Record Sheet dated 12 February 1945 from Orville E. Mohler, Lt. Colonel, Air Corps, Chief, Aeronautical Equipment Sub-Section, requested that a portion of present requirement be procured and that a reasonable quantity of requirements be left unprocured pending the results of test on the Higgins Still now being conducted.

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c. Gallowhur Chemical Corp. and S. Buchsbaum & Co. were recommended as capable of handling procurement by Resources Control Section. A survey was made of Watertight Slide Fastener Corp. and Robert-Vincent, Inc., by Eastern District at the request of Resources Control Section to determine their ability to handle procurement. Report on Watertight Slide Fastener was satisfactory. Watertight Slide Fastener Corp. was also recommended by U. S. Rubber Co.

d. S. Buchsbaum and Watertight Slide Fastener Corp. are listed with and recommended by S.W.P.C.

Recommendation of Award: Gallowhur Chemical Company was not considered for award for two reasons:

1. Their inability to deliver until September because of their present contract, and,
2. The weak financial condition of their corporation.

Robert Vincent, Inc. was not considered because of:

1. The unsatisfactory report from Resources Control, and poor record of performance on previous contracts.

Awards were recommended to the two remaining sources as follows:

50,000 kits to S. Buchsbaum & Co.
50,000 kits to Watertight Slide Fastener Corp.

A quantity of 247,678 still remains unprocured until report of test of Higgins Still is received.

Chairman,
G.F.E. Committee PRClarkson
Major R. R. Clarkson

Unit Chief JBmach
Captain J. B. Mach

Executive
for Procurement GFTurner
Captain G. F. Turner

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ATSC Form No. 10-507
(12 Dec 44)

ROUTING SLIP

TO: OFFICE AND INDIVIDUAL IN TURN			Date Forwarded
	SYMBOL	NAME	
1	TSBPR4	Lt.Col. Mohler	3/6/45
2			
3			

FOR: FOLLOWING ACTION AS CHECKED

Approval	Coordination	Investigation
Necessary Action	Information	Prep. of Reply
Conference	Note and File	Recommendations
Compliance	Note and Return	Signature

REMARKS

With reference to Higgins Still, Eglin Field has reported informally that the Higgins Still is a better piece of equipment than the Gallowhur type.

Eglin Field are writing an informal report to the Lab. As soon as this is received from the Lab. they will release Higgins Still for production. They should have approval on this item within the next week to ten days.

FROM: OR TO: WHEN FOLDED HERE FOR RETURN

SYMBOL	NAME	PHONE
TSbPR4D	Lt. Colonel R. B. Clevering	2-1126

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Solar stills
(Higgins)
Pers Equip Lab.

TSEAL-5E:EEF:pjc:Ext. 2-0139

12 March 1945

TSEAL-5E

Higgins Industries, Inc.,
521 City Park Avenue,
New Orleans, Louisiana.
Attention: Mr. A. E. Ushakoff.

Gentlemen:

Information is requested as to whether or not your Company desires to conduct further developments of solar stills for life rafts with the assistance of the Air Technical Service Command. If so, it is recommended that the proposed course of developments be outlined in as much detail as feasible, that the physical and structural characteristics of the proposed stills be set forth, that unit cost on the basis of 20 experimental stills be estimated, and that this information be forwarded to this Command.

It is the policy of this Command under usual circumstances to consider proprietary information as confidential with respect to other manufacturers, unless permission is granted by the manufacturer to disclose it.

Your interest and cooperation are appreciated.

Very truly yours,

W. C. WARNER,
Lt. Colonel, Air Corps,
Chief, Personal Equipment Lab.,
Engineering Division.

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TSEAL-5E

TSEAL-5E:EBF:pjc:Ext. 2-0139

14 March 1945

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Higgins Industries, Inc.,
521 City Park Avenue ,
New Orleans, Louisiana.
Attention: Mr. A. E. Ushakoff.

Gentlemen:

The pertinent decisions reached and matters discussed during conferences concerning solar stills are given below. The conferences were held during the daytime, 6 and 7 March 1945 between Mr. A. E. Ushakoff and Mr. Thomas Winstead of your Company, and Dr. E. S. Fetcher representing the Air Technical Service Command, at 1732 Palmer Avenue, New Orleans, the residence of Mr. Ushakoff.

The purpose of the conference was outlined after the general results of the Proving Ground Command test had been presented. It was stated by the representative of this Command that it is the policy of the Command to coordinate requirements and tests for new equipment with organizations concerned with development of that equipment and potential manufacturers of it. It was further stated that, although no directive had been received by this Command to procure any other solar still than the Type LA-1 Sea Water Distillation Kit, coordination at present of requirements and tests for the still made by your Company might expedite procurements in the event its procurement were decided upon. For the same reason it was suggested that detailed, dimensional drawings and materials lists be forwarded to this Command. Your representatives stated that these would be sent.

The general nature and purpose of AAF specifications was outlined with especial reference to their relations to engineering, procurement, production, quality control, and the manufacturer. It was stated by your representatives that your Company would probably wish to control the quality of stills which might be made by other manufacturers. It was pointed out that such control would be the responsibility of the procuring agency, but that the representative of this Command was not informed as to whether or not any other arrangements could be made. It was indicated by your representatives that it probably would be the policy

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Gen Eng

Ltr. to Higgins Industries, Inc. dtd. 14 March 1945, Re: Solar Stills.

of your Company in the event of procurement, to cooperate fully with other manufacturers after appropriate agreements had been made. The representative of this Command evinced a desire to visit the shop where stills were made as a matter of general interest to him as project engineer and in order more fully to understand the procedures and problems connected with the construction of the still. His request was refused and no explanation was given. It was concluded that Mr. Uebelhoff's residence was chosen as the meeting place in order to prevent the representative of this Command from seeing the stills under construction.

Two copies of a draft of a tentative specification titled Kit; Sea Water Distillation, Type XLL-2, were furnished your representatives. (It is suggested that the draft be dated 26 February for purposes of identification). This draft was the basis of the technical discussions. (Section numbers refer to those adopted during the conferences).

Section E-1a (1). Talcum powder as now used cannot be removed readily, requiring two or three days of use of the still before it is completely removed. The possibility of making the talc wetable was suggested, and the possibilities of the use of other materials or of dispensing with anti-bonding agents was discussed. Your representatives agreed to investigate the matter.

Sections E-2b and E-3d (2). The numbers of leaks which it was permissable to repair was stated to have been selected rather arbitrarily. No change was suggested by your representatives on the basis of their experience, who stated that because of molded construction and methods of sealing leaks were more unlikely than with the use of callendered sheeting.

Section E-2c. It was agreed that this requirement should be tested for its efficacy, and with a view to simplification.

Section E-3a. Various Vinylite formulas were discussed and their properties compared. The advisability of making the envelope wetable was also discussed and it was agreed that rigidly controlled experiments should be carried out.

Section E-3c. It was agreed that a baffle would be added. It was also agreed that a requirement for the rate of sea water feed would be added; namely that 1.00 ± 0.20 liters of water would empty from the reservoir in 1.5 hours.

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Ltr. to Higgins Industries, Inc. dtd. 14 March 1945, Re: Solar Stills.

Section E-3d. The capacity of the ballast tube should be 2.50 ± 0.10 liters. Several of those tested by the Proving Ground Command were stated to have ballast tubes of considerably lower capacity than this, causing excessive rolling of the stills. Improved methods of construction were outlined by your representatives, which are expected to result in a lighter, stronger, and more uniform tube.

Section E-3d (3). This section, as renumbered, will be reworded to conform to present design which consists of a vinyl annulus extending from the inside wall of the envelope to the sea water drain, to which the ballast tube is attached.

Sections E-3d (1) and E-3f. The wall thickness of these tubes was discussed with special reference to kinking, and several methods of preventing occlusion of the lumen were proposed and are to be tested.

Section E-3e. A section will be added concerning the uniformity of weave, which is extremely important. A test for the porosity of the fabric was agreed upon and will also be added as well as visual inspection of each completed salt water drain.

Sections E-3e(3), E-4a, and E-5a. The representative of this Command agreed to investigate the deterioration of materials due to the action of sea water and sunlight, and mildew and, if possible, advise your Company of those materials and/or preventatives most suitable. It would be desirable to incorporate tests for these effects in the specification.

Section E-3f (2). It was pointed out that the tube closure had not been entirely satisfactory; that it should be more reliable, especially in view of probable difficulties in securing it above the water line with improved towline attachment construction. A very course tapered-thread was one of the means suggested to overcome this difficulty. It was agreed that the representative of this Command would clarify the situation concerning the internal diameters of the pump hose fittings.

Section E-3g. It is probable that a new type of construction will eliminate the use of grommets, in which case this section would be revised.

Section E-3h. It was agreed that the representative of this Command would attempt to inform your Company of suitable marking inks. It was also agreed to leave present markings as they now are until a later date.

Section E-4a. It was agreed that if possible this material should be specified more exactly, and that your Company would conduct tests to determine wetability.

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Ltr. to Higgins Industries, Inc. dtd. 14 March 1945, Re: Solar Stills.

Section E-5a. One section was added requiring the inclusion of a 20 foot towline with each kit, and another requiring the inclusion of towline spring clips. It was emphasized that these must be simple, perfectly secure, and foolproof. It was suggested that the clip used on the Type LL-1 kit might be adapted, and it was agreed that a sample would be forwarded your Company. The properties of several towlines were discussed at length, including the possible use of a vinyl coated cotton or Nylon line. Types of tests applicable to the conditions of use of the lines were discussed, and it was agreed that both your Company and this Command would investigate these, and that samples would be exchanged.

Section E-5b. It was agreed that the fresh water reservoir should have a capacity of not less than 500 ml. and that a leak test similar to that for the ballast tube would be added.

Section E-5c. It was agreed that samples of the transparent mending tape used by your Company would be forwarded to this Command, with the name of the supplier and the part number.

Section E-5d. It was stated by the representative of this Command that in the event of a procurement it was likely that operating instructions prepared by this Command and coordinated with your Company would be furnished as Government Furnished Equipment. Present instructions and operation were reviewed.

E-6a. It was stated that the usual rolled seam of a can is not considered as being sharp. The desirability of, and methods for making the container waterproof were discussed. These are to be investigated further.

Section F-6a. More rapid tests to determine leakage were discussed, and the possibility of the use of special gases with indicators was considered.

Your interest and cooperation are appreciated.

Very truly yours,

W. C. WARNER,
Lt. Colonel, Air Corps,
Chief, Personal Equipment Lab.,
Engineering Division.

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AFDRA-SC
16 March 1946

3.040

Maj F C Oakley/sam-3831

Test of Still, Solar, Floating, Vinylite Bag Type

Director
AAF Air Technical Service Command
Wright Field, Dayton, Ohio

Attention: Chief of Administration - TSTXI

1. Reference is made to Teletype No. 722, dated 13 March 1946, from Eglin Field to the President, AAF Board, subject as above, copy attached.

2. The conclusions and recommendations contained in reference teletype are approved by this Headquarters with the following exceptions:

a. Paragraph C of Recommendations. All multi-place life rafts will be equipped, when Higgins stills are used, with six (6) Higgins Solar Stills (to be packaged three (3) stills per container), six (6) Desalting Kits, one (1) rain catching device per raft (already available in rafts), and one (1) can of water (AN-W-B). It is the understanding of this Headquarters that the volume requirements for three (3) Gallowhur stills is 192 cubic inches and for three (3) new Higgins stills, 170 cubic inches. This will give a net increase in the raft compartment of 26 cubic inches. However, if packing and stowing space become critical, this Headquarters would agree to removing the one can of water to compensate for the additional 26 cubic inches.

b. Paragraph E of Recommendations. This Headquarters concurs in the desirability of adding one (1) Solar Still to the presently available one (1) Desalting Kit in one man life rafts. However, it is doubtful if one (1) still can be added to these rafts in their present form. Still is to be added only if feasible. In any event, one (1) Desalting Kit is to be included.

3. Based on the above approval, teletype, dated 15 March 1946, copy attached, was sent to your Command directing standardization of the Higgins still after recommended changes have been made and the placing of the Gallowhur still in sub-standard classification.

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4. It is further directed that a study be made to determine if it is possible to include subject still in one man life rafts and if it is not possible, that action be taken to re-design our present one man life raft packs to incorporate all presently standard equipment in the raft (this includes one (1) Desalting Kit) plus one (1) Solar Still). Priority 2-B is assigned to this work.

BY COMMAND OF GENERAL ARNOLD:

2 Incls
1. Cy TWX No. 222, 18 Mar 45
2. Cy TWX, 18 Mar 45, fm AAF to ATSC

D. C. CHUBLEDAY
Colonel, Air Corps
Chief, Engineering Br., Material Div.
Office, Assistant Chief of Air Staff,
Material and Services

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FM01

AAST

NOV 9 CARF NR ZO WD

FM/VALPO1/ GANUMEN CG AFFGC ROLLNFLD FLA 1321362

TO/ACTION/ PRESIDENT AAF BOARD ORLANDO FLA

INFO CO AAF/ATTN LT COL R O TICKENS/ WASH 25 D C

GENO

FYI NO 222 FD THE FOLWNG CONCLUSIONS AND RECOMMENDATIONS ON SERVICE TEST SEVEN DASH FOUR FIVE DASH TWO YEAR OF STILL SOLAR FLOATING VINYLITE BAG TYPE - SUPPLEMENT ARE SUBMITTED AT THE REQUEST OF THE AAF BOARD ORLANDO FLA

CONCLUSIONS -- IT IS CONCLUDED THAT COLON

A. THE HIGGINS STILL IS SATISFACTORY FOR ITS PURPOSE AND IS SUPERIOR TO THE GALLONHUR STILL IN THE FOLWNG IMPORTANT RESPECTS COLON

PAREN 1 PARN A SINGLE HIGGINS STILL WILL PRODUCE APPROXIMATELY A QUART OF POTABLE WATER ON A CLEAR DAY AT SEVEN FIVE DEGREES FAHRENHEIT AIR TEMPERATURE PAREN FEBRUARY TWO FIVE DEGREES FOUR FIVE MINUTES NORTH LATITUDE PAREN A GALLONHUR STILL WILL PRODUCE APPROXIMATELY A PINT OF WATER UNDER THESE CONDITIONS.

PAREN 2 PAREN THE HIGGINS STILL PRODUCES TWO POINT FIVE TIMES AS MUCH POTABLE WATER PER UNIT PACKED VOLUME AS THE GALLONHUR STILL.

PAREN 3 PAREN THE OPERATING PROCEDURE OF THE HIGGINS STILL IS SIMPLER REQUIRES LESS ATTENTION AND DOES NOT INTERFERE WITH THE OTHER ACTIVITIES NECESSARY ON A LIFE RAFT.

B. THE STILLS ARE CAPABLE OF PERFORMING SATISFACTORILY IN SURFACE WINDS UP TO FIVE MILES PER HOUR AND IN TEN FOOT WAVES

C. FOR THE MOST EFFICIENT USE OF EITHER STILL OPERATING INSTRUCTIONS MUST

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RECOMMENDATIONS -- IT IS RECOMMENDED THAT COLON

A. THE IMPROVED HIGGINS SOLAR STILL AS DEFINED IN THE DESCRIPTION PAREN INCLOSURE SIX PAREN BE CONSIDERED FOR STANDARDIZATION AFTER THE FOLLOWING CHANGES HAVE BEEN MADE COLON

PAREN 1 PAREN THERE WILL BE INCORPORATED INTO THE SALT WATER CUP OF THE HIGGINS SOLAR STILL A BAFFLE OF VINYLITE TO REDUCE LOSS OF SALT WATER IN HIGH SEAS.

PAREN 2 PAREN THE ALUMINUM CONTAINERS SUBMITTED WILL BE SEALED TO ASSURE A WATERPROOF PACKAGE.

PAREN 3 PAREN THE STILL WILL BE TREATED WITH TALC POWDER INSIDE AND OUT AS SUBMITTED SO AS TO PREVENT ADHERENCE OF THE PLASTIC TO ITSELF OR TO THE CONTAINER DURING STORAGE.

PAREN 4 PAREN THE STILLS WILL BE PACKED WITHOUT TENSION TO AVOID THE FORMATION OF CREASED CRACKS OR TEARS IN THE VINYL RESIN SHEETING.

. PAREN 5 PAREN THE ATTACHING LINES WILL BE OF TWISTED COTTON CORD OF NOT LESS THAN SEVEN FIVE POUNDS TENSILE STRENGTH COLON THAT THE SNAP HOOKS BE MADE OF NON-CORRODING METAL.

PAREN 6 PAREN MILDEW-PROOFING WILL BE ACCOMPLISHED AS SOON AS A SATISFACTORY METHOD IS DEVELOPED.

B. THERE BE INCLUDED IN THE RAFT STORES WITH EVERY THREE STILLS ONE EXTRA LINE TWO ZERO FEET LONG WITH A NON-CORRODING SNAP HOOK ATTACHED TO EACH END.

C. ALL MULTIPLACE LIFE RAFTS BE EQUIPPED WITH ONE SOLAR STILL AND TWO DESALTING KITS PER MAN AND ONE RAIN - CATCHING DEVICE PER RAFT. PAREN SERVICE TEST THREE DASH FOUR FOUR DASH SIX FOUR PAREN

D. ONE-MAN LIFE RAFTS BE EQUIPPED WITH ONE DESALTING KIT AND ONE SOLAR STILL PAREN SERVICE TEST THREE DASH FOUR FOUR DASH SIX FOUR PAREN END.

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OUTGOING UNCLASSIFIED MESSAGE

PRECEDENCE	DATE	FROM (OFFICE OF ORIGIN)
Routine	15 March 1945	CG AAF AFTAC-TS

DIRECTOR, AAF AIR TECHNICAL SERVICE COMMAND, WRIGHT FIELD, DAYTON, OHIO

ATTENTION: CHIEF OF ADMINISTRATION - TSTEX

Ltr F C Oakley/smc 5451

O.F. PHILLIPS
Brig. Gen. USA

AF DMA-2C

REFERENCE BOLIN FIELD PROVING GROUND SERVICE TEST T-45-2 OF STILL SOLAR FLOATING VINYLITE BAG TYPE. HIGGINS STILL TESTED UNDER REFERENCE NUMBER HAS BEEN FOUND TO BE SATISFACTORY FOR ITS PURPOSE AND SUPERIOR TO GALLOWHUR STILL. IT IS THEREFORE DIRECTED THAT HIGGINS SOLAR STILL BE STANDARDIZED AFTER FOLLOWING CHANGES RECOMMENDED BY BOLIN FIELD HAVE BEEN MADE: 1. INCORPORATE INTO SALT WATER CUP A BAFFLE OF VINYLITE TO REDUCE LOSS OF SEA WATER IN HIGH SEAS. PARAGRAPH 2. SEAL ALUMINUM CONTAINERS TO ASSURE A WATERPROOF PACKAGE. PARAGRAPH 3. TREAT STILL INSIDE AND OUT AS SUBMITTED TO PREVENT ADHERENCE OF PLASTIC TO ITSELF OR TO CONTAINER DURING STORAGE. PARAGRAPH 4. PACK STILLS WITHOUT TENSION TO AVOID FORMATION OF CREASES CRACKS OR TEARS IN VINYLITE SHEETING. PARAGRAPH 5. MAKE ATTACHING LINES OF TWISTED COTTON CORD OF NOT LESS THAN 75 POUNDS TENSILE STRENGTH. PARAGRAPH 6. MAKE SNAP HOOKS OF NON-CORRODING METAL. PARAGRAPH 7. ACCOMPLISH MILDEW PROOFING AS SOON AS SATISFACTORY METHOD IS DEVELOPED. PARAGRAPH IT IS UNDERSTOOD THAT ABOVE CHANGES CAN BE MADE WITHOUT ADVERSELY AFFECTING AVAILABILITY OF HIGGINS STILL. PARAGRAPH IT IS FURTHER DIRECTED THAT GALLOWHUR STILL BE PLACED IN SUB-STANDARD CLASSIFICATION. PARAGRAPH BASIS OF ISSUE OF SOLAR STILLS WILL NOT BE AFFECTED APPRECIABLY BY CHANGE FROM

FOR C

(AFR 11-30)

OFFICE SYMBOL	1	2	3	4	5	6
SIGNATURE OF RESPONSIBLE OFFICER						
INTERNAL OFFICE COORDINATION						

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HEADQUARTERS ARMY AIR FORCES

OUTGOING UNCLASSIFIED MESSAGE

PRECEDENCE	DATE	FROM (OFFICE OF ORIGIN)
Routine	16 March 1945	HQ, AAF ATSC-80

TO: DIRECTOR, AAF AIR TECHNICAL SERVICE COMMAND, WRIGHT FIELD, DAYTON, OHIO

ATTENTION: CHIEF OF ADMINISTRATION - TOTEX

BASE OR OFFICE ACTIVITY: [illegible] PHONE: 2021

I certify that the following message constitutes official Business and is necessary in the military service.

TYPED NAME: K. P. PHILLIPS SIGNATURE:

Brig Gen, U.S.A.

AF TOTEX-EU ..... PD

GALLOWHUR TO HIGGINS. CHANGE IF ANY WILL INCREASE REQUIREMENTS. LETTER FOLLOWS RESTATING BASIS OF ISSUE AND OTHER DETAILS. PARAGRAPH COLONEL D C SWATLAND PROCUREMENT DIVISION CMA DR E S FETCHER PERSONAL EQUIPMENT LABORATORY CMA AND CAPTAIN J H OSER OFFICE CHIEF OF ADMINISTRATION ARE INTERESTED IN OBTAINING FOREGOING INFORMATION PROMPTLY

ARNOLD

FOR C[illegible] ONLY

(AFR 11-30)

OFFICE SYMBOL	1 ADDAC	2 ADDR	3 ADDR	4	5
SIGNATURE OF RESPONSIBLE OFFICER		Paeun			341
INTERNAL OFFICE CONSIDERATION					

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INTER-OFFICE MEMORANDUM
ARMY AIR FORCES

TSEAL-5H
Pfc. V. Clark
Lt. F. G. Sherman
sf: Ext. 23182

Wright Field, Dayton, Ohio
Date 20 March 1945.

TO: TSEAL-5E
Attn: Dr. E. S. Fetcher.

SUBJECT: Test of Kit - Sea water distillation, type LL-1, project SE-17-FR

1. Item tested
The items tested were three (3) KITS- Sea water, distillation, type LL-1, and one (1) still without accessories Project SE-17-FR as provided in AAF Specification No. 40897. Subject items were submitted by the Gallowhur Chemical Corp. The kit consists of three sunstills, a plastic scoop for pouring sea water into the still, instruction pamphlet, connector clips, tow lines and mending tape.

2. Purpose
To determine: 1) the effect of exposure to temperature of 160°F for 48 hours, immediate removal to temperatures of -65°F for 48 hours, and exposure to a reduced pressure equivalent to altitude of 40,000 ft. for a period of two hours, at room temperature; 2) the amount of air leakage; 3) tensile strength and elongation of the plastic, tow tabs and seams; 4) rate of distillation, flow of water past sponge screen attachments, and palatability of water; 5) Weight of kit assembly; 6) capacity of resevoir to the trap; 7) function of spring clamp and outlet tube; 8) function of mending tape.

3. Conditions of test
a. Altitude - 100 mm Hg. at room temp.
b. Heat - +160°F
c. Cold - -65°F
d. Distillation - 6 - 300 watt reflector lamps 2 feet above surface of still at 60°F
e. Tensile strength - Scott tester at Materials Lab.
f. Palatibility of distillate - Three members of Test Branch and and member of Survival Unit drank 200 CC each as prescribed in AAF Specification No. 40897

4. Procedure
A. Subject kit was exposed to a temperature of 160°F for 48 hours and then placed in a cold chamber at -65°F within 15 minutes after removal from the hot box for another 48 hour period. The container was pounded with a hammer. Tests #2 and #3 were conducted for a period of

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IOM Subject " Test of KIT - Sea water distillation, type LL-1, project SF-17-FR" dated 20 March 1945.

only about 16 hours at -65°F. The kit in test #2 was not subjected to impact forces in the chamber, but was dropped accidentally on concrete from a height of about three feet several minutes after its removal from the cold. The kit in test #3 was stepped on by a 180 lb. man immediately after removal from the cold chamber. After removal from the cold chamber the unopened kit was subjected to a reduced pressure equivalent to 40,000 feet for 2 hours.

B. The still was inflated by mouth to a pressure of 6 inches of water. The pressure was checked with a water manometer 8 hours later to determine the amount of leakage.

C. The tensile strength of the plastic, tow tabs, and seams was determined at the Materials Laboratory on a Scott Tester.

D. Distillation rate and flow of water past sponge screen attachments were determined by suspending the still two feet below six (6) 115V, 300 watt reflector lamps so that the light was directed normal to the plane of the sponge screen assembly for a period of six hours.

E. The weight of the kit assembly and capacity of the resevoir to the trap were determined by direct measurement with a spring balance and a graduate.

F. The function of the spring clamp was determined by trial on nine (9) stills, after being subjected to cold. The mending tape in three kits was checked by trial after exposure to cold.

5. Data

A. Effect of temperature

	+160°F	-65°F	Impact forces	Altitude feet	effect on kits
1.	48 hours	48 hours	pounded with hammer	40,000	shattered plastic
2.	-	16 hours	dropped on concrete from 3 feet.	40,000	None
3.	-	16 hours	stepped on by 180 lb. man.	40,000	one still had 7 repairable holes

B. Leakage (air)

	start	after 8 hours.
1.	6 inches HOH	3 inches HOH
2.	5 inches HOH	3 inches HOH

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C. Tensile strength

	Item	Breaking strength lbs.	Remarks
1.	Tab 1	79.2	double thickness
	tab 2	88.7	Double thickness
	tab 3	32.7	single thickness
	tab 4	35.6	single thickness

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COM Subject "Test of KIT - Sea water distillation, type LL-1, project SE-17-FR" dated 20 March 1945.

2.	Screen attachment	1	18.3	single thickness
	" "	2	16.8	" "
	" "	3	33.0	Double thickness
	" "	4	30.0	" "
3.	Seam	1	38.5	
	"	2	35.0	
	"	3	36.5	section of distillate trap.
4.	Section	1	23.0	after exposure to heat and cold
	Section	2	31.0	across the fold in section 1

D. Capacity

Screen	890 ml
Distillate trap	10 oz.

E. Rate of distillation

Hours	Mls of distillate
1	70
2	170
3	280
4	440
5	580
6	665

F. Mending Tape.

The mending tape in each kit which had been subjected to the cold retained its adhesive properties. The tape in Kit #2 was used to repair 7 holes in one of the stills.

G. Spring clamp and outlet tube.

The spring clamp operated satisfactorily in each still tested. In the one still tested it formed an effective seal to keep water from leaking out of the distillate trap.

H. Number of patches applied by the manufacturer.

In one still 8 patches had been applied by the manufacturer; four more than the specification allows. In another still the patches were over tears and holes larger than allowed by the specification.

I. Palatibility

Three members of the Test Control Branch and one member of the Survival Unit drank 200 cc of distillate over a period of 30 minutes. It was the consensus of the Test Control Branch group that the water had an objectionable taste, but that it was possible to drink it. No ill effects were noted after drinking the distillate.

J. Weight of Kit - 4 lbs. 1-2/3 oz.

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"Test of KIT - Sea water distillation, type LL-1, project SE-17-ER"
dated 20 March 1945.

6. Conclusions
1. With exceptions noted in para. 5 H and I, subject item conforms to AAF Spec. 40897.

7. Recommendations
None.

Prepared by Vernon D. Clark
V. CLARK, Pfc., A.C.

Prepared by F. J. Sherman
F. J. Sherman, 1st Lt. A.C.

Approved by
JAMES C. DEMPSEY, Jr., Major, A.C.
Chief, Test Control Branch
Personal Equipment Laboratory.

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C O P Y

MR Sheet

First Articles, Gallowhur Chemical Corporation Contract # ac 6264.

To: TSEPE-LK From: TSEAL-5E, Survival Unit 20 March 1945
E.S.Fetcher,Jr.
2-0139

1.

1. Subject first articles were delivered by hand to this office on 9 March 1945, and have been tested in accordance with the specification.

a. The shape and material of the kit container did not conform to specification No. 40897. However, it did conform to the shape set forth in MR Sheet to your Office dated 10 March 1945, Subject: "Container for Distillation Kit, Type IL-1".

b. The color of the kit container did not conform to specification.

c. The ease of opening of the kit container, and the ease of removal of the contents did not conform to specification. This is a very serious matter.

d. Several neoprene drain tubes were kinked shut.

e. The taste of the distilled water was stronger than it should be.

f. Of seven stills examined, one had six patches and another eight patches, whereas the specification calls for not more than four on any still. Of 27 patches found on the seven stills three were repairs of tears or holes very much larger than permitted by the specification.

g. There was some transfer of the marking ink.

2. Because of the urgency of the requirement for this equipment, this office is willing to grant approval for production release in spite of the failures listed, under the following conditions:

a. That every precaution be taken by the manufacturer, and the AAF inspector to correct the failures listed.

b. That four completed kits be forwarded to this office after corrective measures have been taken, for final approval.

W. C. WARNER,
Lt. Colonel, Air Corps,
Chief, Personal Equipment Lab.,
Engineering Division.

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Rec'd 4/1/45

C O P Y

HIGGINS INDUSTRIES, INC.
NEW ORLEANS, LOUISIANA

March 26, 1945

Ref: #11OMG

War Department,
Army Air Forces,
Air Technical Service Command,
Procurement Division,
Wright Field,
Dayton, Ohio

Attention: Contracting Officer Dept. 87-15 (FJK:djh)

SUBJECT: Purchase Order 45-1547-B - Amendment

Gentlemen:

The subject contract provides for the furnishing of 15 stills, solar, spherical pad inflated type for life raft, packed, at a unit price of $60, total contract price $900. We are herein requesting that the contract be modified to provide for the delivery of an additional 21 stills at the same unit price, or a total increase in the contract price of $1,260.

These additional 21 units were delivered under this contract at the specific request of representatives of the Army Air Forces as detailed hereinafter, as the original quantity of 15 stills was not adequate in number to supply all the test requirements for which the original quantity of stills was intended. Accordingly, the following deliveries were made under the contract:

No. Shipped	Date Shipped	Still Numbers	Consignee	Method of Transportation
3	9/2/44	1 thru 3	Russell Hardy, Dayton, Ohio (for personal delivery to Army Air Forces, Dayton)	Air Express
3	9/16/44	4 " 6	Russell Hardy, Dayton, Ohio (for personal delivery to Army Air Forces, Dayton)	" "
1	9/20/44	7	Russell Hardy, Dayton, Ohio (for personal delivery to Army Air Forces, Dayton)	" "
1	10/13/44	8	Russell Hardy, Dayton, Ohio (for personal delivery to Army Air Forces, Dayton)	" "

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AAF - Air Technical Service Command
Wright Field, Dayton, Ohio

No. Shipped	Date Shipped	Still Numbers	Consignee	Method of Transportation
3	12/19/44	9 thru 11	Russell Hardy, Dayton, Ohio (for personal delivery)	Air Express
9	1/8/45	12 " 20	Eglin Field, Florida*	Delivered by A. E. Ushakoff of Higgins Ind.
4	1/18/45	21 " 24	Eglin Field, Florida **	Delivered by A.E. Ushakoff of Higgins Ind.
12	2/5/45	25 " 36	Eglin Field, Florida ***	Delivered by A. E. Ushakoff of Higgins Ind.

* Dr. E. S. Fetcher - Director, Air Technical Service Command, Engineering Division, Personal Equipment Laboratory - at Wright Field, Dayton, Ohio, requested us direct to deliver at least 6 units to Eglin Field for further testing - 9 units actually delivered.

** Requested by Major C. F. Lombard - AAF, Eglin Field, Florida.

*** Your Dr. E. S. Fetcher requested us through our Mr. Russeel Hardy, Dayton representative, to deliver 12 units, serially numbered 25 through 36, to Eglin Field, Florida for additional testing.

Therefore, since only 15 of the above stills were covered under the subject contract, we are herein requesting a modification to provide for the delivery of 21 additional units at an increase in the total price of $1,260.

Very truly yours,

HIGGINS INDUSTRIES, INC.

M. Gotterman,
Secretary-Treasurer

MG:MVN:dw

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S.J.
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Purchase Order (39-038) 29-1947-S - Higgins Industries, Inc.

[redacted] TELEPHONE 29 March 1945 1
Attn: Mr. R. E. Fotopic [redacted]

1. The attached copy of letter dated 26 March 1945 from the above indicated contractor is referred to you for comment and recommendation.

2. The purchase order as written does not allow for any overrun. Since the additional six units were evidently ordered by your disapification, it will be necessary for you to initiate an authority for purchase to cover.

3. No further action can be taken by the contracting officer until receipt of your authority for purchase.

[redacted]
Colonel, Ac Corps
Acting Chief, Procurement Division

1 Incl.
Incl. 1 - Ltr, ctd. 3/26/45

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Purchase Order (33-038) 45-1547-E - Higgins Industries, Inc.

TSBPR4P6 TSEAL-5E3 20 April 1945
E.S.Fetcher,Jr.
2-0139

2.

1. Reference is made to Comment #1 and inclosure thereto. The statement by the manufacturer of the number of stills delivered to this office is correct, except that of the eleven stills received by 23 December, two were inoperable. This was pointed out in a letter to Higgins dated 27 October; Higgins replied on 4 November that these two would be replaced. After 23 December Higgins was instructed to deliver six stills to Eglin Field for service test. These, with the nine accepted by this office would have completed the contract of fifteen.

2. Eglin Field personnel state that 25 stills were received; that no direct request was made for new ones, or for these quantities. The first stills delivered to Eglin Field January 8, 1945 were not entirely satisfactory. It was the understanding of this office that these were being taken back by Higgins for reworking. Apparently Higgins supplied new ones instead. This office did not make the request noted under 5 February; it did request that not less than six stills be returned to Eglin by 5 February.

3. Because of possible patent complications, the office of the TSAAO has advised this office by R&R dated 13 April 1945 that only samples owned by the Government can be used at present as the basis of information to other potential production sources of the stills. It is therefore considered necessary that the stills delivered by Higgins in excess of their original purchase order (No. 45-1547-E) be purchased by the Government. All available stills will be required, since it is anticipated that some 35 manufacturers will be invited to bid. The information contained in this paragraph is not to be transmitted to Higgins.

4. An Authority for Purchase for 15 stills has been initiated. Higgins request payment for 21 additional stills, but as pointed out in Paragraph 1 above, two of those delivered were inoperable. A third was turned over to Higgins for repair and never returned.

R. W. PROPST,
Colonel, Air Corps,
Chief, Personal Equipment Lab.,
Aire. & Phys. Req. Subdivision,
Engineering Division.

Encl. withdrawn.

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SAVE

ADDRESS REPLY & ENVELOPE TO COMMANDING OFFICER ATTENTION: EDRFI

ARMY AIR FORCES

AIR TECHNICAL SERVICE COMMAND
EASTERN DISTRICT
67 BROAD ST.
NEW YORK 4, N. Y.

EDRFI/LAL/gag

29 March 1945

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SUBJECT: Advance Payment - Second Installment
Contract No. W33-038 AC6264 (13233)

TO: Director
Air Technical Service Command
Wright Field, Dayton, Ohio

ATTN: TSBPR6E

1. Subject Contractor advises that prototypes have been approved by Personnel Equipment Laboratory, Wright Field.

2. Contractor has ready for delivery over 10,000 Sunstills awaiting containers. These will be available in about three weeks.

3. Contractor expects to make substantial shipments the end of April and continue quantity shipments to completion.

FOR THE COMMANDING OFFICER:

for FRANCIS W. DUNN
Major, Air Corps
District Financial Officer

Attd.
Ltr from Gallowhur Chem.Corp.
dtd: 3/28/45 - in dup.
Form 1044 - in quint.

Letter
F. F. O
4-2-45

FOR CR...

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Lt. T. H. Lehman
THL:dj T5B-BW2
30 March 1945

MEMORANDUM REPORT

Trip to: New Orleans, Louisiana

By: Lt. T. H. Lehman

Date: 23 March to 25 March 1945

Concerning: Procurement of Sea Water Distillation Kits type KLL-2

Conferred with:

Russell Y. Hardy	Higgins Industries
R.L. Atkinson Jr.	Higgins Industries
A. E. Ushakoff	Higgins Industries
F. O. Higgins	Higgins Industries
H. E. Morton	Higgins Industries
R. F. Couret	Higgins Industries
E. S. Fetcher, Personal Equip. Lab., Eng. Div., A.T.S.C.	Wright Field
J. P. Marsh, Facilities Br., M.C.S., A.T.S.C.	Wright Field
Maj. W. Lane, Patent and Royalty Sect., Contracts and License Branch, A.T.S.C.	Wright Field
H. M. Hart, Manufacturing Methods Branch, A.C.S. A.T.S.C.	Wright Field
Maj. Davidson	AAF Plant Representative
Lt. Pitsch	Midwestern Dist. A.T.S.C.

Discussion:

1. Addendum #21 to TI 2002 dated 20 March 1945 directs that all Multiple Life Rafts be equipped with Sea Water Distillation Kits as designed by the Higgins Plastics Products Co., Division of Higgins Industries, New Orleans, Louisiana. The above directive further states that 2 kits consisting of 3 stills each shall be installed in each raft.

2. The purpose of this trip to the Higgins Plant and the subsequent conference with the Higgins management personnel was to determine the extent of facilities involved in getting Higgins into this production picture, the amount of manpower which Higgins would use, the tentative delivery schedule, and the length of time that would be required to get Higgins to get into quantity production. Higgins intend to employ 600 people on each of two 10 hour shifts in order to turn out a maximum of 4,000 stills per day. In view of the fact that this source has had no production experience with the Vinyl Plastics the above production rate appears to be optimistic. Higgins estimates that they can commence delivery four months after receipt of a contract. Delivery the first month is estimated to be approximately 250 kits per day, 750 kits per day for the second month, 1,500 kits per day third month, 3,500 kits per day the fourth month and 4,000 kits per day the fifth month, to completion. This delivery schedule will establish a production run slightly in excess of one year. Higgins submitted a facilities list to the Resources

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Control Section personnel attending the conference and this list was reviewed with the intent of eliminating all unnecessary equipment. Higgins had based their list of facilities on the premise that there would be no sub-contracting; however, when it was pointed out to the Higgins personnel that there is considerable capacity for injection moulding and fabric work in the country Higgins agreed to sub-contract these two processes, thus eliminating the necessity for costly injection moulding machines and fabric sewing machines. The total dollar value for the facilities which Higgins requested for use in this project was approximately $1,500,000. After screening by Resources Control Section Personnel, this list was reduced to approximately $670,000. This list will probably be further reduced since the contractor states that the list of facilities as submitted had not been screened to remove from the list all facilities now existing at the Higgins Plants. The prices as established on the facilities list are admittably high. Higgins will further review this tentative appendix and re-submit it to Resources Control Section on or about 30 March. If after a final review of the appendix it is found that an excessive amount of facilities will not be necessary in order to manufacture these stills, the Facilities Branch and Manufacturing Methods Branch Resources Section will so notify this office in order that the unprocured balance of 247,000 Sea Water Desalting Distillation Kits may be procured on the basis of competitive bidding.

1. Procurement of this kit from sources other than the Higgins Plastic Products Co. has been facilitated due to the fact that the Patent Royalty Office was successful in obtaining full patent rights from Higgins. (This is a verbal agreement) This patent agreement will also enable the conversion of the S. Buchsbaum of Chicago and the Water Tight Fastener Company of New York from the Gallowhur type still to the Higgins type still. Buchsbaum and Water Tight at the present time have contracts for 50,000 kits each of the Gallowhur type still; however neither source has progressed very far with its contract and it should be possible to convert to the Higgins still with little or no delay. The only other still manufacturer at the present is the Gallowhur Chemical Company at New York. It has been decided to permit this source to continue manufacturing the Gallowhur type still in order to provide this urgently needed equipment during the interim period that Higgins, Buchsbaum and Water Tight are getting production.

Prepared by _____
Misc. Br. Aero. Equip. Sub-Sect. Prod. Sec

Noted by _____
Chief, Aero. Equip. Sub-Section

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ROUTING AND RECORD SHEET — AIR TECHNICAL SERVICE COMMAND

Use this form for inter-office correspondence within headquarters. Use authorized office symbols to designate addressee and addressor. Place initials of drafter and typist, telephone number and location to right of signature.
Use reverse width of sheet, both sides. Number all comments consecutively. Separate comments by horizontal lines across page.

SUBJECT: AFF 111645 - Sea Water Distillation Kits

TO	FROM	DATE	COMMENT NO.
TSBPR4K1	TSBPR4K2	5 April 1945	1

1. Addendum #21 to TI 2022 dated 20 March 1945 directs that the Higgins Model 26 Solar Still shall be standardized and that the Gallowhur type Still AAF Specification 40897 shall be reduced to sub-standard classification in accordance with above directive. It is requested that the unprocured balance of 247,678 Sun Still Kits remaining on subject Authority For Purchase shall be of kits comprised of 3 each Higgins Model 26 Stills and accessories, in lieu of Specification 40897 kits. It should be possible to make this conversion at little or no increase in cost.

Thomas H. Lehman Lt AC

Lt. T. H. Lehman
adj Ext. 2-8210

Chief, [redacted]
Aero Equipment Sub-Section

Misc. Br

Contract filed 7-6-45 Br

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Higgins
PLASTICS CORPORATION
P.O. BOX 1070
New Orleans 4, USA

FOH:nc
6 April 1945

SUBJECT: Higgins Solar Power Company, Inc.
Proposal: 750,000 Higgins Solar Stills

TO: Director
Air Technical Service Command
Wright Field, Dayton, Ohio

Attention: Major R. P. Clarkson
Production Section

1. Pursuant to discussions in conference at this office on 24 March 1945, attended by Mr. R. M. Hart, Dr. E. S. Fetcher, Major W. R. Lane, and Lt. Thomas E. Lehman of Wright Field, and Mr. J. F. Marsh of D.P.C., we submitted, under date of 2 April 1945, Appendix "A" covering facilities necessary to manufacture 750,000 Higgins Solar Stills for the Army Air Forces.

2. Also as a result of this conference and after subsequent telephone conversations with Wright Field Personnel to determine the procedure for presenting a firm proposal for the manufacture of these stills, we were advised by Major R. P. Clarkson to submit such proposal by letter; accordingly, our formal quotation is offered below:

Subject to approval of appropriation to provide necessary facilities (Appendix "A" previously submitted), we propose to manufacture for and supply to the Army Air Forces, in accordance with applicable Specifications 750,000 Higgins Solar Stills, to be produced at the rate of 4,000 per day, operating two 10-hour shifts, at a total cost of $7,008,125.50, or a unit cost of $12.09 per Still, plus Tooling Cost of $679,984.00.

3. Following is an itemization of our determination of these costs:

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HIGGINS PLASTICS CORPORATION

- 2 -

	Cost Of 750,000 Stills	Unit Cost Per Still
Estimated Direct Labor 2,250,000 Man-Hours @ 1.05	$2,362,500.00	3.15
Overhead - 150% of Direct Labor	3,543,750.00	4.72
Estimated Subcontracting 187,500 Man-Hours @ 3.15	590,625.00	.79
Material	1,747,500.00	2.33
Sub-Total	8,244,375.00	10.99
Profit - 10%	824,437.50	1.10
TOTAL PROPOSED PRICE	$9,068,195.50	$12.09

- - - - - - - - - -

Estimated Tooling $ 679,584.00

3. In view of the fact that this quotation has been estimated without benefit of volume production experience, it is therefore requested that a clause be incorporated in the contract, should one result, providing for retroactive price adjustment, upwards or downwards after 30% of contract has been fulfilled, based on actual performance costs.

HIGGINS SOLAR POWER COMPANY, INC.

Frank O. Higgins
Vice-President & General Manager

(Contracting Officer)
Wright-Patterson, AAF

FRANK B. DAVIDSON
Major, Air Corps
Acting A.A.F. Plant Representative

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AAF Form No. 10-2
(17 Oct 44)

ROUTING AND RECORD SHEET AIR TECHNICAL SERVICE COMMAND

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Use authorized office symbols to designate addressee and addressee.

Place initials of dictator and typist, telephone number and location to right of signature.

Use entire width of sheet, both sides.

Separate comments by horizontal lines across page.

SUBJECT: Higgins Industries (Solar Still Kits)

TO: TSBPR6E | FROM: TSBPR4K1 | DATE: 3/20/45 | COMMENT NO. 1.

1. A procurement is contemplated on 247,678 Solar Still Kits with Higgins Industries, 521 City Park Avenue, New Orleans, La. Estimated amount of procurement is $9,659,442.00. Stills referred to are the new Higgins Stills recently approved by the Army Air Forces.

2. Contractor has submitted a request, contingent upon receiving award for procurement, for facilities amounting to $1,237,620.00.

3. It is requested that an investigation be made and this office be advised if Fiscal Branch will approve a contract in the amount listed above with Higgins Industries.

R. R. CLARKSON
Major, Air Corps
Chief, Miscellaneous Branch

GWW:lrz (2-8227)

To TSBPR4K1 | From TSBPR6E | Date 24 Mar 45 | Comment No. 2

1. The Fiscal Branch would be willing at this time to give clearance to the subject award.

2. It is requested however that before award is made, the matter be submitted to the Fiscal Branch for approval since it is believed that advance payments will probably be involved. In such case, it is requested that the negotiator obtain information from the contractor as to whether or not advances will be needed and, if so, have the contractor's representative call at the Fiscal Branch with full information as to the amount thereof needed.

ALF/ia
Ext 2-5203
Bldg 16B

ALFRED L FERGUSON, Jr
Lt Colonel, Air Corps
Acting Chief, Fiscal Branch
Procurement Division

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AAF, Area H-19-20-44-1 Mil.

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GALLOWHUP CHEMICAL CORPORATION

CHEMICAL AND PHARMACEUTICAL MANUFACTURERS

WINDSOR, VERMONT

SEND REPLY TO: 250 EAST 43rd STREET
NEW YORK 17, N.Y.
LEXINGTON 2-3720

April 10, 1945.

Army Air Forces
Headquarters
Air Technical Service Command
Wright Field, Dayton, Ohio.

Ref: TSEAL-5E

Gentlemen: Atten. Lt. Col. W. C. Warner
Chief, Personal Equipment Lab.
Engineering Division

Reference is made to your letter to us dated March 12, 1945.

We are sorry for the delay in answering this letter, but it has been mainly occasioned by the necessary time required to determine the draft status of one of our staff, whose services we felt necessary to the continuation of development and research on solar stills.

We would, however, be interested in continuing further research and development work on solar stills for life rafts with the assistance of the Air Technical Service Command, and in the course of the next few days time we will endeavor to get to you details of the proposed course of development work, as requested by you in your letter.

Yours very truly,
GALLOWHUP CHEMICAL CORP.

Clifford F. Raye

Clifford F. Raye
Executive Vice President

CFR:ao

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TJBFR4K1

Lt. G.W.Weaver
GWWidm Ext. P-8227

Solar Still, Model B-5.

12 April 1945.

B. F. Goodrich Company,
Akron, Ohio.

145

Attention: Mr. N. P. Singleton.

1. Receipt is acknowledged of your letter of April 5, 1945 with reference to subject stills.

2. Subject stills are not sub-standard with the Army Air Forces. No further procurements will be made.

3. A new still, developed by Higgins Industries, is now standard equipment. At the present time no drawing or specifications are available on the new still.

/s/ J E Kennedy
J.E. KENNEDY,
1st Lt., Air Corps,
Contracting Officer.

cc: C.G., Central District,
Attn: Contract Section.

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ATSC Form No. 10-3 (17 Oct 44)

ROUTING AND RECORD SHEET

AIR TECHNICAL SERVICE COMMAND

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Number all comments consecutively.
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Separate comments by horizontal lines across page.

SUBJECT: Solar Stills - License Rights - Patent Indemnity -

TO: TSHPR4K
Attn.: Major Clarkson

FROM: TSJAG3C

DATE: 12 April 1945

COMMENT NO: 1

1. Reference is made to your informal request for a resume of the solar still patent situation and for advice generally as to the type of patent provisions to be included in proposed contracts with prospective manufacturers of such stills as well as for advice as to the furnishing of information to such prospective manufacturers. For purposes of clarification, certain factual data will be included in the resume. It may be well to state that, while it is the intention of this office to recommend provisions which will protect the Government's interests in every way possible, it is not intended to let the matter of patents stand in the way of expeditious procurement of the solar stills.

2. The solar still patent situation is quite involved. There are known to be many prior related patents, some of which have expired and have therefore become public property. Further, the Government has sponsored a solar-still development project through OSRD and has purchased from the Gallowhur Chemical Company and Higgins Industries, Inc. stills purported to have been developed by those companies. The OSRD project was carried on at M I T by a Dr. Telkes and Assistants who have filed a patent application covering inventions made in connection therewith. The Government has a royalty-free license under such application. That application is now involved in an interference proceeding in the U. S. Patent Office with a patent application filed by Messrs. Delano and Miller who are reputed to have a license agreement with the Gallowhur Chemical Co. That company has granted the Government a royalty-free reproduction and license right in respect of the Gallowhur type of still, the reproduction right being limited in term to the duration of the war and six months. The Royalty Adjustment Section of the Office is presently investigating the matter of whether patent royalties are required to be paid by the Government to Messrs. Delano and Miller.

3. The Gallowhur and Higgins types of solar stills are quite similar in structure and operation and follow very closely the still developed under the OSRD project. Each comprises an inflatable vinolite bag in which is suspended a water-absorbing member (sponge material in the Gallowhur still and cloth in the Higgins still) from which water is distilled by action of the sun's rays, and a water-collecting portion. The Higgins still has in addition a ballast member, a salt-water reservoir and a metering device for controlling the flow of salt water from the reservoir to the water-absorbing cloth member. Ballast is necessary in the Higgins type because of its globular shape but is unnecessary in the pillow-shaped Gallowhur type.

4. The Higgins still is reputed to have been developed in the Higgins Laboratory by a Dr. Ushakoff. Dr. Ushakoff apparently was employed by Higgins to perform research and development work and spent some time in the development of the Higgins type still. Mr. Higgins, at a recent conference in New Orleans, hinted that the major portion of the $170,000 reputed to have been expended in developing the Higgins type still was spent in connection with a process (not disclosed) for fastening vinolite material together. A verbal understanding is supposed to have existed between Higgins and Ushakoff with respect to patent royalties. However, such understanding is reported as not having been reduced to writing and a disagreement between Higgins and Ushakoff with respect thereto is reputed to have been the cause of Ushakoff's recent discharge from the Higgins Company

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TO TSFPH4K
Attn. Major Clarkson

FROM TSJAG3C

DATE 12 April 1945

COMMENT NO. 1 continued

and the resignation of practically the entire technical staff working on this development.

5. Higgins has asked for approximately $680,000 worth of plant equipment to enable him to manufacture these stills. According to Resources Control, much of this equipment is difficult to obtain and will take considerable time to install, even if priorities sufficiently high to enable its procurement are obtained.

6. Personnel in Resources Control have contacted manufacturers who are skilled in the handling of vinolite material, particularly Watertite Slide Fastener Co. and Buxbaum Co. and preliminary information indicates that stills of the Higgins type can be manufactured by those companies with very little additional equipment. These companies have had no difficulty in fastening pieces of vinolite material together with existing equipment.

7. In view of the foregoing, it is proposed to include in any contract for solar stills, a Reproduction and License Rights Article and an Authorization and Assistance Article which in substance relieves contractor from patent liability.

8. With respect to your request for advice as to the matter of dissemination of information, it is understood that information furnished by OSRD for dissemination among prospective developers and/or manufacturers of solar stills has been freely distributed to Gallowhur, Higgins and others. Information in respect of Higgins type stills obtained by analyses, measurement or testing of stills owned by the Government may be freely disseminated. The method of manufacture proposed by Higgins at the recent New Orleans conference involves the ordinary use of machinery obtainable on the open market except the previously mentioned undisclosed method of fastening vinolite parts together which was vaguely referred to by Higgins as a trade secret and also as the subject matter of a patent application. The method of manufacture insofar as the ordinary use of known machinery is concerned may be freely disclosed.

9. Special care should be exercised to avoid disclosure of information received under an agreement not to disclose or in confidence, express or implied, and not otherwise known. It is suggested that any specific problem in this connection be referred to this office for advice.

J. C. BURTON
Colonel, J. A. G. D.
Chief, Patents and Royalties Section
Office, the Judge Advocate

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[approx. 15 April 1945]

MEMORANDUM REPORT

Trip to: Chicago, Illinois

By: Lt. T. H. Lehman

Date: 11 and 12 April 1945

Concerning: Procurement of sea water distillation kits, Type KLL2.

Conferred with: Harold Schneider, Production Section, Midcentral Procurement Dist.
S. Buchsbaum, Vice-President, S. Buchsbaum Company.
H. J. Buchsbaum, President, S. Buchsbaum Company.
Martin Buchsbaum, Chemist, S. Buchsbaum Company.
Lecnar Becker, Chemist, S. Buchsbaum Company.
Doctor H. Carson, President, Batavia Metal Products Company.
B. Glasier, Sales Manager, Batavia Metal Products Company
C. E. Cruver, General Manager, Cruver Manufacturing Company.
C. W. Radke, Chief, Engineer, Cruver Manufacturing Company.
Mr. Bender, Portable Power Unit Company.
A. A. Livingston, President, Dunage Plastics Company.
Emil Thaub, Chief Engineer, Dunage Plastics Company.
R. M. Hart, Manufacturing Methods Branch, Resources Control Sec.

Discussion:

1. Addendum #11 to "I P-92 dated 20 August 1944 directs that all multiple place life rafts be equipped with Sea Water Distillation Kits as designed by Higgins Industries, New Orleans, Louisiana. The above directive further states that two kits consisting of three stills each shall be installed in each raft.

2. The purpose of this trip to the Chicago Area was to aid and expedite wherever possible the conversion of the S. Buchsbaum Company from the Gallchur type still to the now standardized Higgins still. This source at the present time has been issued a contract for 50,000 Gallchur type sea water distillation kits. In converting to the Higgins type kit, every effort is to be made to simplify the manufacture of this item and to eliminate the necessity for the extensive tooling, jigs, and fixtures presently required for the manufacture of the Higgins still. The S. Buchsbaum Company intends to fabricate two sample stills which will be forwarded to Wright Field for approval. These stills, while of the basic Higgins design, will be manufactured by the following methods: One still will be manufactured by a new process developed by the Buchsbaum Company, which is known as the Vinyl Dip method. This process consists of merely dipping a form into a vat filled with liquid vinyl solution. The form is dipped several times to build the article up to the required thickness and is dried between each successive coat. The final product is then stripped from the mold. The Buchsbaum Company have experienced considerable success in the fabrication of the vinylite water pouches and intelligence man pouches by this method and feel that the fabrication of stills by this process entirely possible. The other still will be

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MEMORANDUM REPORT

Lt. C. . Berman

Concerning: Procurement of sea water distillation kits, Type [illegible]. Item [illegible].

manufactured by a purely experimental method developed by this concern. This method consists of stretching the vinyl film over a male form and immersing this form in boiling water until the material has reached a temperature of 212 degrees. The male form with the vinyl attached is then immersed in a vat containing cold water, and the vinyl set to the desired form. Both stills manufactured by the above two methods should be available by 30 April 1945.

3. Doctor H. Carson of the Batavia Metal Products Company was contacted to determine if his organization was capable of producing the Vinylite type still. Sample stills and tentative specifications had been previously forwarded to Doctor Carson, and the manufacture of this item had been carefully investigated by the company engineers. Doctor Carson felt confident that Batavia Metal Products Company would be able to handle the job and stated that his organization was definitely interested in receiving an invitation to bid. This company has had considerable experience in the injection molding of plastics and an associate company, the Erie Resin Metal Products Company, has manufactured the molds for the Chemical Warfare Service, which required the same type personnel and the same high degree of skill necessary for the fabrication of the distillation kits.

4. Mr. C. W. Cruver of Cruver Manufacturing Company was likewise contacted as a potential source for this item. Mr. Cruver also believes that his concern is in a position to manufacture this item and has likewise requested that his organization be given the opportunity to bid.

5. Mr. Bender of the Detroit Powder Puff Company was contacted via telephone but stated that he was in no position to speak for the company in this matter and advised that Mr. Seymour Deane, President of the Detroit Powder Puff Company, would call at Wright Field within the next week to discuss this procurement further.

6. A visit to the Dunage Plastics Company and an interview with Mr. A. M. Livingston revealed that while this outfit was definitely interested in manufacturing stills, Dunage does not possess adequate floor space or personnel to handle the project at the present time. Mr. Livingston proposes to place the injection, packing, and shipping of this item, which requires a large percentage of the total floor space involved, in a large rented building. The fact that Dunage Plastics Company are located outside of Chicago and are not in the Chicago Critical Labor Area presents a fairly optimistic picture as far as manpower is concerned. A further discussion will be had with representatives of Manufacturing Methods Branch, as to the ability of this contractor to aid the program prior to forwarding invitations to bid to this source.

Prepared by_____
Misc. Dr., Aero-Equip. Sub-Sec.

Noted by_____
Chief, Aero-Equip. Sub-Sec.

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Lt. T. H. Lehman
THL:gvb - 2-8210

TSBPRL&K(2)

Status Report
TI-2022, Add. 21

Commanding General
Army Air Forces
Washington, 25, D. C.

Attn: Office of Asst. Chief of Air Staff, M. & S.
Chief, Engineering Branch, Materiel Division.

1. The following status report is submitted in order to outline action taken to date in the accomplishment of Addendum 21 to TI-2022 dated 20 March 1945. This Directive directs that all multiplace life rafts will be equipped with standardized Higgins Type Sea Water Distillation Kits. Each kit consists of three (3) vinylite sun stills, one (1) freshwater storage bag and one (1) set of operating instructions for the kit.

2. At the time the Higgins Type Still was made standard and the Gallowhur Type Still was relegated to a limited standard classification, a contract for 33,334 Gallowhur Type Stills had been placed with the Gallowhur Chemical Company of New York. Delivery of these limited standard stills has now commenced and this Command decided to accept the total quantity of limited standard stills on order in order to provide this equipment for the using activities during the period of time which would be required to get other sources into production of the more desirable standardized still. Two (2) contracts have been placed for the Gallowhur Type Still, one (1) with the S. Buchsbaum Company of Chicago, and ond (1) with the Watertight Slide Fastener Company of New York. Since neither of these contractors has commenced delivery or the procurement of raw materials for the manufacture of the Gallowhur Type Still, both of these contracts will be converted to the Higgins Type Still. Both contractors, at the present time, are manufacturing sample stills which will be forwarded to this Command for testing and which will determine the manufacturing methods to be employed in the fabrication of the Higgins Type Still. The Watertight Slide Fastener Company and the S. Buchsbaum Company each has a contract for 50,000 kits. Sample stills from the above contractors should be received on or about 23 April 1945.

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Ltr. to AC/AS, M. & S.
Re: Status Report TI-2022, Add. 21

3. The patent situation, as related to the procurement of Higgins Type Stills is extremely complex and a thorough survey is being made at the present time by the Patent and Royalties Office of this Command to determine in whose name the patents on this equipment belong. Dr. Maria Telkus of M. I. T., The Gallowhur Chemical Company, Higgins Industries and a Dr. Alexis Ushakoff all claim to have contributed largely to the development of the vinylite bag type solar still. This situation has been further complicated due to the fact that Dr. Ushakoff, who is credited with the development of the Higgins Type Still while in the employ of Higgins Industries, has been recently discharged from his position as Chief Engineer of the Higgins Plastic Products Division and is organizing a concern with the intent of manufacturing the Higgins Type Still. In spite of the many complications involved, the patent situation will not be allowed to interfere with the procurement of this vital equipment.

4. The Higgins Still, in its present form, requires a considerable amount of facilities and Higgins Industries in their initial proposal estimated that $1,234,000.00 worth of facilities would be required to produce these stills at the rate of 4,000 per day. This amount appeared abnormally large and a thorough investigation was initiated to determine whether or not the manufacture of the still could be simplified and the list of facilities reduced appreciably. A thorough investigation of this situation has disclosed that the still may be manufactured by several different methods which would preclude a necessity for the elaborate costly facilities required by Higgins. The S. Buchsbaum Company and the Watertight Slide Fastener Company will both thoroughly investigate these alternate manufacturing methods and will manufacture test stills by these methods and submit them to this Command for approval. Careful screening of the initial Higgins appendix reduced this list of facilities to $606,000.00. Mr. Frank O. Higgins of Higgins Industries advised this Command via telephone on 19 April 1945 that his organization is developing a new method of fabrication which will reduce this facilities list even further. The advisability of placing this procurement with Higgins on a sole source basis was questioned by this Command due to the following reasons:

a. Extensive facilities required.

b. Loss of engineering personnel who had developed the still.

c. Lack of production experience in vinyl film fabrication.

For these reasons andin order to provide alternate sources for this critical equipment, it has been decided to place contracts for the unprocured balance of 247,678 kits on the basis of competitive bidding.

5. An intensive search has been conducted to locate potential sources for this equipment. Numerous plastic fabricators within the Chicago and New York Areas have been contacted and current indications are that sufficient sources will be available to produce this equipment. Location of these sources was made difficult

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Ltr. to AC/AS, M. & S.
Re: Status Report TI-2022, Add. 21

due to the fact that the number of plastic fabricators in the United States who have had any appreciable amount of experience in the handling of vinyl film from which these stills are fabricated is extremely limited. At the present time, the issuance of invitations to bid is being delayed pending receipt of pertinent procurement data. Tentative specifications have been drawn up and preliminary drawings should be available by 25 April 1945.

6. Close coordination is being maintained with the Bureau of Aeronautics, Navy Department on this project and it is understood that the Navy requirements will be equally as large as those of the Army. However, as of the 20 April 1945 Naval Engineering personnel had not released this equipment to the Naval Procurement personnel for procurement action.

For the Director:

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TSEAL-583

Gallowhur Chemical Corporation,
250 E. 43rd Street,
New York 17, New York.
Attention: Mr. [illegible]

Gentlemen:

Further reference is made to your letter dated 25 March. Most of the information requested therein is now available.

The tests were official service tests. Your company was advised that they were to be held by letter dated 15 November 1944, in which it was also stated that stills should be delivered not later than 20 December 1944. As the test was originally set up, its purpose was to compare experimental stills with approved or standard AAF stills. According to your letter of 19 December 1944, production models of these were not expected to be ready before ".....the latter part of January 1945". This letter further stated that new models were not yet ready for service test. At the time the test was to begin, approximately 6 January 1945, the only stills available from your Company were one or two stills similar to your serial number 127 and two or three double sponge type. Partly because of this, the initial tests using these stills were discounted. The decisive tests were carried out on 6, 9, 10, 12, and 13 February 1945 using stills delivered by your representative 2 February 1945. These were understood to have been made for a Navy contract, and differed mainly in packing, accessories and pre-washing from the AAF stills.

The overall average efficiency of four stills used during 114 still hours on the dates mentioned, was 29% without correction for contamination. Midday efficiencies averaged 37% without correction for contamination. Yields averaged 210 ml. per still per 3 hour period without correction for contamination.

The double sponge stills were not included on the official test and were to be reported upon informally. This report has not been received.

Very truly yours,

R. W. PLOPSI,
Colonel, Air Corps,
Chief, Personal Equipment Laboratory,
Aircraft & Physical Requirements
Subdivision, Engineering Division.

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cc: TSCHI-

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2 TSRAL-583 TJAG 1 May 1945
Attn.: E. S. Fetcher, Jr. Maj.W.R.Lane/lfk
2-7233

1. In view of informal advice from your office to the effect that procurement of the subject Stills is quite urgent, the fact that the patent situation with respect thereto is confused and cannot now be determined, and the further fact that the subject drawings were made from Solar Stills owned by the Government, it is suggested that such drawings be released for standard. This office is presently conducting a patent investigation looking to protecting the interests of the Government in this matter.

J. C. BURTON
Colonel, J. A. G. D.
Chief, Patents and Royalties Section
Office, the Judge Advocate

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Higgins
INDUSTRIES INCORPORATED
New Orleans 19, U.S.A.

FOH:pc
10 May 1945

SUBJECT: Request for Quotation -
Invitation No. R-45-4091/411648

ac-11407

TO: Director
Air Technical Service Command
Wright Field, Dayton, Ohio

1. Submitted herewith for your consideration are three copies of subject proposal. While we have quoted prices on the three largest increments, all other information that would be affected by quantity presented in the proposal and this letter applies to the largest increment only. We have declined to quote on the three lesser increments because, as the specified rate of delivery remains constant, tooling costs and preparation time would not be decreased and amortization of these disproportionately excessive costs over small quantities would result in quotations too high to be consistent with sound business.

2. In reply to paragraph 2 of invitation letter dated 26 April 1945, signed by Captain Clifford F. Turner, which states: "Information is requested if prices include any patent or other royalties payable by you to others; if so, type of patent and serial number, to whom royalties are payable and amount. If prices quoted includes any engineering or other service fees or charges, explain the amount and nature of the services", we hereby advise that the Higgins Solar Still has been designed, engineered and developed on the initiative of this company, patents have been applied for and prices quoted in attached bid do not include any charge for such engineering and development or any royalties or other fees payable by us to others.

3. We have previously submitted, in our letter of 6 April 1945 to the Air Technical Service Command formal proposal covering the manufacture of 750,000 molded Solar Stills, together with applicable Appendix "A", stating knowledge that bids would be requested on a per kit basis, we quoted a price of $13.00 per Still or the equivalent of $39.00 per kit, including tooling. The Appendix "A" requested authorization to expend $696,069.94 for additional Defense Plant Corporation facilities required for producing the molded Stills. Subsequently, as a result of continued experimentation we have developed a new technique, which replaces most of the molding operations with simpler fabricating methods. This improved method not only produces an article that our tests indicate is equal or superior in per-

Contract files
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formance to the molded Still but permits considerable economies in facilities, tooling and man-hours required. Accordingly, we have submitted revised Appendix "A" in the amount of $387,720.07 (a reduction of $310,349.87) and the attached proposal quoting a price of $24.33 per kit (37½ % lower than original bid) is presented as an alternate to current fabricated Higgins Solar Stills to be substantially as per attached drawing and sample still which will be presented with this proposal by our representatives. Copies of all correspondence in connection with transactions referred to above are attached and made a part of this proposal.

4. In view of the fact that the attached quotation has been estimated without benefit of production experience, it is requested that a clause be incorporated in any contract that should result, providing for redetermination of price, upwards or downwards after 30% of contract has been fulfilled, based on actual performance costs, such adjusted price to be retroactive to the beginning of contract.

5. This proposal is submitted in the name of Higgins Industries, Inc., which includes the operations of its fully owned subsidiary, Higgins Plastics Corporation.

Respectfully submitted,

HIGGINS INDUSTRIES, Inc.

Frank O. Higgins
Vice-President

Contract file
7-6-45
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MINUTES OF MISCELLANEOUS O.F.S. COMMITTEE MEETING

DATE: 12 May 1945

SUBJECT: Award of Procurement on Kits, Seawater Distillation, Type LI-2, Quantity - 247,678

ATTENDANCE: WDGS Ltr. No. 413/45

PRESENT AT MEETING:

WDGS Committee:

Major R. H. Clarkson	Chief, Miscellaneous Branch, AMS
Lt. T. H. Lehman	Miscellaneous Branch, AMS
Lt. C. W. Beaver	Miscellaneous Branch, AMS
Mr. Sidney Marx	Miscellaneous Branch, AMS

Others:

Lt. Col. R. E. Miller	Asst. Ch., Aero Equipment Sub-Section
Major F. C. Hogan	Smaller War Plants Liaison Officer
Captain A. Ambrith	Signal Branch
Captain F. T. Feear	Special Projects Branch
Mr. M. D. Church	Royalty Adjustment Board, JANC
Lt. R. W. Nash	Manufacturing Methods Branch
Dr. K. S. Fetcher	Personal Equipment Lab., Engr. Div.
Mr. Jack M. Marsh	Facilities Engineering Branch

BIDDERS AND BIDS SUBMITTED:

In response to twenty-two (22) invitations to bid, seven (7) bids were received:

1. Thermold Corporation, New Orleans, Louisiana
   Price - $38.10 per kit on 150,000 kits or
   $34.65 per kit on 247,678 kits.
   Tooling charge of $311,220.00 included in price.
   Facilities requested - $171,640.00. Group I Labor area.
   F.O.B. point - South Gate, California.
   V.P. Loan at $750,000.00 and advance payment of $475,000.00.

2. Bendi Signal Mfg. Company, New York, N. Y.
   Price - $39.16 per kit on 50,000 kits
   $39.[illegible] per kit on 100,000 kits
   $38.89 per kit on 150,000 kits
   or
   $38.62 per kit on 200,000 to 247,678 kits.
   Tooling charge included in price.
   Facilities requested - none.
   F.O.B. point - New York. Group IV Labor Area.

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[illegible] Meeting - 12 May 1958, [illegible]

5. Cruver Manufacturing Company, Chicago, Illinois.
Price - $[illegible] per kit on [illegible] kits
$56.75 per kit on 50,000 kits
$[illegible] per kit on 100,000 kits
$[illegible] per kit on 150,000 kits
or
$55.45 per kit on 200,000 to 247,678 kits.
Tooling charge included in price.
Facilities requested - none.
F.O.B. point - Chicago. Group I Labor Area.
(Price is based on Specification MIL, metal container as GFE)

4. Rigging Industries, New Orleans, Louisiana
Price - $30.60 per kit on 100,000 kits
$27.11 per kit on 150,000 kits
or
$26.53 per kit on 200,000 to 247,678 kits.
Tooling charge included in price.
Facilities requested - $[illegible].
F.O.B. point - New Orleans. Group III Labor Area.

5. Canfield Corporation, New York, N. Y.
Price - $[illegible] per kit on 49,996 kits.
Tooling charge included in price.
Facilities requested - none.
F.O.B. point - Elmhurst, Long Island. Group Labor Area and Listed.

6. Batavia Metal Products Company, Chicago, Illinois.
Price - $32.15 per kit. Bid on entire quantity.
Tooling charge - $[illegible],000.00
Facilities requested - none. Group I Labor Area.

7. DuPage Plastics Company, Chicago, Illinois.
Price - $37.52 per kit on 50,000 kits
$37.34 per kit on 60,000 kits
or
$37.16 per kit on 75,000 kits.
Tooling charge of $[illegible],000.00 included in price.
Facilities requested - none.
F.O.B. point - Lombard, Illinois. Group I Labor Area.

[illegible]:

1. Delivery schedule:
21,000 kits per month, delivery to start 60 days after receipt of approval.

2. The following sources are sponsored by [illegible]:
Canfield Corporation
DuPage Plastics Company
Cruver Manufacturing Company

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OPE Committee Meeting - 12 May 1945, Seawater Distillation Kits LL-2

RECOMMENDATION OF AWARD:

1. After due discussion it was the consensus of opinion that the balance of 247,678 kits should be placed with the Higgins Industries and DuPage Plastics Company in the quantities listed below by virtue of the following reasons:

a. Higgins Industries - 172,678 kits.

(1) This source appears, at the present time, to retain a group of highly confident engineers who seem to have considerable knowledge of the handling of vinyl film. This source is the originator of the model LL-2 Still and, while no definite patent applications have been filed by this company, considerable energy and expense has been incurred in the development of this item.

(2) This source is located in a Group III Labor Area.

(3) For the above quantity of kits, the Higgins Industries submitted a bid of $26.07 per kit. This price includes a tooling cost of $1.75 per kit. Although this source will require facilities in the amount of $385,780.07, the Resources Control Section's representative stated that these facilities could be approved with little difficulty. Based upon the foregoing figures, the total amount of this procurement will be $4,501,715.46, subject to redetermination.

b. DuPage Plastics Company - 75,000 kits.

(1) This contractor was considered to be highly skilled and retains personnel who have had considerable previous experience in the handling of vinylite. Preliminary samples submitted by the contractor revealed that this source has developed entirely new methods for the molding of the still hemispheres which appear quite promising from a production standpoint. This partnership was organized in December 1944 and, since that time, has established a commendable record in the production of plastic match box compasses.

(2) While this contractor is listed as being in a Group I Labor Area, the DuPage plant is located in the town of Lombard, Illinois approximately twenty-five miles from Chicago. Sufficient personnel have been drawn from the town of Lombard to fulfill manpower requirements on contracts accomplished to date.

(3) DuPage submitted a bid of $37.16 per kit with no tooling or facilities required. The total amount of the procurement from DuPage will amount to $2,787,000.00 subject to redetermination.

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OPS Com. Meeting - 12 May 1945, Seawater Distillation Kits LL-2

(4) Of the three (3) concerns registered with Smaller War Plants Corporation, DuPage was the only company recommended for consideration. This company was represented by Major Rogan as being distressed.

REJECTED BIDS:

1. It was deemed advisable to reject the bids submitted by the following contractors due to the reasons shown below:

a. Thermold Corporation

(1) This concern was organized for the sole purpose of bidding on this procurement and retains an engineering staff headed by Dr. A. Usakoff, designer of the LL-2 still while in the employ of Higgins Industries. Manufacture of these stills was contemplated in South Gate, California which is in a Group I Labor Area. This concern, in quoting upon increments of 150,000 and 247,678 required a V.T. loan of $750,000.00 in addition to an advance payment of $475,000.00. In addition to these payments, $171,760.00 was required for facilities. The price per kit, as quoted by this concern, was $36.10 for 150,000 kits and $34.65 per kit for 247,678 kits. In the final analysis, this concern possessed nothing but the skill of Dr. Usakoff and a fervent desire to be in the sun still manufacturing business.

b. The Morni Signal Manufacturing Company

(1) While this concern is located in a Group IV Labor Area, it has no previous experience in the handling of vinyl plastics. This concern requires neither tooling nor facilities, but the individual price per kit was relatively high, being $39.46 per kit for 50,000 kits; $39.04 per kit for 100,000 kits; $38.53 per kit for 150,000 kits and $38.62 per kit for 200,000 to 247,678 kits. In view of the lack of production experience with plastics, the ability of this concern to produce is questionable.

c. Cruver Manufacturing Company

(1) This company, while located in a Group I Labor Area, likewise has had little experience in vinyl film fabrication. This concern likewise stated that neither tooling nor facilities would be required. The following quotations were received from this source:

$38.46 per kit for 25,000 kits; $36.73 per kit for 50,000 kits; $35.87 per kit for 100,000 kits; $35.55 per kit for 150,000 kits; and $35.44 per kit for 200,000 to 247,678 kits. The foregoing prices were based on the assumption that the metal container for the kit would be GFE. This assumption, of course, is incorrect and would result in each of the unit prices being

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increased by approximately $.80. Lack of experience plus a relatively high price led to the rejection of this bid.

d. Sealoid Corporation

(1) This concern bid on a quantity of 49,996 kits at a unit price of $18.60 per kit. The plant where manufacture was to be accomplished is located in Elmhurst, Long Island which does not appear in the current list of labor area ratings. This source has had considerable experience in the handling of vinylite and is a Smaller War Plant. The price, as quoted, was considered excessive for further consideration.

e. Batavia Metal Products Company

(1) This concern submitted a bid for 247,678 kits at a unit price of $2.15 per kit. While this price appeared reasonable, tooling in the amount of $25,000.00 was required, and the concern is located in a Group I Labor Area. The prime reasons for rejection of this bidder, however, was the lack of experience in the handling of vinylite and further that they made no quotation other than for the entire quantity. This concern is considered by Resources Control Section to be a brokerage organization who would subcontract a major portion of this procurement.

2. In the placing of the procurement for the 247,678 kits, the secondary objective of Procurement Division was to establish alternate sources for this very critical item, and to provide a pool of contractors which would be available for the manufacturing of this item for the Navy and the British. Information has reached this Command that the British War Commission contemplates procurement of 16,667 kits and the Navy requirement at the present time is approximately 750,000 individual stills. By establishing DuPage and Higgins as solar still sources, the total of contractors currently manufacturing this item is increased to four (4). The S. Buchsbaum & Company of Chicago and the Water Tight Slide Fastener Company of New York have contracts for in the amount of 50,000 kits each, at the present time. It is believed that these four (4) sources will be adequate to cover Army, Navy and British requirements.

Unit Chief _____
T. H. L[illegible], 1st Lt., A. C.

Executive for Procurement _____
C. F. TURNER, Capt., A. C.

Chairman, OPS Committee _____
[illegible], Lt. Col., A. C.

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ROUTING AND RECORD SHEET AIR TECHNICAL SERVICE COMMAND

SUBJECT: Advance Payments, Calloway Chemical Corporation, Contract No. W33-038 ac-6844

TO: TSBPR&KI FROM: TSBPR&K DATE: 15 May 45 COMMENT NO. 1

Attn: Lt. G. W. Weaver

1. The subject Contractor has requested an additional advance payment in the amount of $97,000.00. In order that Fiscal Branch may make the determination as required by paragraph 4 of AFSO Letter No. 70-7, the following information is requested:

a. Are the supplies called for under the subject contract still required by the AAF?

By direction of the Maj. W.C.
ELMER E. PEARCEY, Jr.
Lt. Colonel, Air Corps
Chief, Fiscal Branch
Procurement Division

Ext. 2-5224
Bldg. 16-B

To: TSBPR&K From: TSBPR&KI Date: 17/May/45 Comment No. 2.
Lt. G.W. Weaver Ext. 2-8227

1. Solar Stills called for on subject Contract are still urgently required by the Army Air Forces.

R. R. CLARKSON,
Major, Air Corps,
Chief, Miscellaneous Branch,
Aero. Equipment Sub-Section.

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[redacted]

[redacted]

Dear Sirs

I would like to give you some facts concerning the production of the Bolsey pistol for the Army Air Forces. I am living [redacted] from the Higgins research laboratory where the pistol was built, which was assigned to units at Eglin Field, was developed. My husband is in the Air Corps stationed in the Southwest Pacific, and I am vitally interested in having this life saving equipment available to them as soon as possible.

It is well known in New Orleans that with the exception of small tools Mr. Higgins has not been able to produce on any contract given him. He has had five major contracts cancelled.

1. A contract for Liberty ships was cancelled.
2. A contract for C-76 Planes was cancelled.
3. A contract for C-64 Planes was cancelled.
4. A contract for the manufacture of skiffs was cancelled.
5. A contract for the repair of Jeeps was cancelled.

If you will investigate through the technicians at Wright Field and Eglin Field, you will find that Higgins is not thoroughly qualified to produce the welded type Pistols. As soon as the skiff was developed by the point of testing accepted by the Air Corps Mr. Higgins fired Mr. Whitehead (the man who invented and developed the welded skiff type) to keep from paying him a royalty on production. All of Mr. Whitehead's staff resigned when he was fired.

Mr. Higgins does not now have technicians who can design the necessary molds and equipment for production of the skiffs and he is my opinion Higgins will again have a cancelled contract and our boys on life rafts will be suffering without an available supply of drinking water.

I would like to request that you investigate thoroughly the possibilities of Higgins being able to carry through with the production of this essential life saving equipment as the facts show that there will be an extended delay in our men having skiffs for use if Higgins is given the contract.

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[redacted] work had reviewed
[redacted] Louisiana
[redacted] 1941

[redacted]
Wright Field
Dayton, Ohio

[redacted] (page 2 of 2)

I could give more details to prove my contention but your investigation will bring out the facts.

[redacted]

[redacted]

FOR [redacted]

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7

Sea Water Distillation Kits.

Mrs. Kathryn O. Amson,
7001 West End Boulevard,
New Orleans 19, Louisiana.

Dear Mrs. Amson:

I have received your letter of May 20th and am grateful for your interest in our endeavors.

As you know, the mission of the Army Air Forces is to provide the using activities with the best possible equipment in the shortest possible time, and your interest in helping us attain this goal is sincerely appreciated.

K. B. WOLFE,
Major General, U.S.A.,
Chief, Engineering & Procurement.

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SAVE

ADDRESS REPLY & ENVELOPE TO
COMMANDING OFFICER
ATTENTION: District
Financial Officer

HEADQUARTERS
[redacted]
AIR TECHNICAL SERVICE COMMAND
EASTERN DISTRICT
67 BROAD ST
NEW YORK 4 N Y

3

EDRFI/LAL/gag

21 May 1945

SUBJECT: Production aspects as related to advance payments under Contract No. W33-038 AC-6286, Gallowhur Chemical Corporation

TO: Director
Air Technical Service Command
Wright Field, Dayton, Ohio

ATTN: TSBP56E

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1. A visit was made to subject Contractor's plant for the purpose of ascertaining the reasons why Contractor's delivery schedule was delayed. Consideration was given, the effect this delay might have on financial condition of the advance payment funds granted the Contractor under Contract No. W33-038 AC-6286.

2. The Contractor is manufacturing a "solar still" for both Army and Navy. He has ready for AAF inspection over 15,000 units allocable to the Army Contract. Present production is at rate of 320 stills per day for the Army, and is being stepped up with a production rate of 1000 a day in mind by the end of June.

3. The major difficulty of packaging has been overcome, and the containers are arriving at Contractor's plant in quantity.

4. The present difficulty is in handling the air test for the stills. Due to length of time required (8 hrs.) in this test, and the bulkiness of the inflated stills, a large amount of floor space is required. Contractor does not have this space available. An overhead conveyor system has been planned and ordered, which will solve this problem.

5. Contractor has started deliveries as of the 15 May 1945. He has shipped 1140 stills as of this date. The AAF Inspector informed the writer that with increasing efficiency of the packing department, he believes that at least 10,000 stills should be shipped by the end of May, and between 15,000 to 20,000 monthly thereafter.

6. Payments from these shipments into Special Advance Payment Bank Account, if prospective delivery schedule is maintained, should cover working capital requirements on the Contract.

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Subject: Contract No. W33-038 AC-6264 SDRFL/LAL/ga
Gallowhur Chemical Corporation

7. This section will keep a close check on production and delivery as they are closely inter-related with the working capital needs of this Contract.

FOR THE COMMANDING OFFICER:

Lester A. Landeau

LESTER A. LANDEAU
1st Lt., Air Corps
Asst. Dist. Financial Officer

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Higgins
INDUSTRIES INCORPORATED
New Orleans 19, U.S.A.

June 1, 1945

Brig. General F. M. Hopkins, Jr.
Chief, Resources Division
AC/AS, Materiel & Services
Headquarters, Army Air Forces
Washington, D. C.

Dear General:

Thanks for your letter of May 29th, acknowledging receipt of copy of Captain Dawbern's thrilling letter.

I had a long distance call yesterday from a British officer who was very gracious and appreciative, and high in his praise of some rescue that was made of some British personnel in the Adriatic by one of our boats.

We have been so centered on building things that will kill our enemies, that you have no idea what a wonderful thrill it is to hear of something that we have assisted in developing and making, that is saving the lives of our own fellows and of our allies.

I know you would be interested in another angle of it - the stimulus that it gives the people in the plant to hear of something that they participated in, that has been a contribution to the war effort. In spite of all the cancellations, nevertheless our people have always gone over any quota that was set in the purchase of bonds, heavy contributors to the Red Cross, the War Chest, etc.

But, the thing that we are most proud of is the way our people responded, and the unbelievably high percentage of men and women of Higgins that give their blood regularly and to the maximum that they are permitted.

As a case in point, everyone that had anything to do with the building of this air sea rescue lifeboat, got together on their own initiative, made up relatively heavy contributions to the Red Cross, and they presented same in person to the Governor of the State of Louisiana.

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Higgins — DATE

General F. L. Hopkins, Jr. June 1, 1945

six hundred of these boats, and while we were producing them, half of them were cancelled. While it is regretted that there has been this loss of time, nevertheless it is gratifying that their initial successes have justified the people at Wright Field to restore this order. We are going to pick up loose ends and threads and resume again to go into production for the remaining 300 of the original order.

By the way, the Navy are having us build three smaller type airborne lifeboats. We understand that after these have been built and checked, that they will want us to build 100 or more of same.

While thinking about rescue business, we are gratified that after two years, the "powers that be" at Wright Field have awarded us a contract for what is a considerable number of the water purification plants, that is, the solar still we will make up in a small pack. I hope and pray that we will be able to get enough of these out in a big hurry, so that they may be the means of saving the lives of some of our folks.

I don't know whether this will be in the line of your duties or not, at least I am sure it will be of interest, so will recite: The 20th Century Fox moving picture people have been down here making some moving picture that required the use of our landing boats and marine equipment. Their shots were taken around Lake Pontchartrain and along the Gulf Coast over as far as Biloxi.

It so happened that on one of the days they were taking pictures out in the Gulf, they saw planes from Keesler Field practicing dropping the lifeboat. One of the big directors of the company said that he personally counted over ninety drops during the daylight of one day. He said it was the most amazing and thrilling sight that he had ever seen, and the thing actually being done was more thrilling, he said, than any fantastic frame-up thrill he or anyone else in Hollywood ever fugabooed.

They were in here today talking to me, and asking if we would give them cooperation; that they planned on getting some big name to write a script that will glorify the Army Air Forces, and they would like to have the principal motif of it the droppable airborne lifeboat.

Some of their directors are staying over to get a little local color and talk this over with our people, and inasmuch as they have seen our people out on the lake and in the Gulf in rubber boats and on other equipment, testing the inflatable plastic bag that is the solar still, they think that this would work into their picture very well.

I told them that I felt sure that the Army Air Forces would be very pleased to give them their cooperation, and I am sure

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Higgins

DATE

General H. H. Hopkins, Jr. June 1, 1945

that it would not burden the people at Keesler Field at all to co-operate, and as far as our company was concerned, well, we would do anything that we could.

Now, as I see it, one of these days the war will be over. All of the people of our country, who have been at high tension, will snap. There will be praise and glory, and accusations and investigations, and possibly a wave of hysterical economy, and the country will be told that we will never again have another war, and the hell with the Services, the hell with the Air Force.

In other words; the day is coming when the Army Air Forces is going to need friends, and going to need the support of the public; to see that Congress has vision and common sense to make the necessary appropriations to maintain the Air Forces; to extend it, and permit them to keep our Air Forces ahead of our enemies. Yes, better equipped than our friends.

It is very fine to have the public see wonderful pictures of our planes shooting down Japs, but it will never make the tremendous lasting impression on the women and the public generally, as would be a picture showing the saving of one American boy's life.

The whole country gives acclaim to the medical branches of all of our Services; and I am tipping you off, and I am suggesting you consider the strong sympathy and appreciation the country will have for the Air Forces if it is revealed that while they are devoting all of their thoughts and talents, and efforts, to destroy our enemies; they are, at the same time, thinking of saving the doubly valuable lives of the wonderful boys that fly our machines of destruction.

At the risk of covering a lot of subjects in one letter - as I have so little opportunity of writing you - thought you would be interested in the attached four photographs showing some of the experimental flights we are making of, I believe it is No. 6 or 7, variation of our two seater helicopter.

Sincerely yours,

HIGGINS INDUSTRIES, INC.

Andrew J. Higgins

Andrew J. Higgins, President

AJH/t
encs.

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[Approx 1 June 1945]

Sea Water Distillation Kits,
Specification 40977, Type LL-2.

Dr. Alexis K. Schakoff,
1732 Palmer Avenue,
New Orleans 15, Louisiana.

Dear Dr. Schakoff:

Reference is made to your letter of 19 May 1945, which, it is assumed, refers to the bid proposal submitted to this Headquarters by the Thermald Corporation of New Orleans, Louisiana on 7 May 1945. In response to the specific requests for information as to the reasons which led to the rejection of the Thermald Corporation bid, the following facts are presented:

1. The statements which you report Higgins Industries made both publicly and to the press prior to the issuance of a contract to this source were made without the knowledge or consent of this Headquarters. Obviously, the Air Technical Service Command has no control over such statements. Prior to the placement of this procurement with the Higgins Industries, the only contract for this equipment with Higgins has been an experimental contract for test purposes.

2. Thermald's initial bid was received prior to the established closing date without a request for extension of time, however, had an extension of time been requested, this Command would have granted it. Thermald initially bid on the entire procurement. Consequently, at the time of the receipt of the initial bid, Thermald was advised to submit an additional bid for smaller increments since it was desired to give Thermald an opportunity to manufacture this item should the procurement be split between two or more bidders. This revised bid was not received until 12 May 1945 and the closing date of the bids was actually extended one additional day for the sole benefit of the Thermald Corporation. This Command is not obliged to inform bidders of extensions of time in the submitting of bids granted to other potential sources.

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SUBJECT: Sea Water Distillation Kits, Specification 40957, Type LL-2.

TO: Dr. Alexis K. Ushakoff,
1732 Palmer Avenue,
New Orleans 15, Louisiana.

3. Since it is contrary to Air Technical Service Command Policy to disclose to unsuccessful bidders any other information than that their bid was rejected, no information has heretofore been given to the Thermold Corporation as to the reasons leading to the rejection of their bid.

4. In the placement of this procurement, the ability of all bidders to produce was thoroughly discussed by all interested personnel within this Command. It is the opinion of this Command that since neither Higgins nor Thermold has ever produced this item in production quantities, but that both bidders retain engineering personnel competent to manufacture sample stills for testing purposes, the ability of both concerns should be considered on an equal basis.

5. Since both Higgins Industries and Thermold Corporation were judged on equal basis in this respect, it is obvious that this Command, in its rejection of Thermold's bid, was motivated by other reasons than ability to produce. These various reasons are enumerated below:

(a) It would have been necessary to arrange a VT loan of $750,000.00 for Thermold in addition to an advance payment of $475,000.00. Other bidders requested neither VT loans nor advance payments. The request by Thermold for VT loans and advance payments seriously affected their position.

(b) The plant in which the Thermold Corporation, based on information contained in their bid form, intended manufacturing these stills in located in South Gate, Calif. which is in a Group I Labor Area. By comparision, Higgins is located in a Group III Labor Area. Air Technical Service Command policy requires the placement of procurements in the most favorable labor area, whenever possible.

(c) The price per unit as quoted by Thermold was considerably higher than quotations submitted by successful bidders.

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SUBJECT: Sea Water Distillation Kits, Specification 40997, Type LL-2.

TO: Mr. Alexis B. Nehakoff,
1732 Palmer Avenue,
New Orleans 15, Louisiana.

There appears to be a misunderstanding on your part as to the origin of this still and as to the intent and purpose of Specification 40997 covering this equipment. As you know, this specification was based upon sample stills procured from Higgins Industries, and was not drawn up with the intent of determining by what manufacturing procedure the equipment should be fabricated. The purpose of this specification is functional and cites specifically the basic requirements with which the finished equipment must comply. Consequently, the modified still, as submitted by Higgins, was redesigned from the point of view of improving production methods and eliminating the costly facilities originally requested without impairing the ability of the still to comply with the established functional requirements.

A thorough analysis of all the factors in this case leads me to the conclusion that the action taken in this procurement is to the best interest of the Government.

K. B. WOLFE,
Major General, U.S.A.,
Chief, Engineering & Procurement.

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May 19, 1945.

General K. B. Wolfe, AAF
Wright Field
Dayton, Ohio

Dear General Wolfe:

Yesterday I sent you a wire and am writing this letter in order to more fully inform you of what appears to be a most peculiar situation.

As the result of several conferences previously held at Wright Field, during which conversations the men of the various departments connected with this procurement were completely informed of the facts concerning this case, on May 7th we submitted in person a bid on Sea Water Distillation Kits, Type XII-2. We were then told for the FIRST TIME that an extension had been granted to all other bidders, this extension to terminate on May 11th.. Hearing nothing further from Wright Field after that date, we called Major Clarkson on May 16th and were referred to Lt. Weaver who told us that a meeting had been held and that the contract was awarded to two other vendors. When asked to whom and at what price, Lt. Weaver stated that a directive had just come out prohibiting the disclosure of information to any bidders.

In New Orleans, Andrew J. Higgins, Sr., returned from Washington and some two weeks before the bids were due, gave a statement to the press that this company had received two "non-cancellable" war contracts. He had apparently made current that story even before it reached the press since the writer was asked by a certain well informed government official whether or not it was true that Higgins had received a contract to manufacture solar stills. During the week of May 7th, at Higgins exhibit yes in conjunction with an exhibit of captured enemy equipment staged by the AAF in City Park, New Orleans, a Higgins representative told the public that they had a contract with the Air Corps and were already producing stills at a considerable rate.

The writer, who originated this still before coming with Higgins and who planned and directed the development of the still until discharged on April 3rd, for reasons explained to General Correll and others at Wright Field, and his assistant and technical staff who terminated their employment with Higgins as a result of this action by the company, prepared an accurate and detailed production procedure for manufacture of the still, which schedule was given to the Procurement Department of Wright Field. Based upon this procedure and experience, our bid was placed with the Arnet Company of Baltimore and the Stanton Band Company of Los Angeles agreeing to supply the needed plant and capital required. The design was never in question since it was my design that was originally approved by the Proving Ground Command at Eglin Field. The manufacturing procedure given in our bid was based upon the experience of the past two years in creating the still, during which time considerable thought was always given to the ultimate productio n.

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Since the writer's dismissal, there is evidence to show that Higgins has departed from the original design as approved and that they have been unable to produce an experimental still to meet either specifications as drawn, or tests.

There is evidence to show that Higgins does not yet know how the still will be built and therefore, no attention has been given to the actual manufacturing procedure altho, somehow it appears he has been able to arrive at the price of the still. It is open to question how a bid figure, given under those conditions, can be considered reliable.

We were told at Wright Field that the bid would be based upon the following facts in the following order:

1. Know how
2. Ability to produce
3. Facilities available
4. Facilities required
5. Company stability
6. Price.

We were told since the delivery of the still was most important of all factors and since the actual asking price was subject to redetermination upward or downward, the price would be the least important of all considerations.

We understand that Higgins and another concern have been awarded contracts for manufacturing the still. We feel it our duty to challenge the wisdom of this decision.

We would like to know:

1. How Higgins could talk about contract awards before competitive bids were received by the Army?

2. Why were we not notified before May 7th that an extension had been granted?

3. Why were we not informed of the award of contracts in a more open manner?

4. How the Air Corps judged our proposed manufacturing procedure as compared to Higgins or any other company with regard to ability to produce?

5. Why a company with no experience in plastics, no experienced personnel should be granted a contract requiring the utmost skill and knowledge of plastic manufacturing procedure.

6. Since new and special equipment is required which no company can claim is already available, and since "know how" was stressed as Number One on the list of bid requirements, why were we disqualified?

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It seems to me that we and other interested parties should be more thoroughly investigated when it comes to such an important consideration as ABILITY TO PRODUCE, since a poor guess at this time would delay the production of this badly needed equipment by many months.

Very truly yours,

Alexis M. Wehaloff

1732 Palmer Avenue
New Orleans 15, La.

Tel: Walnut 1855.

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June 11, 1945.

K.B.Wolfe, Major General, U.S.A.
Chief, Engineering and Procurement
Wright Field
Dayton, Ohio.

Subject: Sea Water Distillation Kits
Specification M0057, Type LL-2

Dear General Wolfe:

I want to thank you for your letter of June the first. Altho I do not agree with some of the statements contained in your letter, I do appreciate the fact that you endeavored to answer my questions.

Since your letter closes the issue so far as your Command is concerned, I should like to reiterate, for the record, that I do not believe Higgins Industries will be capable of producing these stills in quantities and quality required, whether fabricated, molded, or dipped. I further believe that a company must have some background in plastics to handle a job of this sort. Savings, VT loans, lower unit prices, are meaningless when contracts are subject to redetermination up or down. It is the final cost to the Government for the number of units actually produced and during the time when needed, that will determine whether factors were properly weighed when contracts were awarded.

With reference to the next to the last paragraph in your letter, I feel that you have been misinformed concerning the origin of the still. The still was originated and developed by me. It final functional design was approved after a number of tests, conducted both by your Command, as well as the Proving Ground Command in Florida where I spent many a day in the life rafts during these tests. Likewise, I am fully cognizant of the intent and purpose of specification M0057 since I assisted in writing it. Also, with respect to an improved method of manufacturing these stills, we submitted a method which was only one third as expensive as the original estimate submitted by Higgins Industries.

I naturally have a proprietory interest in these stills and am anxious to see them produced and in the hands of those who need them. If you believe that I can be of any assistance, please feel free to call upon me.

Very truly yours,

/s/ Alexis E Ushakoff
Alexis E. Ushakoff

AU/HW

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RGW/vfm/TSBRCL&C-3
Letter Orders B6-2-15
Dated 2 June 1945

Higgins Industries, Inc.
New Orleans, Louisiana
RCS Project 5816 (Solar Stills)

Resources Control
TSBRCL&C-3-714

A. Purpose of Visit

In compliance with instructions contained in Letter Orders B6-2-15 dated 2 June 1945, Richard G. Williams, Production Supervisor, Resources Control Section, proceeded by rail to New Orleans, La., to confer with officials of Higgins Industries, Inc., regarding facilities needed in the production of solar stills. At New Orleans, Mr. Williams met Dr. E. S. Fletcher, TSEAL5, Lieut. T. H. Lehman, TSBPR and Mr. R. E. Hart, TSBCh, these gentlemen being present to investigate production methods, materials, etc.

B. Factual Data

After a brief discussion of the mission we proceeded to the Higgins Aircraft Assembly Plant, where the stills are to be made, arriving about 10:30 a.m. and checked in at the office of the SWPR. From here we proceeded to the office of Mr. Frank O. Higgins, Vice-Pres. and General Manager of Higgins Industries, Inc. and went into conference with Mr. Higgins and the following members of his staff:

Mr. Harold C. Peters, Ass't. to Mr. Higgins
Mr. Ralph Carselman, Project Engineer
Mr. Carleton H. Schupp, Chemical Engineer
Mr. Robert L. Robinson, Jr., Plant Engineer

The purpose of the visit having been stated by Dr. Fletcher and Mr. Hart, it was indicated by Mr. Higgins that a change in production methods, as previously recommended, wherein plastic molds were eliminated, would alter the original plan both as to facilities and equipment, and as a consequence it had been decided to move the processing shop from the northeast plant quarter with four inclosure walls to the extreme northwest corner of the plant where only two inclosure walls would be required. After briefly touching upon facilities it was decided to use the remainder of the day in coordinating the plans and specifications for the solar stills and after lunch the conference moved to one of Higgins' small boat repair shops where sample stills were being manufactured and tested.

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Higgins Industries, Inc.
New Orleans, Louisiana
11 June 1945

All parties previously mentioned, except Mr. Higgins, participated in the technical discussion involving the design, manufacturing sequence and packaging of solar stills all of which has a direct bearing on the necessary facilities. This meeting concluded at 7:20 p.m. and was resumed the next day at the same place until after lunch when we returned to Mr. Higgins office in the Aircraft Assembly Plant.

Schedule II(a)

At this time the proposed production area was visited and each item of Schedule II in the submitted Appendix "A" was reviewed. Mr. Atkinson, Plant Engineer, explained that the area proposed extended between Columns 1 and 3 from Sec. A to Sec. B., being 420' x 225' in size, having a productive floor space of 94,500 sq.ft. It was pointed out by Mr. Hart, however, that this represented more space than actually needed as per the plant layout diagram and that 315' x 225' or 70,875 sq.ft. of floor area would suffice. The area, therefore, will extend from Col. 1 to Col. 3, and from Sec.A to Sec.B.

The north plant wall and the north hanger door on west side of the building will constitute two of the area's inclosures. A truck door will be cut into the hanger door to provide access for loading out packaged stills. The other two inclosure walls as originally designed, and which will extend from 3A to 3D and from 3D to 1D, are ceiling (50') high, 8" concrete block for a height of 8' and 2" x 6" studding with transite on both sides above 8'. This is estimated to cost 80¢ per sq. ft. The question of a lower wall varying anywhere from 10' to the bottom of trusses (40') was discussed at some length in the interest of economy; also the estimated cost of 80¢ per sq.ft. was considered entirely too high for the necessity presented. On the date of this inspection the room temperature was 97° which is not uncommon in this location. The plant is surrounded by a considerable amount of oyster shell paving which causes a great amount of dust and considerable dust is also generated within the plant from the boat building area. While dust in a reasonable quantity was not considered detrimental to the processing of Vinylite stills, it was the consensus of opinion that perspiration would cause an unsanitary condition which would be difficult to control. This plant is airconditioned and the contractor proposes to use that facility in the still producing area. As the plant is located some 15 miles from the city of New Orleans it was considered very doubtful that sufficient labor could be secured for the two 10 hour shift program unless the existing air conditioning facility was used. For these reasons it is recommended that the two new inclosure walls be built to ceiling height with 8' of 8" hollow concrete block wall at floor grade and surmounted by light steel framing carrying transite, asbestos or equivalent non-critical siding material on one side only estimated not to exceed 60¢ per sq.ft. This will result in reducing the original estimated cost of the item from $56,960.00 to $17,280.00.

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[illegible] Industries, Inc.
New Orleans, Louisiana
11 June 1945

Schedule II(b)

Plumbing The original estimate using the molding process was $20,000.00. Under the electronic power generator process it is stated that merely a trickle of water is needed at each machine. Toilet room facilities presently are located adjacent to the north side of the area whence cold water connections may be made for the necessary processing water. It is considered that 1/2" or 3/4" piping will service the equipment where needed. These supply lines can be dropped from the overhead trusses at an estimated cost of $3,000.00.

Heating and Ventilating The original estimate of $10,000.00 would have required a certain amount of duct work, exhaust fans, roof ventilators etc. None now required except a modest amount for air conditioning ducts from part house estimated not to exceed $ 2,500.00.

Electric Lighting Originally estimated to cost $7,000.00 for increased intensity on molding tables. In the changed system the present 30 f.c. is said to be ample except on some 50 inspection tables. Between the DPC and AAF these are sufficient table lamps at the plant for the purpose. These will require a reasonable amount of wiring which is estimated to cost $500.00.

Power Wiring Original estimate of $8,000.00 was based on unknown requirements. This situation is unchanged and until detailed requirements are known an intelligent estimate is impossible. No change is therefore recommended at this time.

Sprinklers Originally estimated to cost $5,000.00 for alterations to present system. Since the present system is ample this entire item is stricken out.

Telephone Facilities This item was originally estimated to cost $1,000.00 in the northeastern location. In the new location the estimated cost for ample service is $1,000.00.

C. Conclusions

By relocating the production area in the northwest corner of the plant and changing the manufacturing methods, a considerable saving is evident. Revisions in Schedules III and IV are covered in a separate report by Mr. R. H. Hart of the Manufacturing Methods (MMB) Branch. In connection therewith it is worthy of note that a considerable amount of DPC equipment is readily available in the plant that can be used on this project such as tables, racks, lift fork trucks, electric lamps, etc. Some of this equipment may require some altering but any cost incidental thereto would be insignificant as against making new purchases. Assurances were given the contractor that AAF would make any necessary arrangement with DPC for the use of this existing equipment. It is noted that Schedules III and IV and reduced from a total of $262,238.66 to $180,117.31, whereas Schedule II is reduced from $123,451.40 to $39,474.77

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Higgins Industries, Inc.
New Orleans, Louisiana
11 June 1945

These changes were coordinated and agreed to by the Higgins representatives. It is, therefore, recommended that the total cost of the project be reduced from $385,720.07 to $219,572.08 which is summarized as follows:

	Original	Estimated Cost Revised	Difference
Schedule II(a)	$ 58,060.00	$ 17,820.00	$ 41,140.00
" II(b)	56,100.00	18,040.00	38,060.00
" II(d)	8,421.41	3,594.77	4,826.64
" III(a)	175,124.16	152,152.56	22,971.60
" III(b)	49,500.00	11,000.00	38,500.00
" III(c)	5,329.50	3,764.75	1,564.75
" III(d)	27,500.00	13,200.00	14,300.00
" IV(a)	1,485.00	0.00	1,485.00
" IV(b)	3,300.00	0.00	3,300.00
Totals	$385,720.07	$219,572.08	$166,147.99

Prepared by Richard G. Williams
Production Supervisor

Approved by Travis G. Walsh, Lt.Col., A.C.
Chief, Fac.Engineering Branch

Approved by J. L. Bowling, Lt.Col., A.C.
Chief, Ind.Ser.Sub-Section

Approved by F. H. Moriarty, Col., A.C.
Chief, Resources Control Section

Distribution:
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TRIP REPORT

TSRHM2/THL/mm
15 June 1945

Trip to: Higgins Plastics Corporation, New Orleand, Louisianna.

By: T. H. Lenman, 1st Lt., Air Corps.

Branch: Miscellaneous Branch, TSRHM2(2), Procurement Division.

Conferred with:

F. G. Higgins - Vice-Pres., and Gen. Mgr., Higgins Plastics Corp.
M. C. Morton - Asst. to Vice-Pres. and Gen. Mgr., Higgins Plastics Corp.
Ralph Casselman - Project Engr., Higgins Plastics Corp.
C. H. Phipp - Chemical Engr., Higgins Plastics Corp.
M. L. Atkinson - Plant Engr., Higgins Plastics Corp.
Dr. E. S. Fetcher - Personal Equipment Lab., Engineering Div., Wright Field.
R. W. Hart - Mfg. Methods Branch, Resources Control Sec., Procurement Div., Wright Field.
R. G. Williams - Facilities Branch, Resources Control Sec., Procurement Div., Wright Field.

Subjects discussed:

1. Contractor's request for deviations from AAF Specification 40957, covering Seawater Distillation Kits, Type IL-2.

2. Facilities requested by the contractor for the accomplishment of Contract W33-038 ac-11447, covering Seawater Distillation Kits.

3. Proposed production on the above contract.

Current situation appears to be:

1. Numerous deviations from Specification 40957 were requested by the contractor, due to the fact that this specification and applicable drawings were prepared on the basis of laboratory models of Solar stills previously submitted by Higgins to Engineering Division. Since submitting these stills, the contractor has changed his proposed method of manufacture from a molded type still to a still fabricated from the Vinylite film stock. In addition, extensive laboratory tests at Higgins have prompted the project engineers, both at the Higgins plant and at Wright Field, to incorporate minor improvements in the production stills. A complete breakdown is included in the attached minutes of the meeting held 5 and 6 June 1945 between representatives of ATSC and Higgins Plastics Corporation at the Higgins Plant in New Orleans, Louisianna.

2. The list of facilities, as submitted by Higgins, was ~~revised~~ reviewed at Wright Field prior to the above-mentioned conference and was found to be excessive. A portion of the excessive facilities were attributed to the fact that, although Higgins had revised their method of manufacture of the still, certain items on the facilities list, which were necessary for the earlier molded still but were not required for the manufacture of the current version of the still, had not been removed from the appendix. Higgins' estimates of the cost of the facilities were, in many

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TRIP REPORT

TSBPR/AER/PHL/mm
15 June 1945

cases, found to be too high.

3. Although the contractor had originally stated that production of stills could be commenced sixty days after receipt of contract at the rate of 21,000 stills per month, it was obvious that this was a most unrealistic schedule and could not be met by the contractor. For the purposes of coordinating the production output from various manufacturers of this item, and in order to obtain a realistic production schedule, the contractor was requested to submit a more logical schedule.

The Higgins Plastics Corporation was told to immediately:

1. Base production tooling upon the deviations in the Solar Still as discussed and approved by the conferees and to incorporate these changes in first article stills being submitted to Wright Field on or about the 20th of June 1945. Final approval of these deviations is dependent upon satisfactory completion of first article tests.

2. To accelerate their facilities procurement program immediately upon approval of the revised appendix.

3. To submit a realistic revised production schedule.

Necessary action upon my return was:

1. To authorize by the issuance of a CCN all deviations approved by Engineering Division based upon satisfactory first article tests.

2. Final approval of the revised appendix will be expedited by Resources Control Section, Procurement Division.

3. To submit to Supply Division the modified production schedule contained in attached minutes.

Signed _____
(Initiator)

Noted _____
(Branch Chief)

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ENGINEERING DIV.
PROCUREMENT DIV.
March 4/15/45
Bowling
T.H. Coleman
Sladman
READJUST DIV.
Maraang
OTHER
L. Backus

WF 17 MAY 45 225M

TSHRCLC-1/JRM/bt

19 June 1945

Higgins Industries, Inc.
New Orleans, Louisiana
WCS Project 361 C

Commanding General
Army Air Forces
Washington 25, D. C.

Attention: Assistant C/AS, M & S
Resources Division

1. Higgins Industries, Inc., has submitted through and with the recommendation of the Commanding General, Midwestern District, ATSC, a request for facilities required for the production of solar stills.

2. Production: Subject contractor holds letter contract W33-038 ac-11407 for the production of 172,678 kits for sea water distillation. Such kits comprise three solar stills each which are fabricated of vinylite plastic and are provided as equipment on aircraft life rafts for distilling sea water by means of solar heat. Higgins Industries is one of two sources being established at the present time, the other source being the DuPage Plastics Company, Chicago, Illinois, which will have capacity for the production of 75,000 kits and will be unable to produce more than that amount.

3. Estimated Costs:

Buildings	$ 56,056.00
Service Costs	4,880.69
Machine Tools	None
Other Machinery and Equipment	195,517.31
Portable Tools & Automotive Equipment	None
Total	$ 256,456.00

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Com. Gen., AAF, Res Div.
SUBJECT: Higgins Industries, Inc.
19 June 1945

a. There are inclosed four copies of preliminary Appendix "A" submitted by the subject corporation. It is the understanding of this Command that one copy will be forwarded to the Defense Plant Corporation for its understanding and guidance.

4. Plan of Financing: It is planned to utilize available funds in Defense Plant Corporation lease agreement, Plancor 1569.

5. Justification:

a. The Army Air Forces has sponsored the development of a process for the distillation of sea water using solar heat for utilization by personnel in life rafts. The best type available at the present time is a solar still of viylite plastic as designed by Higgins Industries, Inc. It is vitally necessary that such stills be produced as soon as possible and in sufficient quantity to equip all aircraft life rafts. Inasmuch as Higgins has designed subject still and has engineering "know-how", together with available manufacturing space, it is proposed to have Higgins Industries undertake production of the solar stills.

b. By means of further engineering developments, subject contractor has reduced the cost of the facilities required from, in excess of $1,000,000, down to the present proposal in the amount of $258,456. This is predicated on the contractor being permitted to use some miscellaneous equipment consisting mainly of furniture and fixtures which are available under Plancor 1569 at Higgins plant.

c. It is planned to utilize 94,500 square feet of floor area in the N-W corner of the Higgins Aircraft Plant, New Orleans, Louisiana, by constructing partitions on two sides so that the inclosed area will be protected from dust, and to control temperature and humidity of the enclosed working area.

6. Capacity: With the proposed facilities, Higgins Industries will be able to produce 93,000 stills or 31,000 kits per month with an estimated annual sales value of $9,090,760 based on one ten-hour shift per day.

7. Previous Expansions: Higgins Industries has been previously expanded through a subsidiary, Higgins Aircraft Corporation, under Plancor 1569 upon the recommendation of the Army Air Forces in the total amount of $31,100,033.

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Com. Gen., A.F, Res. Div.
SUBJECT: Higgins Industries, Inc.
19 June 1945

8. Labor: It is anticipated that 650 employees of whom 260 will be males will be required to operate the proposed facilities on a one-shift basis. It is anticipated that former Higgins employees will be utilized for the proposed production. New Orleans is in Group III labor area.

a. It is estimated that 12,000 manhours of construction labor will be required and 9,000 manhours will be required to install equipment.

9. Housing: Present housing facilities are considered to be adequate for the maximum number of employees required.

10. Floor Space: It is proposed to utilize 94,500 square feet of available floor area in the N-W corner of the Higgins Aircraft plant.

11. Utilities: The necessary monthly utility requirements will be available due to cutbacks of other production in the plant.

12. Subcontracting: Since the manufacture of the solar stills is primarily an assembly operation, the only parts to be subcontracted will be the cloth section and some minor molded parts.

13. Raw Materials: Contractor will utilize 6,000 pounds of vinylite VC-1940 to be obtained from the Vinylite Division of Bakelite Corporation, and 8,000 square yars of broadcloth per day to be obtained from William Lind, 83 Worth Street, New York City.

14. Certification: It is hereby certified that the additional facilities herein proposed are essential to enable contractor to perform contract W33-038 ac-11407 for the production of 172,678 sea water distillation kits, which contract has been awarded to Higgins Industries, Inc.

15. Reimbursement: The subject contractor has certified that no part of the cost of facilities covered by this proposal has been or will be included in the prices of articles furnished the Government or prime contractors to the Government.

16. Recommendations: The costs of the proposed facilities as submitted by Higgins Industries, Inc., have been evaluated by this Command and found to be not excessive. It is, therefore, recommended

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Com. Gen., AAF, Res. Div.
SUBJECT: Higgins Industries, Inc.
19 June 1945

that approval of all agencies concerned be obtained to this proposal in the amount of $258,456 utilizing available funds, and that this Command be authorized to proceed with final negotiations with the corporation.

For the Acting Director:

/s/ D. C. Swatland

D. C. SWATLAND
Brig. Gen., U. S. A.
Chief, Procurement Division

1 Incl.:
Pre. Appendix "A"
(in quad.)

Distribution:
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Chief, Fac.Office, Proc.Div.
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ARMY AIR FORCES
HEADQUARTERS
AIR TECHNICAL SERVICE COMMAND

tseng 9
TSENG (TSEA L-5E3)

TSEAL-5E3/HSW/pjc
Wright Field, Dayton, Ohio
29 June 1945

SUBJECT: Policy on Rations and Water Supplies in Emergency Kits and Vest.

TO: Commanding General,
Army Air Forces,
Washington 25, D. C.
Attention: AC/AS, OC&R.

Through: AC/AS, M&S.

1. The general principle evolved by this Command regarding utilization of rations for emergency sustenance kits and vests is as follows:

a. For strictly emergency survival items, carried in the airplane at all times in case of crash, bail-out, or ditching, an emergency type of ration is used. For missions (largely or entirely over oceans), a sea survival ration (Life Raft Ration) is indicated. For missions over land, a land survival ration (Emergency Parachute Ration) is designated. Both types of rations stress utmost caloric density (compactness) for purpose intended since they must be carried at all times in minimum space.

b. For aerial replenishment or delivery of food and gear to survivors or isolated parties, the best ration obtainable at the local base should be delivered. This would be the Ten-in-one Ration, C Ration, or K Ration of the newer types, or suitable components of the B Ration. All can be readily used in a standard aerial delivery container. Space and weight are of little importance since the location of the survivors is known and return trips can be made.

(1) It is recommended that such kits be made up at the local base in order to insure a fresher food that is entirely applicable to the existing situation. It is known that kits containing K Ration over two years old have been sent out from depots in the United States. These may not be used for another year or more. Such rations are obsolete in two years and should be replaced.

2. The general principle followed by this Command in similar respect on water supplies is as follows:

a. For strictly emergency survival kits, that is, in the life raft accessory kits, the Sea Water Desalting Kit, Type JJ-1,

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Ltr. to AC/AS, OC&R thru: AC/AS, M&S dtd 29 June 1945, Subj: "Policy on Rations and Water Supplies in Emergency Kits and Vest".

should be used as an expendable source of water. One kit takes the same room as an emergency drinking water can but yields 7.5 times as much water. The Sea Water Distillation Kit (solar stills), is a non-expendable source, one still providing from one pint to one quart of water on an average sunshiny day. The water storage containers and large paulin are essential for rain water collection. A can of emergency drinking water should be provided for immediate use in case of injured survivors.

b. For aerial delivery or replenishment kits to be dropped to located survivors, a supply of fresh drinking water should be dropped in cans or bags in standard aerial delivery containers.

3. Concurrence is requested with above statements of general policy.

For the Acting Director:

CARL ARNOLD, Maj., A.C.
for PAUL H. KEMMER, Colonel, A.C., Chief,
Aircraft & Physical Requirements Subdivision
Engineering Division.

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FROM: ATSC

DATE: 2 August 1945

H.A. SHEPARD
Colonel, Air Corps
Chief, Production Section

TO: COMMANDING GENERAL
EASTERN DISTRICT, ATSC
67 BROAD STREET
CLASS: NEW YORK CITY
ATTN: LT. WEINSTEIN
PRODUCTION SECTION

TELETYPE NO: TUBP44K(2)-7-1 . . . . . CONTRACT W33-038 AC-4284.

THIS HEADQUARTERS CONSIDERABLY DISTURBED OVER DELINQUENCY OF GALLOWHUR CHEMICAL COMPANY TO DRLIVER TYPE LL-1 SEAWATER DISTILLATION KITS ON SUBJECT CONTRACT. CONTRACTOR HAS CONSTANTLY FAILED TO MEET ESTIMATED PRODUCTION. SHIPMENTS FOR MONTH OF JULY ACTUALLY DROPPED BELOW JUNE SHIPMENTS. 3012 KITS WERE SHIPPED IN JUNE AS COMPARED WITH 2340 KITS FOR JULY. CONTRACTOR'S ESTIMATED PRODUCTION FOR JULY WAS 6000. THESE ITEMS ARE URGENTLY NEEDED FOR IMMEDIATE USE IN THE PACIFIC AREA. REQUEST COMPLETE SURVEY BE MADE OF ESTIMATED PRODUCTION FOR BALANCE OF SUBJECT-CONTRACT AND REALISTIC DELIVERY SCHEDULE BE FORWARDED THIS HEADQUARTERS, SIGNED, PROCUREMENT DIVISION.

PAID

CC: TUBUY2D

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URR V UCOR NR31

FROM CO ED ATSC NEWYORK NY 261630Z

TO CG HQ ATSC WF DY C ATTN TSEPR4K

GRNC

EDEEQ1-3-74 JW REURTEL TSEPR4K2-7-1 GALLOWHUR CHEMICAL CO

W33-038-AC-6264 FAILURE TO DELIVER DUE TO GALLOWHUR BEING UNABLE TO FABRICATE STILLS IN ACCORDANCE WITH REQUIRED AAF SPECIFICATIONS LARGE QUANTITIES OF FABRICATED STILLS REJECTED BY AAF INSPECTION INSPECTION AND PRODUCTION DIVISIONS THIS HEADQUARTERS KEEPING CLOSE CONTACT WITH GALLOWHUR TO ELIMINATE DIFFICULTIES CANNOT ADVISE REALISTIC DELIVERY SCHEDULE THIS DATE WILL ADVISE AS SOON AS AVAILABLE RZPLY EDEEQ1 END

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SAVE

ARMY AIR FORCES
AIR TECHNICAL SERVICE COMMAND
HEADQUARTERS, MIDCENTRAL DISTRICT
211 EAST NORTH WATER STREET
CHICAGO 11, ILLINOIS

ADDRESS REPLY AND ENVELOPE
TO COMMANDING OFFICER,
MIDCENTRAL DISTRICT, ATSC, ATTN:
MJB:JSP:hj:CDBCN2C

3 August 1945

SUBJECT: CCN No. 1(N-37855) 2(N-40628) 3(N-41503)
Contract No. W 33-038-ac-9132
S. Buchsbaum & Co.

TO: Commanding General
Headquarters, ATSC
Wright Field
Dayton, Ohio
Attn: TSBPWAK(2)

1. Contractor is submitting a claim for additional costs to effect changes covered by subject Contract Change Notification No. 2(N-40628) which cancels and supersedes CCN No. 1(N-37855). Design was changed from Type II-1 to Type II-2. This was a major design change, and it involved an increase in price on 50,000 units @ 6.42 per unit, or a total increase of $321,000.00. Unit cost is increased from 34.89 to 41.31.

2. The Purchase Inspector assigned to this office has made a study of original design and major changes made in design in accordance with CCN No. 2(N-40628) and considers increase in price as fair and reasonable.

3. CCN No. 3(N-41503) does not involve an increase or decrease in price, and no credit is due the Government as a result therefrom. Purchase Inspector has examined this CCN and considers no increase or decrease in price as fair and reasonable.

4. This Officer concurs with the findings of the Purchase Inspector, and having given due consideration to Art. 4 of ATSC Regulation 70-4, recommends that a change order be written incorporating CCN No. 2(N-40628) and CCN No. 3(N-41503) to the contract, as presented by the Contractor.

For the Commanding Officer:

CLARENCE W. HAPP
Major, Air Corps
Regional Contracting Officer

Incls.
Contractor's ltrs dtd 27 Jul & 27 Jul 45
Cost Breakdown dtd 7/27/45

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24-39 HICOMHQ 20 Mar 45 1000

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Subject: CCN No. 1(N-37859) 2(N-40628) 3(N-41503)
Contract No. W 33-038-ac-9172
S. Buchsbaum & Co.

1st Ind. [illegible]

Headquarters, Air Technical Service Command, Wright Field, Dayton, Ohio.
14 August 1945.

TO: Commanding General, Central District, ASF, WDGS, 211 East North Water Street, Chicago 11, Illinois. Attn: [illegible]

1. Returned herewith is basic correspondence with reference to increased price on subject contract due to Contract Change Notifications.

2. The file was submitted to Price Analysis for approval and was been returned to this Office with the following comments:

a. By comparison with competitive vendors this office finds that the cost of labor is considerably high.

b. If no lower cost is derived at have subject company substantiate their present labor cost with breakdown of estimated costs of various operations.

3. It also appears that contractor's new price of $11.71 seems high for the Type LL-2 Stills when compared with the price for the same item on procurements with other contractors. For instance, one contractor is building Stills for less than [illegible] another for approximately $35.00.

4. It is suggested that S. Buchsbaum Company be contacted and requested to submit new reduced prices for the conversion from the LL-1 Type Still to the LL-2 Type Still.

By Command of Major General [illegible]:

[illegible]
Colonel, Air Corps
Chief, Production Section
Procurement Division

3 Incls.

Incl. 1 & 2 - Contract's Letter [illegible]
27 July & 27 July '45

Incl. 3 - Cost Breakdown dtd 7/27/45

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SUBJECT: CCN NO/ 2(N-40628) RMR:JSP:hj: CDBCN4B
Contract W 33-038-ac-9132
S. Buchsbaum & Co.

2nd Ind.

Office of the Commanding Officer, CD, ATSC, 211 East North Water Street, Chicago 11, Illinois 17 Sept. 1945 .

TO: Commanding General, ATSC, Wright Field, Dayton, Ohio.
Attn: TSRPR4K1

1. Subject contract and Contract Change Notification were investigated by Purchase Inspector from this office. The basic unit price was not a subject of investigation as this contract contained a re-determination clause, and the unit price would therefore, be adjusted when re-determination was made. It is the judgment of the Purchase Inspector that the unit contract price should be very materially reduced when re-determination is accomplished.

2. It is understood that no units were produced on this contract and that basis for the prices were estimates. The contract was terminated in its entirety on the 15 August 1945. Therefore, there will be no shipments made against the contract.

3. If further action is desired by this office, advice is requested.

For the Commanding Officer:

Richard M. Root

RICHARD M. ROOT
1st Lt., Air Corps
Contracting Officer

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Gun Equip. Lab.

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Request for Release of Below Standard Stills, Gallowhur Chemical Corporation, Contract AG 6854

TSNPR-4.12 TSEAL-SR3 13 Aug. '45 1.
Att: Lt. T. M. Lehman.

1. This office has reviewed the attached request which was forwarded from your Office with great concern. As stated therein the situation was presented to this office in more detail by phone.

2. From the time of our first contacts with this Company poor workmanship has been an ever-present source of trouble. It may be said that the specification was written with this in mind, knowing that Gallowhur would be one of the principal contractors. Furthermore we have received informal advice that there has been a good deal of trouble in the inspections at the plant, whereas the strictest control should be maintained.

3. In view of the above this office cannot recommend acceptance of these 7500 stills which violate the specification so flagrantly. On the other hand, in the light of repeated statements of the urgency to get this type of equipment distributed, this office does not desire to contra-recommend acceptance, since there is a fair chance that most of these stills will be functional. Whether or not these stills are accepted must therefore depend largely on the production and distribution picture, which this office is not in a position to know accurately.

4. If they are accepted, this office requests that all containers and stills be marked "Sub-specification" or with some such phrase. It is further strongly recommended that if a CCN is issued, it be made to apply only to these 7500 stills, and not to future production. It may be mentioned that the Government should realize an appreciable discount on these stills if they are accepted.

5. In the event that your Office wishes to have this Laboratory inspect samples of the stills, it is requested that the AAF inspectors be instructed to select the worst examples for this purpose, and that these be so marked by him. Other samples typical of the types of repair may also be submitted, but these shall also be clearly marked.

MILLARD L. MASKIN,
Colonel, Air Corps,
Chief, Personal Equipment Lab.,
Airc. & Phys. Req. Subdivision,
Engineering Division.

ESP/pjc
Ext: 2-0139
Bldg. #125
Post 160

1 Incl.
TWX dtd. 8 Aug. '45.

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URR V UGOR NR 135

FROM CO ATSC ED NEW YORK NY 0721062

TO CO ATSC WF DY 0 ATTN TSBPRAK

GRNC

EDIEQ1-TWX-8-89-AAF CONTRACT W33-038-AC-6264 APPROXIMATELY 7500 SUNSTILL ON HAND NOT IN ACCORDANCE WITH SPECIFICATION 40897 FOR FOLLOWING REASNS UP TO 16 PATCHES ON STILLS SOME ON THESE ARE REINFORCING PATCHES REINFORCING A BURN OR OTHER POTENTIAL WEAK SPOT END AND SIDE PANELS REPLACED CAUSING EXTRA THICKNESS AT SEAMS OVERLAPPING PATCHES AND OVERLAPPING PATCHES COVERED BY ONE LARGER PATCH ADVISE IF OH KAY OF R AAF INSPECTOR 0 ACCEPT IF SO WILL CONTRACT CHANGE NOTIFICATION BE ISSUED IF CONTRACT CHANGE NOTIFICATION IS ISSUED ALL STILLS TO BE RETESTESTED BEFORE SHIPMENT DR FETCHERS SURVIVAL UNIT WAS ADVISED OF FOREGOING BY PHONE END AAFATSC

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EDIEQ1-TWX-8-89- W33-038-AC-6264 7500 40897 16

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ROUTING AND RECORD SHEET AIR TECHNICAL SERVICE COMMAND

Use this form for inter-office correspondence within headquarters.
Use entire width of sheet, both sides.
Use authorized office symbols to designate addressee and addresses.
Number all comments consecutively.
Please initials of dictator and typist, telephone number and location to right of signature.
Separate comments by horizontal lines across page.

SUBJECT: Contract W 33-038 AC 6264, Calhoun Chemical Corp.

TO: TSBPRAB — Lt.Col. Cunningham. — FROM: TSBPRAKJ — Lt. J.E. Kennedy Ext. 2-5209 — DATE: 27/August/45 — COMMENT NO. 1.

1. In accordance with verbal request, the following information is furnished with reference to status of subject contract:

Redetermination Clause	Status	Action	Negotiator
360-4.1	Terminated Only about 6000 delivered	None	G.W. Weaver, 2nd Lt., AC

John E. Kennedy 1st Lt.

JOHN T. PRESTICE,
Lt. Colonel, Air Corps,
Chief, Miscellaneous Branch,
Production Section, Proc. Div.

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CASE HISTORY
of
[illegible]

Prepared by:

Name and Rank	Thomas M. Lehman, Capt., A.C.
Office Symbol:	TSAPT-6
Office Designation:	Miscellaneous Branch, Aeronautical Equipment Section, Procurement Division.
Telephone:	5-8214
Date:	11 September 1945.

Summary:

1. Sea Water Desalting Kits, Type JJ-1, Memo 45-7875, Specification 2089.

a. Authority for procurement: TI-1628 dated 7 April 1944 based upon letter dated 20 March 1944, subject: Water Producing Equipment for Life Rafts, from Chief, Development Engineering Branch, Office of the Assistant Chief of Air Staff, Materiel, Maintenance and Distribution.

The above directive was cancelled on 12 September 1944 by the issuance of Addendum No. 2 to TI-1628. This addendum was based upon teletype ATSC-20-2313 dated 8 September 1944, subject: Requirement for Water Producing Equipment on Life Rafts, received from Chief, Development Engineering Branch, Materiel Division, Office of the AC/AS, M & S.

The above directive was cancelled on 20 March 1945 by the issuance of Addendum No. 21 to TI-1628. This Addendum was based upon letter dated 16 March 1945, subject: Still, Solar, Floating, received from Chief, Engineering Branch, Materiel Division, Office of the AC/AS, M & S.

b. Pursuant to the latter directive, contracts Nos. W 30-053 AC 1085 and W 33-038 AC 3440 were placed with the Permutit Company, New York City.

c. Delivery of these kits commenced in July 1944 and continued in accordance with the following schedule until August 1945 at which time contract W 33-038 AC 3440 was terminated. As will be noted from this schedule, contract W 30-053 AC 1085 was completed in June 1945.

1944	W-053 AC 1085	33-038 AC 3440
July	20	
Aug.	20	
Sept.	0	
Oct.	0	10
Nov.	0	0
Dec.	1,500	0

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Case History of Sea Water Distillation Kits and Sea Water Desalting Kits.
Prepared by Capt. T. H. Lehman, TSPTT-C.

1945		33-053 AC 1785	33-038 AC 3440
Jan.		25,261	1,788
Feb.		29,542	8,812
March		81,374	10,921
April		37,220	74,772
May		0	157,000
June		10,863 (Completed)	142,958
	Total	185,750	
July			116,316
Aug.			19,870
			531,869 Total shipped to 13 Aug.

d. As far as this office knows, there has never been any controversy as to whether or not this item should have been procured by the Quartermaster or the Air Forces.

2. Sea Water Distillation Kits, Type II-1 and II-2, Aerro 45-3655 and 45-3656, Specifications 40866 and 40957, respectively.

a. Authority for procurement: Addendum No. 1 to TI-1628 dated 31 August 1944, subject: Project No. (B-4)595, Stills, Solar, Floating Vinylite Bar Type received from Chief, Development Engineering Branch, Material Division, Office, AC/AS, W & S.

The above directive was cancelled on 13 September 1944 by the issuance of Addendum No. 2 to TI-1628. This Addendum was based upon teletype AFMA-27-2713 dated 8 September 1944, subject: Equipment for Water producing Equipment on Life Rafts, received from Chief, Development Engineering Branch, Material Division, Office, AC/AS, W & S.

The above directive was cancelled on 20 March 1945 by the issuance of Addendum No. 21 to TI-2002. This Addendum was based upon letter dated 16 March 1945, subject: Still, Solar, Floating, received from Chief, Development Engineering Branch, Material Division, Office, AC/AS, W & S.

b. In accordance with Addenda No. 1 and No. 2 to TI-1628, procurement for the Type II-1 Kit was placed with the following sources in the quantities specified:

	Contract No.	Quantity
Calloway Chemical Co.	W 33-038 AC 6264	33,334
Watertight Slide Fastener Co.	W 33-038 AC 9000	50,000
C. Buchanan & Co.	W 33-038 AC 9132	50,000

The Type II-1 Kit was superseded by the Type II-2 Kit, procurement of which was directed by Addendum No. 21 to TI-2002. At the time of receipt of this latter directive, neither Watertight Slide Fastener Company nor

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Case History of Sea Water Distillation Kits and Sea Water Desalting Kits.
Prepared by Capt. T. H. Lehman, TSEPP-6.

S. Buchsbaum & Company had progressed to any great extent in their tooling for the earlier still, so it was decided to convert both of these sources to the Type LL-2 Kit and to allow the Gallowhur Chemical Company, who were fairly advanced with their tooling, to continue with the manufacture of the Type LL-1 Kit until such time as the improved type kit was available. In addition to the above contracts, procurements were also placed with Higgins Industries and DuPage Plastics Company for 172,678 and 75,000, respectively, of the Type LL-2 Kit on contracts Nos. W 33-038 AC 11407 and AC 11412.

Gallowhur Chemical Company had shipped only 6,146 kits prior to being terminated at the cessation of hostilities whereas Higgins, DuPage and Watertight shipped only 1st Articles prior to their being terminated at the same time.

g. As far as this office knows, there has never been any controversy as to whether or not these kits should have been procured by the Quartermaster or the Air Forces.

Approved By: R. P. Clarkson, Major, A.C.

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ARMY AIR FORCES
AIR TECHNICAL SERVICE COMMAND

MEMORANDUM REPORT ON TSEAL-5h3/28W/1jr

Date 22 October 1945

SUBJECT: Some Desirable Changes in Type II-C Sea Water Distillation Kit.

OFFICE Personal Equipment Laboratory Contract or Order No.

SERIAL No. TSEAL-583-16-589 Expenditure Order No.

A. Purpose:

1. To outline several changes which will improve the operation of subject kit, or make easier its manufacture.

B. Factual Data:

1. The information given below refers primarily to the Air Specification No. 10997-A, dated 29 Oct. 1942 and to the applicable drawings, 10D2858 and 10D2859, with their sub-assemblies and details, as revised to 14 September 1943. Reference is also made occasionally to specific models, as examples.

2. Desirability of the Changes:

a. The most important improvement, as far as operation of the still is concerned, would be the treatment of the inside surface of the envelope so that it is wetable by water. The condensation of vapor on the untreated Vinylite surface is in the form of small droplets which cling to the surface, which grow from further condensation, and which then reach an appreciable size before running down it. Thus, the envelope surface is always covered with small droplets. These interfere with sunlight reaching the evaporator by diffraction and reflection of the sunlight, thus reducing the efficiency of the still. If condensation took place on a wetable surface, the water would be in the form of a thin film, which would drain continuously, and which would interfere very much less with the passage of sunlight through it. Increase of yields in the neighborhood of 15% may be anticipated.

b. No completely satisfactory method of treating Vinylite to make it wetable is known to this laboratory. The Massachusetts Institute of Technology with the DuPont Company developed a process of applying a polyvinyl alcohol film to Vinylite, which was fairly good as a wetable film, but which flaked off in a rather short time in ordinary use. It probably would also have been an awkward process in production. The Dallowmar Chemical Corporation in New York has developed a process which has more promise. It consists essentially of pressing finely powdered

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silica gel into the Vinylite surface. The result is a surface considerably more wetable than Vinylite, but not fully so. As far as is known, this process has not been worked out for production use. It must be emphasized that any such treatment renders the surfaces so treated non-sealable.

3. Taste of Distilled Water.

a. At least as important as the preceding is the unfortunate taste of the water produced by the stills. The water is potable but certainly not palatable. This taste is due to the plasticizers in the vinyl film and to residues of any solvents used in the fabrication of the stills. Removal of excess plasticizers from the surface of the film is of some and perhaps temporary help. In connection with such treatments, it must be remembered that plasticizer from the interior of the film will migrate to the surfaces in conformance with osmotic and surface forces.

b. Since the plasticizers are necessary for the desirable physical properties of vinyl film, the problem resolves itself into the development of odorless, tasteless, non-toxic plasticizers, or into the development of non-plasticized films of other types, but with the desirable physical properties of vinyl films.

c. It must not be assumed that, because these stills are used only in emergencies, the water need not be palatable. It is true under some conditions, certain individuals will eat or drink anything. However, the experience of this laboratory as well as that of the Quartermaster Corps is that men are very likely to refuse food or drink that is unpalatable to them, even in desperate situations. On life rafts this refusal may be expected to be more common than on land because of sea sickness. Therefore, it is important that the water produced by the stills be palatable.

4. Other Plastics for the Envelope.

a. The principal disadvantages of the vinyl films specified for the stills (Bakelite Corp. formulas of the VU 1900 series) are their taste characteristics, their not entirely satisfactory temperature characteristics, their tendency to cold flow, and the non-wetability of the surfaces; to these might be added the difficulties of fabrication.

(1) The taste and non-wetability factors have been detailed above.

(2) The temperature characteristics are not satisfactory because the film becomes relatively weak and soft at temperatures at which the still operates. On the other hand the film is brittle at the low temperatures to which it is almost certain to be exposed.

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(3) The tendency to cold flow is of most significance in the ballast tube which is under a constant pressure of some 20 inches of water. The envelope is also subject to a constant pressure, but this is only 2 to 4 inches of water; because of its thinness, however, it is subject to some distortion. A third part of the still that may be distorted by cold flow is the lower cone of the sea water reservoir, and its supports for the evaporator. The distortion of the latter may result in leakage of the sea water around the bushing through which sea water drips on to the evaporator.

(4) With respect to difficulties of fabrication, quite precise control of temperature, pressure, time, solvent, if any, and surface cleanliness are necessary to effect good sealing. The difficulties experienced by fabricators in forming good seals may well be due to lack of experience in handling this relatively new material.

b. The advantageous properties of the specified vinyl films are their high tensile strengths, elasticity, scuff and flexion resistance, transparancy, good ageing qualities, waterproofness and non-toxicity.

c. There is no reason why other films with the properties of Vinylite should not be used. A low refractive index would be another desirable property. Preferably such films should not have the disadvantages of the vinyl films.

5. Tubing.

a. The thin walled vinyl tubing specified for the ballast feed tube and fresh water drain tube is not satisfactory mainly because it kinks very easily. This fault is inherent in all ordinary thin walled tubings, and the thin wall is necessary from the standpoint of minimum packed bulk. It is quite possible that some internal structure would prevent at least complete stoppage of flow on kinking, without increasing the bulk very much.

b. Another fault which is very serious in the tubing being used is its tendency to assume a set under pressure and slightly elevated temperatures. This aggravates the kinking problem. This property is inherent in vinyl tubes as now constituted. In general, the temperature characteristics of the extruded vinyl tubes seen in this Laboratory are inferior to the films.

c. Rubber tubes would be more satisfactory if positive attachment to vinyl is possible.

6. It may be possible to increase the yield-packed bulk ratio somewhat by decreasing the size of the evaporator relative to the envelope - or by retaining the present evaporator and increasing the envelope size. The reason for this is that reflection of incident light by the envelope is

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high near the edges of its projection; hence, those parts of the evaporator near the envelope are of relatively little value. The change outlined would decrease these relatively inoperative portions of the evaporator. No very great advantage would be expected.

7. There is some conflicting evidence concerning the degree and rate of swelling by cold flow of the ballast tube. This Laboratory has not found the problem to be a serious one, but Higgins Industries states that the capacity of some of their tubes has increased three or four times (from 3 to 10 or 12 liters). These tests were conducted with the ballast virtually uncooled, although it is cooled in use on the ocean. If the problem is a real one, and a serious one, the ballast could be filled by a short tube from the ballast through the envelope wall, ending in a funnel and plug. This modification was suggested by Higgins Industries. This should not be done unless necessary, as it adds several steps to the procedure for putting the stills in operation. (It should be added that such an arrangement would make it easier to drain the ballast tube, if it were ever desired to do so.) It would be preferable to make the ballast of material which did not cold flow.

8. The methods of construction of both envelope and evaporator as shown in the drawings need not necessarily be followed.

a. The envelope can be made of gores or panels without impairing its function. The number of panels is limited by the added seaming operation in production, and by the added bulk of the seams. Lap seams are, of course, preferred to face to face seams. (Higgins Industries has made models of three panels, or conical top section, a cylindrical center section, and a flat bottom section. Du Page Plastics has made models with six gores in each of two hemispheres. Watertight Slide Fastener has made models with two gores in each of two hemispheres.)

b. The evaporator might be formed of larger panels, such as conic sections, as long as the essential characteristics of the present one were retained. No trouble is forseen from the resultant horizontal sewing. It may be noted, however, that the construction and sewing of the small top panels to the side panels shown on the drawings is intentional, to prevent dripping of the excess water which will be present on and near these panels.

9. Mending Tape.

a. The mending tape now specified (AN-T-12, Type I, Grade A) is a cloth backed pressure sensitive tape. As far as its adhesion is concerned, it is adequate. Furthermore, it is easy to use. Its most serious disadvantage is that it is inelastic, so that when the vinyl film to which it is applied stretches or shrinks, the tape does not follow it, and gradually loses its hold. A very minor disadvantage is that it is not transparent.

b. The Minnesota Mining and Manufacturing Company has submitted several tape samples, one of which is satisfactory and can advantageously

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replace the tape specified. The company designation on the samples tested by the Engineering Division was 7SL2563 Lot 70. The backing is a transparent vinyl resin (Bakelite formula J3-74) approximately 0.002 inches thick. The adhesive is covered with cellophane, which must be stripped before use. This tape must be packed in a simple, compact, waterproof envelope which can be reclosed so it is waterproof. It would be desirable to have separation tabs, approximately every six inches, between the cellophane and the adhesive. Directions could be printed either on the envelope or the cellophane, and should include a statement to the effect that the cellophane can be stripped readily if the tape is first soaked in water for about a minute. (This is the reason for the waterproof envelope.)

10. Towline Clip.

a. It is to be noted that this clip was designed for sureness of closure and ease of manipulation. The relatively close tolerance allowed on the small towline loop (opposite the attachment for the clip) is required to prevent this loop from slipping past the safety ring on the clip, when one still is hooked to another. It may be more practical to use a thimble or eyelet instead of tying a loop to the close tolerance required. Tri Page Plastic has used such an eyelet on their models. Perhaps a somewhat smaller clip might be satisfactory, but the relation of the hook and should not be changed and it must be easy to [illegible] with one hand.

11. A number of other minor changes and explanation are the following:

a. The capacity of the sea water reservoir should not be greater than 1100 ml., otherwise the still is likely to be unstable in rough water. (No maximum capacity is now specified.)

b. The evaporator supports shown on the drawings can very probably be improved from the standpoint of production. Care should be taken not to set up any capillary feed between envelope and evaporator.

c. The upper cone of the sea water reservoir can be simplified by eliminating the funnel, and widening the top of the cone to the maximum diameter of the funnel, 2-3/4 inches. The baffle would then be an inverted cone tapering from 2-3/4 inches at the top to 1-1/8 opening at the bottom. (Models made by Watertight Slide Fastener Corporation, New York, New York have been formed in this way.)

d. The present plug assemblies (drawings 16B3027 and 16A3028) for the fresh water drain and reservoir are effective, but complicated for the job done. (This construction was decided upon because simple plugs could not be relied upon due to the cold flow of the vinyl.) A simpler, cheaper plug design would be desirable. This will be more readily achieved if rubber tubing is used for the fresh water drain (see Paragraph 4).

12. The fact that the more important of the changes given above have not been incorporated into those kits which were to go into production for

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Memo. Report TSEAL-5E3-10-383
22 October 1945.

the AAF in August and September 1945 is due to

a. the considerable difficulty experienced by the contractors in preparing for production

b. the reluctance of all concerned to add to their difficulties and delay the start of production by introducing new and untried procedures and materials

c. the desirability of deviating from the stills tested by the Proving Ground Command in February 1945 as little as possible, consistent with overcoming production difficulties.

13. It will be desirable to add a note to procedure 11 or 12 of the operating instructions (T.O. # 00-25-51, "Instructions for Obtaining Drinking Water"). This should be approximately as follows: "Rubbing the cloth drain with a dry rag makes it easy to deflate the still quickly." This note could be added as an insert on waterproof paper. Also a tag might be attached to the fresh water drain plug, stating that it is a bayonet twist lock plug.

C. Conclusions:

1. None.

D. Recommendations:

1. None.

Prepared by [redacted]
(Name)

Approved by MILLARD L. HASKIN, Col., A.C.,
Ch., Personal Equip. Lab.
Aire. & Flyg. Eqpt. Div., Engr. Bd.

Approved by BRUCE B. PRYOR, Col., A.C.,
[redacted]

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ATSC Form No. 13 (16 SEP 44)

1

COORDINATION
DIRECTOR OF OPS
AIR INSPECTOR
TSEAL-5B3
MOT. CONTROL
CHIEF OF ADMN.
SPECIAL STAFF

IN REPLY ADDRESS BOTH COMMUNICATION AND ENVELOPE TO ATTENTION OF FOLLOWING OFFICE SYMBOL:

xxxxxxxxxxxxxxxx
xxxxxxxxxxxxxxxxxxxxxxxxxxxx
Hdqs., Air Technical Service Command

TSEAL-5B3/ESP/pjc

27 October 1945

TSAGD5 NO 35

S. Fuchsbaum & Company,
1737 South Michigan Avenue,
Chicago 16, Illinois.

OCT 30 09:45

CHIEF, ENG. & PROC.
CHIEF, SUPPLY & MAINT.
PERS. & BASE SERV. DIV.
MAINT. DIV.

Gentlemen:

Reference is made to your letter dated 19 October 1945 requesting results of tests on the first series of first articles on the distillation kit. Regulations did not permit direct correspondence between the Engineering Division and a contractor so that the report was sent to Inspection Section. Since the contract is no longer in force, it is permissible to inform your Company directly of the results of the tests.

Of the three stills which were delivered, one was said to be not usable. A second had a bad leak in the envelope which was repaired and this latter still was included in the test. The two usable stills produced water satisfactorily in comparison with the stills tested by the Proving Ground Command. The rate of draining of the salt water reservoir was satisfactory. However, there were several faults which became obvious even in the short time available for these tests:

a. The envelope material was not equal to Bakelite Corporation Formula VU 3600. It was much too soft. Furthermore, there was a tendency to block even though the stills were not packed. The envelope thickness varied outside the limits specified.

b. The general dimensions of the inflated still were satisfactory but the equatorial diameter was appreciably greater than the vertical diameter. This squat shape is not desirable. As previously mentioned if there is any deviation from a sphere it is far better that the still be higher than it is wide.

c. The thickness of the baffle in the sea water reservoir was too great. Also the sea water reservoir was unnecessarily thick and although the latter does not effect operation it may interfere with packing.

FOR CONTINUATION SEE NEXT PAGE

(APR 11-36)

TSAGD5-4.2 Sea Water Distillation Kit

170

4223

AAF AA 22 SEP 44 300M

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Ltr. to S. Buchsbaum & Co. dtd. 27 Oct. '45, Re: "Distillation Kits".

d. The marking of the envelope and of the fresh water reservoir was judged to be of poor quality. The graduation markings on the fresh water reservoir were inaccurate.

e. The ballast tube capacity was considerably too great. Preferably it should be in the lower range of the specified capacity.

f. The stills were very difficult to drain of fresh water because it was held up between the ballast and the envelope. Whether this is due to inadequate constrictions of the ballast tube; to the too large size of the ballast; to the flabbiness of the envelope; to the positioning of the ballast and skirt in relation to the envelope; or due to a combination of such factors, could not be determined.

g. Based on simple inspection only, the evaporator fabric did not appear to be sufficiently wetable.

h. Water distilled in the stills had a strong plastic taste; much too strong to be acceptable.

i. In general, it was considered that the quality of the workmanship was too low to be acceptable.

It was of considerable interest that the water vapor condensing in the envelope did not cause as much clouding of the envelope with these stills as it did with those of several of the manufacturers. This is a distinct advantage because less light is reflected and refracted from the envelope thus reducing the loss of useful energy. As stated in conversations with your engineers, this laboratory has been interested in accomplishing essentially the same result by rendering the surface of the Vinylite wetable. It would be of great interest to know whether the effect observed on the stills submitted by your Company was due to the fact that the Vinylite from [illegible] was made slightly in solution, or whether it was due to a subsequent treatment of the completed envelope.

A reply to this question will be appreciated.

Very truly yours,

[signature]

WILLARD L. HASKINS,
Colonel, Air Corps,
Chief, Personal Equipment Lab.,
Navy. & Phys. Req. Subdivision,
Engineering Division.

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AT[redacted] 18-3

ROUTING AND RECORD SHEET AIR TECHNICAL SERVICE COMMAND

Use this form for inter-office correspondence within headquarters.
Use entire width of sheet, both sides.
Use authorized office symbols to designate addressor and addressee.
Number all comments consecutively.
Place initials of dictator and typist, telephone number and location to right of signature.
Separate comments by horizontal lines across page.

SUBJECT: Line Schedules for Seawater Distillation Kits, ~~Type~~ at - 1900

TO	FROM	DATE	COMMENT NO
TSRPS-6C	TSRPL-6C	11-[illegible]-45	2

2,400
~~2,500~~

1. It is requested that appropriate action be taken to either reinstate if possible, or reprocure a quantity of ~~2,500~~ Seawater Installation Kits, Type LL-2. This equipment was previously manufactured by the following contractors:

Water-Tight Slide Fastener Company, New York
S. Buchsbaum Company, Chicago
Higgins Industries, New Orleans, La.
DuPage Plastics Company, Lombard, Illinois.

2. All of the above listed contractors were terminated as of V-J Day, however an urgent need now exists for this life-saving equipment. Attached hereto is a required schedule of deliveries which has been prepared by Supply Division. The entire file containing the background of this procurement will be turned over to the negotiator within the Procurement Unit who is to handle this case.

[illegible]
[illegible],
1st Lt., Air Corps,
Chief, Miscellaneous Unit,
Miscellaneous Branch.

Incl: Sched. of Dels.

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The Dewy Prtg. Co.—5-45—2 Mil. (CONTINUE ON OTHER SIDE)

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FROM: ATSC

DATE: 15 Nov 1945

C. RANDALL JONES, JR.
Captain, Air Corps
Contracting Officer

TO: HIGGINS INDUSTRIES
521 CITY PARK AVENUE
NEW ORLEANS, La.
ATTN: A. J. HIGGINS, JR.

CLASS:

TELETYPE NO: TSBPRG-11-233.....CONTRACT AC-11407. REINSTATEMENT OF 25,000 SEA WATER DISTILLATION KITS, TYPE LL-2, IS BEING CONSIDERED. REQUEST YOU ADVISE DEPARTMENT TSPPRG BY WIRE IF IN THE EVENT OF REINSTATEMENT, CONTRACT COULD BE REINSTATED WITHOUT COST TO THE GOVERNMENT, AND THE PRACTICABILITY OF SAME DESIRED SCHEDULE, 4000 PER MONTH STARTING DECEMBER. SIGNED, C. RANDALL JONES, JR., CAPTAIN, AIR CORPS, CONTRACTING OFFICER.

cc: Central District, CDPCN.
Nashville, Tenn. Regional Office.

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WA213 NL FD NEW ORLEANS LA NOV 16

CAPTAIN C RANDALL COATES JR

AIRCORPS CONTRACTING OFFICER WRIGHT FIELD

ATTN NOVEMBER FIFTEENTH TSEMSOG 11-233 CONTRACT A C

11407 HIGGINS INDUSTRIES WILL NOT CONSIDER REINSTATEMENT

OF THIS CONTRACT FOR FOLLOWING REASONS HIGGINS INDUSTRIES

CANNOT ACCEPT ANY NEW BUSINESS AT THIS TIME HIGGINS

PLASTICS CORPORATION WHICH WAS ONE SUBSIDIARY OF HIGGINS

INDUSTRIES IS IN POSITION TO ACCEPT AND WILL ACCEPT A

CONTRACT FOR 25,000 GAL WATER DISTILLATION KITS TO BE

MANUFACTURED IN ACCORDANCE WITH HIGGINS PLASTICS CORPORATION

FINAL SAMPLE WHICH WILL BE SUBMITTED PRIOR TO CLOSING

OF CONTRACT HIGGINS PLASTICS CORPORATION GUARANTEES THIS

UNIT STILL TO DELIVER REQUIRED QUANTITY OF WATER AND

GENERAL GOVERNING SPECIFICATIONS OF WHICH ARE SET FORTH

IN NO 11-407 PRICE OF STILL TO BE AS QUOTED IN YOUR REPLY

IS AFFIRMATIVE

A J HIGGINS HIGGINS INDUSTRIES INC

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COPY OF A COPY

FROM: ATSC
CNA:enn Ext. 2-5057

DATE: 21 Nov 1945

H. H. O'CONNOR
1st Lieut., Air Corps
Contracting Officer

TO: HIGGINS INDUSTRIES, INC.
521 CITY PARK AVENUE
NEW ORLEANS, LA.
ATTN: A. J. HIGGINS, JR.

TELETYPE NO: TSWPRG-11-262....RE REINSTATEMENT 25,000 KITS, CONTRACT AC-11407. UNABLE TO HANDLE REINSTATEMENT AS YOU SUGGESTED, I.E., CANCELLING CLAIM AND APPLYING CANCELLATION COSTS TO REINSTATED QUANTITY. SUGGEST YOU ALLOW CLAIM TO STAND AND QUOTE PRICE ON REINSTATED QUANTITY, 25,000 UNITS. IF TOOLS WERE PRO RATED OVER ENTIRE QUANTITY ON ORIGINAL CONTRACT, IT WOULD BE PERMISSIBLE TO PRORATE TOOLS USED ON SMALLER QUANTITY. AMOUNT OF CLAIM FOR SAID TOOLS SHOULD THEN BE DEDUCTED FROM TERMINATION CLAIM IF REINSTATEMENT IS MADE. REQUEST YOU ADVISE DEPARTMENT TSEPRG BY WIRE FRIDAY, DEFINITE PRICE AND DELIVERY YOUR COMPANY ABLE TO MAKE. UNABLE TO REINSTATE CONTRACT WITH HIGGINS PLASTIC SINCE ORIGINAL CONTRACT WAS WITH HIGGINS INDUSTRIES, INC. SIGNED, H.H. O'CONNOR, 1st LIEUTENANT, AIR CORPS, CONTRACTING OFFICER.

cc: Central District, CDRCN.

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MEMORANDUM OF JUSTIFICATION

Ref: TSLP66G/CMA:emn

Date: 10 December 1945

Subject: Contract W33-038 ac-9800
Watertight Slide Fastener Co.
Partial Rescission, Docket 83696.

1. It is recommended that partial reinstatement be made with Watertight Slide Fastener Company for 26,460 Seawater Distillation Kits, Type LL-2 on the above subject contract. Contractor has been contacted informally and it is understood that reinstatement of the above amount may be made at the existing price in the contract, namely, $36.20 per unit.

2. Termination costs are avoided. (Exact amount unknown).

3. Contacts with four (4) companies manufacturing distillation kits, whose contracts were terminated, elicited the following information:

a. Buchsbaum & Company would agree to reinstatement at price of $46.00 in lieu of $41.31, an increase of $4.69 per unit.

b. Dujage Plastics were unable to accept reinstatement due to a new commitment being received since termination, and the present available facilities were needed on the Navy contract for stills until April 1946.

c. Higgins Industries would agree to reinstatement at price of $36.24 per unit in lieu of $23.46 on contract ac-11407, an increase of $12.78 per unit. If the Higgins contract were reinstated, it would be necessary to reinstate the Appendix "A" covering facilities and machinery equipment, which is undesirable. It would also be necessary for Higgins to reassign the contract to their subsidiary, the Higgins Plastic Corporation, since it is understood the Higgins Industries Company are in process of liquidation. Furthermore, Higgins specified that the reinstatement of their contract was contingent upon their still being accepted in its present design, and it is understood that several changes in this design would be necessary if the contract should be reinstated.

4. Higgins Industries submitted a proposed schedule of 1000 in February, 2000 in March, 4000 in April, and 4000 each month thereafter; whereas Water-Tight Slide Fastener propose to deliver 1000 in January, approximately 3000 in February, 3000 in March, 4000 in April, and is expected to increase their schedule to about 6000 per month for the remainder of the contract.

5. Therefore, it is considered in the best interests of the Government to reinstate the above quantity with the Water-Tight Slide Fastener Company, who will reinstate at the same price as in the present contract.

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C

orandum of Justification.
T.O. 45-43[illegible]-B.
10 December 1945.

6. The original request for reinstatement was for 50,000 units, but in the interest of conserving Army Air Forces funds, it has been reduced to 26,460 units. Colonel Cooper of Budget Office has indicated that this quantity will be satisfactory.

T. K. [illegible], JR.
Major, Air Corps
Chief, Miscellaneous Branch
Aeronautical Equipment Section

C. Randall [illegible], JR.
Captain, Air Corps
Contracting Officer

C. M. Antrim
Negotiator

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CD NEWYORK NY DEC 14 1259P

COMMANDING GENERAL ATSC TSBPE6G

PROCUREMENT DIV WRIGHTFIELD OHIO

RE YOUR TELEGRAM NO BI71CC 40 OF DECEMBER 13, 1945, WILL ACCEPT REINSTATEMENT OF 26460 SEAWATER DISTILLATION KITS AS PARTIAL REINSTATEMENT OF CONTRACT W33-038 AC-9800 DOCKET NO 83696 AT NO REINSTATEMENT COST TO THE GOVERNMENT AND AT THE SAME UNIT PRICE AS INDICATED IN THE CONTRACT. IMPORTANT RESCISSION BE EFFECTED PRIOR JANUARY 1, 1946. PLEASE ADVISE

WATERTIGHT SLIDE FASTENER CORP H G WORNER PRESIDENT

BI71CC 45 13 1945 26460 W33-038 AC-9800 83696 1 1946.

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COMMONWEALTH OF THE PHILIPPINES
HEADQUARTERS, AIR CORPS, PHILIPPINE ARMY
OFFICE OF THE AIR SURGEON
APO 75

15 February 1946

Dr. E. S. Fetcher
TSEAL5E
ATSC, Wright Field
Dayton, Ohio
U S A

Dear Dr. Fetcher

This office will appreciate it very much if you can facilitate us with at least six (6) of your solar stills (largest type) and the latest phamplets of the same, for our use in the Philippine Air Force.

At present, we don't have any in stock, and it will help us a lot in case of emergency, if we possess these stills, specially when our pilots have to fly mostly over water in going from one island to another.

Anything you can do along this matter will be highly appreciated.

Thanks

Very truly

P. C. POTENCIANO
Lt. Colonel, MC
Air Corps

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ATSC Form No. 43 (16 SEP 44)

TSAGDS NO 35

COORDINATION
DIRECTOR OR DEP
AIR INSPECTOR
[illegible] CONTROL
CHIEF OF ADMIN
SPECIAL STAFF
CHIEF ENG. & PROC.
CHIEF SUPPLY & MAINT
PERS. & FAC. SERV. DIV
ACCNT. DIV.
SUPPLY DIV.
ENGINEERING DIV.
DEVELOPMENT DIV.
MAINTENANCE DIV.
OTHER

TSEAP(TSEAP-50)

EJF/mmo/TSEAP-50

1 March 1946

Request for Solar Stills.

Headquarters, Air Corps,
Philippine Army,
APO 75.

Attention: Office of the Air Surgeon,
Lt. Colonel P. C. Potenciano.

1. Reference is made to letter from your Headquarters to Dr. E. S. Fetcher of this Command, dated 15 February 1946, requesting solar stills. Subject letter is being forwarded to the proper office at this Command, with the recommendation that the request be filled if the equipment is available. The only Sea Water Distillation Kit that might be available is the Type LL-1, which is carried in Class 0-3F, under Stock Number 4500-857910. This kit will be superseded by the Type LL-2, Stock Number 4500-857905, when it becomes available, probably beginning in May. Both types of kits are made up of three solar stills, instructional booklet and accessories.

2. In order to assist your Office in evaluating this equipment, two extra copies of the instructional booklets for each type of kit, and a marked copy of a Memorandum Report concerning them, are attached.

3. The Personal Equipment Laboratory of this Command will appreciate your comments concerning any experience with this equipment.

FOR THE COMMANDING GENERAL:

MILLARD L. HASKIN,
Colonel, Air Corps,
Chief, Personal Equip. Lab.,
Airc. & Phys. Req. Subdiv.,
Engineering Division.

5 Incls.
#1-Bklt on LL-1 Kit (dupl)
#2-Bklt on LL-2 Kit (dupl)
3#-Memo Rpt 1-20-45

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HQ ATSC Form No. 10-514 (Rev. 1 May 45)

HEADQUARTERS
ARMY AIR FORCES
~~AIR TECHNICAL SERVICE COMMAND~~
AIR MATERIEL COMMAND

IN REPLY ADDRESS BOTH COMMUNICATION AND ENVELOPE TO ATTENTION OF FOLLOWING OFFICE SYMBOL:
TSEAM10

TSEAM10/MWC/ect
WRIGHT FIELD, DAYTON, OHIO
3 May 1946

435-Use of Water Conversion to Sterilizing Water (Lab) Distillation Kit

SUBJECT: Black Evaporator Cloth for Sea-water Distillation Kit.

TO: Office of the Surgeon General,
Occupational Health Division,
Washington, D. C.
Attention: SPMC SPMDO.

1. It is requested that the inclosed sample of black cotton cloth be tested to determine the suitability of the mildewproofing agent with regard to toxicity.

2. The cloth was submitted by a contractor for approval of its use in the fabrication of the IL-2 Sea-water Distillation Kit. A copy of the instruction pamphlet for use of the kit is inclosed for your information.

3. Available information indicates that the subject cloth was treated with salicylanilide (DuPont's "Cirlan").

FOR THE COMMANDING GENERAL:

J. B. JOHNSON
Chief, Materials Laboratory
Aircraft & Physical Requirements
Subdivision, Engineering Division

2 Incls:
Incl 1: Sample of fabric.
Incl 2: Instruction pamphlet.

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BASIC: Black Evaporator Cloth for Sea-water Distillation Kit, 3 May 1946
To: CSG, [illegible] AAF, AMC, Wright Field, Dayton, Ohio

AGRH 400.112 (GM 9-46) 3rd Ind
WD, SGO, AIHL, Building 330, Edgewood Arsenal, Maryland 18 June 1946

To: Commanding General, Headquarters, Air Material Command, Wright Field, Dayton, Ohio
ATTENTION: TSEAM1O

1. Reference basic communication, it is believed that from the toxicological standpoint 0.5% to 1.0% salicylanilide is a suitable mildewproofing agent for use in evaporator cloth for the IL-2 Sea-water Distillation Kit.

2. Reference paragraph 1, 2nd indorsement, search of our files indicates that use of up to 1.0% salicylanilide for subject cloth has been previously approved by this office, however, attention is invited to the fact that all approvals involving potentially toxic substances have been limited to approval of specific materials containing particular concentrations of those substances. ". . . the use of salicylanilide for subject cloth has been previously approved by (this) office." subject to the above conditions.

For The Surgeon General:

ROBERT H. DONALD
Major, Medical Corps
Director, Army Industrial
Hygiene Laboratory

Incls w/d

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COORDINATION
CG OR DEP CG

AAFSC Form No. 10-508
(Rev. 22 Oct 45)

(PRINT SYMBOL AND INITIALS IN APPROPRIATE BLOCK)

ADJUTANT GENERAL

CHIEF OF ADMIN

AIR INSPECTOR

PUBLIC RELATIONS

JUDGE ADVOCATE

PERSONNEL (T-1)

INTELLIGENCE (T-2)

ENGINEERING (T-3)

SUPPLY (T-4)

PLANS (T-5)

BASE C. O.

OTHER

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WATERTIGHT SLIDE FASTENER CORPORATION
15 WHITEHALL STREET
NEW YORK

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copy

WATERTIGHT SLIDE FASTENER CORP.
15 WHITEHALL ST.
NEW YORK 4, N.Y.

July 8, 1946

Air Materiel Command
Wright Field
Dayton, Ohio

Attention: Mr. Dan Murphy

Subject: Tests on Evaporator Material for AAF Solar Stills

Gentlemen:

We are enclosing herewith the correspondence in regard to the five lots of material that have recently been tested by the United States Testing Co.

I think it would be advisable for you to contact Mr. Jonas A. Stevenson, superintendent of the Bradford Dyeing Association as it is a question of his word against the work of the U.S.Testing Co. As a matter of fact it is the Bradford Dyeing Association which originally developed the method of treating the Evaporator Material and should therefore know a great deal more about this problem than the U.S.Testing Co.

I am told that the five lots were all dyed at the same time and it is surprising that the results should vary so much.

In any case, I hope that you will pass these lots where the shirlan content does not exceed 1%. It is difficult to obtain this cloth for the bags and production might be seriously impaired if the flow of evaporator bags to our factory were interrupted.

Hoping to see you very soon again, I am

Yours very truly

WATERTIGHT SLIDE FASTENER CORPORATION

H. G. Morner
President

HGM:may
Enclosures (7 sheets)

1-30-46

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Tests on Evaporator Material for AAF Solar Stills

TSPPE, Mr. C.V.Altematt TSEAPSA 15 July 46 1.

1. Reference is made to attached contractor letter from Watertight Slide Fastener Corporation, dated 8 July 46.

2. The attached letter requests that this office approve shirlan content not to exceed 1% in order not to retard production. Specification AN957-A, amendment 1, requires not less than .5% and not more than 1% of shirlan content; consequently, amounts not exceeding 1% are approved by this office.

3. It is recommended that differences in test reports on the same material as referenced by the attached letter, be arbitrated by the AAF Inspector.

DTU/elt 31348

WILLARD L. HARRIN,
Col., AC, Chief, Personal Equipmt Lab
Aircraft & Physical Depnts Subdiv, Engr.Div.

1 Incl:
ltr dtd 8 July 46 minus
inclosures

TSEQC TSPPAC 30 July 1946 2.
Attn: Mr. C. L. Arnold

1. Forwarded to your office for necessary action in regard to paragraph 3 of Comment 1.

JPD/dh
28227

F. S. WALKER
Lt. Colonel, Air Corps
Actg.Chief, Aero Equipment Section

1.

2. Ltr dtd 8 July 46 from TSEQC/JPD/dh 30 July 46

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ADJUTANT GENERAL
CHIEF OF ARMY
AIR INSPECTOR
PUBLIC RELATIONS
JUDGE ADVOCATE
PERSONNEL (T-1)
INTELLIGENCE (T-2)
ENGINEERING (T-3)
SUPPLY (T-4)
PLANS (T-5)
BASE C. O.
OTHER

ATSC Form No. 10-555 (Rev. 22 Oct 43)
(PRINT SYMBOL AND INITIALS IN APPROPRIATE BLOCK)

3

JPD/dh

30 July 1946

Tests on Evaporator Material
for A.F Solar Stills

Watertight Slide Fastener Corp.
15 Whitehall Street
New York 4, New York

Attn: Mr. H. G. Morner

1. Receipt of contractor's letter dated 8 July 1946 is acknowledged.

2. Specification [illegible], Amendment 1, requires not less than .5% and not more than 1% of stirlan content. Consequently, amounts not exceeding 1% are approved by this office.

FOR THE COMMANDING GENERAL:

P. S. WALKER
Lt. Colonel, Air Corps
Acting Chief, Aeronautical Equipment Section
Procurement Division

cc:TSBQC,Mr.C.L.Arnold

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CABLE "SKOL" NEW YORK

GALLOWHUR CHEMICAL CORPORATION

CHEMICAL AND PHARMACEUTICAL MANUFACTURERS
READING, VERMONT

SEND REPLY TO: 250 EAST 43rd STREET
NEW YORK 17, N.Y.
LEXINGTON 2-3720

July 22, 1946

180

Procurement Branch
U.S.A.A.F. Technical Service Command
Wright Field, Ohio

Gentlemen:

On V-J Day this company stopped production on Solar Stills for the U. S. Army, known by you as follows:

Still, Solar Model S-6
Specification No. [redacted]
AAF Order No. W33-038
ac 6264 (13233)

We are interested in getting back into production again, and in order to estimate approximate costs, and see the overall picture, we would appreciate receiving the bid price which was acceptable to you in your last procurement of Solar Stills.

We will appreciate any information you can give us in preparing for your next procurement.

Very truly yours,

GALLOWHUR CHEMICAL CORPORATION

Robert L. Owen
ROBERT L. OWEN
Assistant Director of Sales

RLO:em

10:33

ans. 7-22-46

SUBSIDIARY COMPANIES:
SKOL COMPANY, INC. [redacted] SKAT INSECT REPELLENT CORP.

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CHIEF OF ADMIN.
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JUDGE ADVOCATE
PERSONNEL (T-1)
INTELLIGENCE (T-2)
ENGINEERING (T-3)
SUPPLY (T-4)
PLANS (T-5)
BASE C.O.
OTHER

ATSC Form No. 10-508
(Rev. 22 Oct 45)
(PRINT SYMBOL AND INITIALS IN APPROPRIATE BLOCK)

TSEPG60/Cox/fu

15 July 1946

Contract W33-038 ac-6854

Galloway Chemical Corporation
350 East 42nd Street
New York City

Attn: Robert L. Owen

1. In reply to your letter 15 July requesting price information on Solar Stills, this information is on file in the Purchase Records Unit, Contract Status and File Branch, where it may be reviewed by an authorized representative of your office if you desire to call.

L. B. SCHMIDT
Captain, Air Corps
Contracting Officer

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AIR MAIL

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MATERIEL

TSEAMA/072/dib

2 August 1946

Bakelite Corporation,
30 East 42nd Street,
New York, New York.
Attention: Mr. Interman.

Gentlemen:

This Command is engaged in research on Solar Stills, which incorporate .001" VU1900 vinylite manufactured by your firm.

Recently in the operation of the stills, pronounced deterioration of the vinylite has rendered many stills useless. The deterioration appears as small holes singly and in groups. The holes range in size from pin holes to openings as large around as the butt of a pencil. The stills which show deterioration are exposed to salt water, fresh water, and sunlight.

Any information relative to type plasticiser used, the probable cause of such deterioration, would be greatly appreciated. Attached are samples of deteriorated vinylite.

Very truly yours,

WILLARD D. HASKIN,
Colonel, Air Corps,
Chief, Personal Equipment Laboratory,
Aircraft & Physical Requirements
Subdivision, Engineering Division.

Incls.
5 samples.

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TSZNYCON2/AD/fmp

SAVE

NEW YORK
AAF PROCUREMENT FIELD OFFICE
AIR MATERIEL COMMAND
67 BROAD STREET, NEW YORK 4, N.Y.

IN REPLY ADDRESS COMMUNICATION AND ENVELOPE TO THE Chief,
N.Y.AAF Proc. Field Off.
Attn: TSZNYCON2

20 August 1946

SUBJECT: Watertight Slide Fastener Corporation
New York, New York
Contract W33-038-AC-9800
Class 03 F

TO: Commanding General
Headquarters, AAF, Air Materiel Command
Wright Field, Dayton, Ohio

ATTN: TSBPB6C

1. This production status report on Contract W33-038-AC-9800, Watertight Slide Fastener Corporation, 15 Whitehall Street, New York 4, New York, Class 03 F, supplements letter dated 5 August 1946, to your Headquarters. The following additional shipments of Item No. 1 have been effected since 31 July 1946:

Shipment No.	Date	Quantity	Bill of Lading No.	Authority
10	8/2/46	72		
11	8/7/46	120	WX-8359443	Ott-1-79
12	8/9/46	120	WX-8359444	"
13	8/13/46	120	WX-8359445	"
14	8/16/46	144	WX-8359446	"
15			WX-8369447	"

2. The total quantity shipped to date is 1,097. In accordance with the proposed delivery schedule, 1,500 each, Kits, should have been produced in July 1946, and 2,500 Kits should be manufactured during August 1946. In view of this schedule, it may be concluded that the contractor is definitely delinquent.

3. An investigation was made on this date to determine the reasons for unsatisfactory delivery and also secure information as to how the contractor intends to accelerate production. Visits were made to the Watertight Slide Fastener Corporation plant, 18-20 38th Street, Long Island City, New York, and also to the Heat Sealed Products Corporation, at 900 Broadway, New York, New York. All assembly operations, including attachment of filter bags, hardware and molded plastic parts, and heat sealing of filter bags, is being performed by Heat Sealed Products Corporation, Raw materials and machined metal and molded plastic parts are procured from outside sources, along with the constructed filter bags and drains. The operations which are conducted at the Long Island City plant of the prime contractor are the steaming of the vinylite filter bag sections (top and bottom), the final inspection of Stills and other Kit components and packaging of the end articles.

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TO: Hq, AAF, AMC. Wright Field, Dayton, Ohio, TSHPE6C 29 August 1946
Subj: Watertight Slide Fastener Corp., New York, N.Y.
Contract W33-038-AC-9800

4. There is no shortage of raw material or purchased parts, inasmuch as the contractor has on hand approximately 25% of all production material required for the entire contract. It is not expected that any difficulty in regard to this matter will develop. The reason that the contractor has not been able to meet the delivery schedule as approved by Wright Field is the development of manufacturing "know-how" difficulty. As this is a new product, never before produced, both of the aforementioned companies have been consuming most of the time in attempting to arrive at satisfactory methods and types of equipment, which will lend themselves to efficient manufacturing. The three main production problems which are now being resolved are : firstly, sewing of the filter bags to the vinylite bags; secondly, the sealing of the vinylite bags; and, thirdly, the injuring of the plastic sheet as it passes through the various operations.

5. This office has been assured by both the prime and subcontractor that necessary additional personnel will be employed to enhance the Sewing Department and that additional sealing equipment will be set up. If conditions continue unsatisfactorily, an additional shift may be added at the subcontractor's plant. General plant caution is being instituted whereby materials will be handled with more care and better special fixtures and devices installed, with the possibility of injury being considerably reduced. Up until last week, Watertight Slide Fastener Corporation adversely affected the final assembly of the stills by Heat Sealed Products Corporation, due to a slow steaming operation.(after top and bottom components of the vinylite bags have been fabricated, they are sent to Watertight Slide Fastener Corporation for steaming and then returned to Heat Sealed Products Corporation for final assembly by sealing). However, although this situation has not yet been satisfactorily improved, enough steamed components are being made available to the subcontractor to avoid being delayed in their final assembly operations. Watertight Slide Fastener Corporation has added a second shift of steaming workers, which has been responsible for the elimination of that bottleneck.

6. It has been reported by the contractor that rejections run at the rate of 25%. This is due primarily to the tearing of the vinylite bags or improper sealing of components.

7. Based upon current production figures, approximately 150 stills are being produced per day, on the basis of a 5-1/2 day week. This quantity of stills is sufficient for about fifty (50) kits. It is the hope and intention of both companies to produce four hundred (400) still components for seven hundred (700) kits per week. An official at Heat Sealed Products Corporation has added that this rate will be achieved by the end of the week of 26 August 1946.

8. From the observations made by the investigating Production Expediter of this office, which have been outlined above, it may be concluded that the proposed schedule, as contained in contractor's letter to Wright Field dated 21 June 1946, will not be met. This activity has been assured that officials of both Watertight Slide Fastener Corporation and Heat Sealed Products Corporation are earnest in their

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TO: Hq. AAF, AMC, W. ght Field, Dayton, Ohio, Attn: To...P&C 20 August 1946
Subj: Watertight Slide Fastener Corporation, New York, N.Y.
Contract W33-038-AC-9800

Par. 8. (Cont'd.)

desire to improve production methods and deliver as much of the article on order as is possible. Nevertheless, this office will maintain constant surveillance and render all possible assistance to guarantee that delinquency is kept to a minimum.

FOR THE CHIEF, NEW YORK AAF PROCUREMENT FIELD OFFICE:

for MICHAEL M. MARSHALL
Chief, Contract Branch

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COORDINATION
CS OR DEP CG

AMC Form No. 10-508
(Rev. 25 Oct 43)
PRINT SYMBOL AND INITIAL IN APPROPRIATE BLOCK.

ADJUTANT GENERAL

MATERIEL

TSEAPSA/MTH/eib

TSEAP (TSEAPSA)

29 August 1946

CHIEF OF ADMIN.

AIR INSPECTION

E. I. DuPont De Nemours and Company,
626 Schuyler Avenue,
Arlington, New Jersey.
Attention: Mr. John H. Shackleton.

PERSONNEL (T-1)

Gentlemen:

This Command is engaged in research on Solar Stills which incorporate a transparent film for a cooling surface. This requirement has heretofore been accomplished by use of VW1900 Vinylite, but this material is unsatisfactory because the plasticizer exudes and imparts an unpleasant taste to the distilled water.

INTELLIGENCE (T-2)

Any other material used for this purpose will necessarily have to withstand very low temperatures and high temperatures. It should be flexible enough to allow the still to be folded and packed in a compact space.

ENGINEERING (T-3)

"Polyethelene" has been considered as a possibility for use in Solar Stills. Any samples of "Polyethelene" and information on its properties and wearability which you can furnish would be greatly appreciated.

SUPPLY (T-4)

It is to be understood that this communication will not constitute a procurement request by this Command, or in any way obligate the United States Government.

Very truly yours,

PLANS (T-5)

MILLARD L. HASKIN,
Colonel, Air Corps,
Chief, Personal Equipment Laboratory,
Aircraft & Physical Requirements Subdivision,
Engineering Division.

BASE C.O.

Like letter to:
Bakelite Corporation,
30 E. 42nd St.,
New York, N.Y.
Att: Mr. Pomeroy.

OTHER

FOR

745

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BAKELITE CORPORATION

UNIT OF UNION CARBIDE AND CARBON CORPORATION

UCC

30 EAST 42ND STREET
NEW YORK 17

BAKELITE

September 4, 1946

Army Air Forces
Air Material Command
Wright Field, Dayton, Ohio

Attention: Col. Millard L. Haskin
Chief, Personal Equipment Lab.
Aircraft & Physical Requirements Subdivision
Engineering Division

Gentlemen: RE: TSEAP (TSEAP5A)

We have your letter of August 29 indicating that you are engaged in research on Solar Stills which incorporate a transparent film for a cooling surface. We cannot go along with you in your statement that the VU-1900 type film is unsatisfactory in this application because the plasticizer exudes and imparts an unpleasant taste to the distilled water. The writer cannot see how a normal operating condition of the still would effect noticeable plasticizer extraction, but the odor of the plasticizer used may well be imparted into the drinking water.

For your investigation of a polyethylene film in this application, we are entering a no-charge in your name with our Bound Brook, N.J. plant, for approximately 5 lbs. of VU-3462 Natural .004" x 48" or any calendered clear polyethylene compound in the .004" x 48" dimensions. The apparent intricate construction of the still would be harder to work out with a compound of this type, and it would probably not be as effecient as a "Vinylite" film because its clarity is not as good.

When you have evaluated the polyethylene sample, we would appreciate any comments you may care to make.

Very truly yours,

J A Pomeroy

Technical Representative
CONSUMER FILM AND SHEETING DIVISION

JAPomeroy/m

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Solar Stills
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BAKELITE CORPORATION

UNIT OF UNION CARBIDE AND CARBON CORPORATION

UCC

TRADE MARKS
BAKELITE

30 EAST 42nd STREET
NEW YORK 17

September 10, 1946

Army Air Forces Headquarters
Air Material Command
Wright Field, Dayton, Ohio

Attention: Millard L. Haskin
Colonel, Air Corps

TSEAP (TSEAP5A)

185

4-13-47

Gentlemen:

We have delayed a reply to the complaint registered in your letter of August 2nd pending an opportunity for discussion with the prime contractor of the solar stills to see if we might determine the cause for the failure appearing in the samples attached to your letter.

After examining the samples carefully we do not feel that the failures illustrated were caused by deterioration of the material. For your information the plasticizer used is di-2-ethylhexyl phthalate and this is the only plasticizer that has been used either in VU-1900 Clear or VU-1940 Clear. During the war as well as subsequently, both these formulations were widely used by the Armed Services and we never encountered any evidence of failure in service due to this plasticizer.

We recognize that our VU-1900 Clear film as shipped does contain a few pinholes. On the basis of our present knowledge we have found it difficult to eliminate these entirely and our standard product specifications allow a maximum of three pinholes per square yard. We are attaching a copy of these product specifications for your review.

Of the three samples returned with your letter, two of them show failure at the seam. We feel quite confident that these are sealing failures and could be eliminated by the contractor making the stills for you. The third failure gives definite evidence of the material having been snagged or cut up coming into contact with some sharp edge. We recognize that this can happen under severe conditions of service as the material used in the stills is necessarily thin to make them compact, and definitely cannot be rated cut-proof or snag-proof. We believe that our analysis of these failures is correct in view of the fact that the "Vinylite" film adjacent to the failure

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CENTRAL FILES

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appears to have satisfactory tear and tensile strength properties.

Very truly yours,

T. W. Sharp

T. W. Sharp
Manager - Sheet and Foil Division

TWS:LA

-Enclosure-

P.S. Unfortunately we are currently out of stock on our product specifications covering Vu-1500 Clear. As soon as a new supply is received, we will forward a copy to your attention.

T. W. S.

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ASSISTANT GENERAL
CHIEF OF ADMIN.
IR INSPECTOR
PUBLIC RELATIONS
JUDGE ADVOCATE
PERSONNEL (T-1)
INTELLIGENCE (T-2)
ENGINEERING (T-3)
SUPPLY (T-4)
PLANS (T-5)
AAF C. O.
OTHER

AMC Form No. 10-50
(Rev. 22 Oct 45)
(PRINT SYMBOL AN
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MATERIEL

TSEAP5A/DTM/eib

SAP (TSEAP5A)

13 September 1946

Bakelite Corporation,
30 East 42nd Street,
New York 17, New York.
Attention: Mr. Pomeroy.

Gentlemen:

Reference is made to your letter of 4 September 1946.

Recently in the operation of solar stills made of VU-1900 vinylite, pronounced deterioration of the vinylite has rendered many stills useless. The deterioration appears as small holes and cracks, singly and in groups. The holes range in size from pinholes to openings as large around as the butt of a pencil. In an effort to account for the deterioration, water submersion tests were conducted with VU-1900 vinylite. Tests show that after a certain period of submersion the vinylite loses weight. This would seem to indicate that the material is probably losing plasticizer and might account for its deterioration.

Attached are samples of the deteriorated vinylite. Any information relative to the probable cause of such deterioration would be of material aid to our research program.

Your interest and cooperation are appreciated.

Very truly yours,

MILLARD L. HASKIN,
Colonel, Air Corps,
Chief, Personal Equipment Laboratory,
Engineering Division.

1 Incl.
Samples (4)

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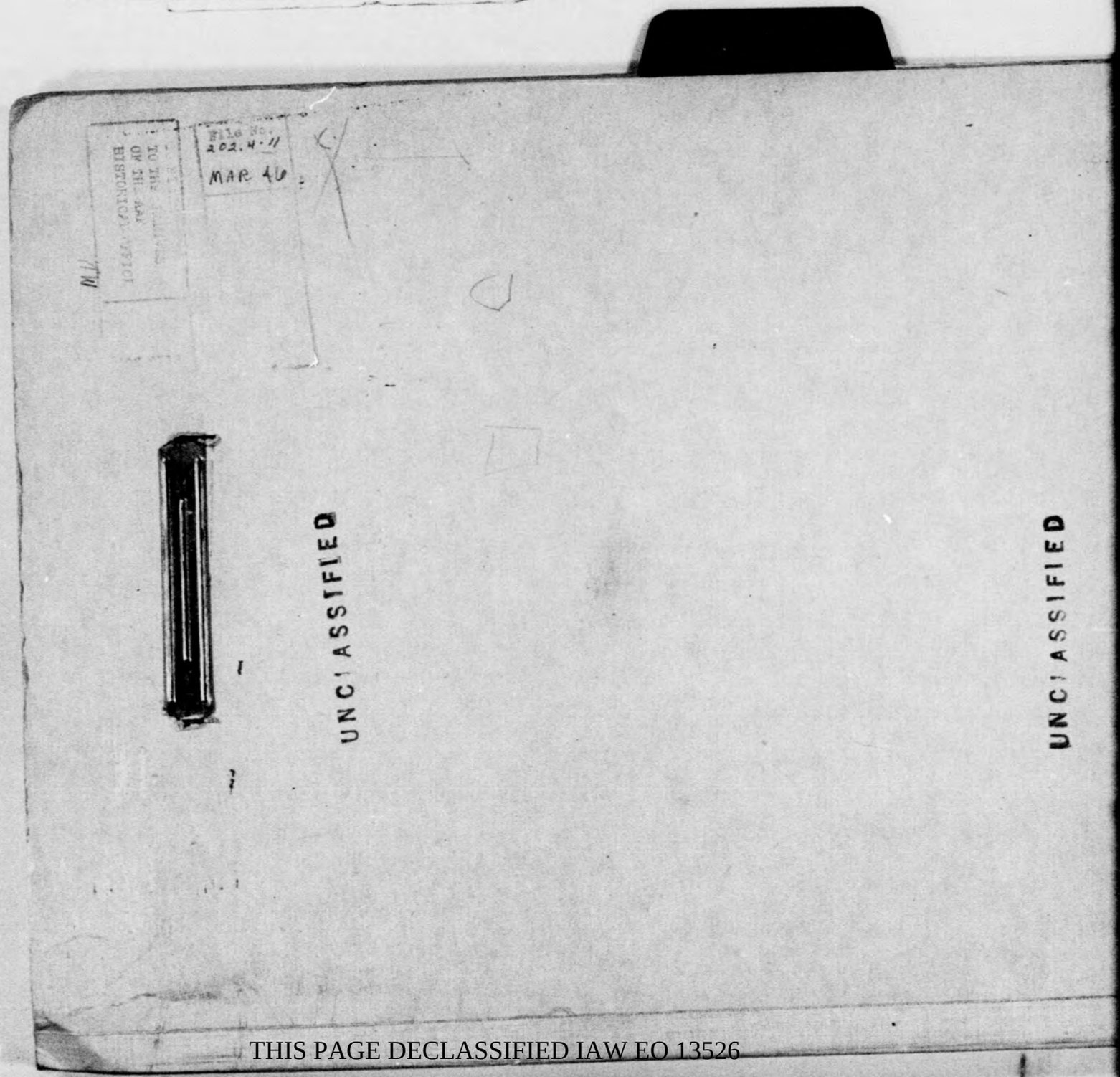

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CASE HISTORY

of

AAF DISCHARGE EMBLEMS

A history of the inception, design, and production of a distinctive AAF discharge emblem.

Documents in this case history were obtained from the files of Air Technical Service Command, Wright Field, and Headquarters, Army Air Forces, Washington, D. C.

Compiled by
Historical Division
Intelligence, T-2
Air Technical Service Command
Wright Field
March 1946

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SUMMARY OF THE AAF DISCHARGE EMBLEM

The inception of the plan for a distinctive AAF discharge emblem in April 1945 envisioned an insignia for the AAF Aid Society whose membership consisted of all honorably discharged Air Force veterans. The Office of Assistant Chief of Air Staff, Personnel, Washington, pointed out that AAF personnel "in common with thousands of others do not like
*(1) the present plastic lapel button." General H. H. Arnold, Commanding General, AAF, Washington, during a discussion with Major General F. L. Anderson, Assistant Chief of Air Staff, Personnel, Washington, had placed the responsibility for the future of the AAF from the morale and public
(2) relations viewpoints upon the Assistant Chief of Air Staff, Personnel. General Anderson desired AAF veterans to return to civilian life with the best possible impression of the Air Forces as they would be its
(3) strongest supporters during the postwar period.

(1) Although originally discussed as an insignia for the AAF Aid Society, the idea evolved into a plan for a distinctive discharge pin. General Anderson, during a meeting 5 July 1945, had presented the question, "shouldn't every man who gets out of the Air Forces have a button or something? What has the War Department to do with that?" Since the War Department's discharge button was not popular, Office of Assistant
(2) Chief of Air Staff, Personnel, Washington, felt that an AAF button would be approved. Therefore the idea was presented to the Chief of Air Staff, Washington, with the recommendations that an AAF emblem be approved and be procured by the Quartermaster, to be distributed by Personnel Distribution Command, Louisville, Ky. Major General C. C. Chauncey, Deputy Chief of Air Staff, Washington, forwarded to Assistant Chief of Staff, G-1, Washington, the proposal for an AAF emblem which would be a "Clip on Tab" and would not destroy the identity of the official War Department
(4) discharge button. However, on 17 July, Colonel E. A. McCabe, Executive Assistant Commanding General, AAF, indicated that the War Department
(5) would not approve a separate AAF discharge button. Deputy Assistant
(50) Chief of Air Staff-4, Washington, stated in February 1946 that G-1 did disapprove the idea when it was submitted in July 1945.

The plan lay dormant until September 1945 when Colonel H. D. Krafft, Chief, Awards Branch, Assistant Chief of Air Staff, Personnel, Washington, stated that the feasibility and desirability of having an Air Force button
(6) had been determined and on 22 October 1945 Colonel J. E. Smart, Secretary of Air Staff, Washington, instructed Assistant Chief of Air Staff-1, Washington, to direct Air Technical Service Command, Wright Field (ATSC)
(8) to manufacture and distribute such a button. An informal directive to ATSC was forwarded 24 October in order to initiate the program. Since "It is the desire of the Commanding General, Army Air Forces, that a service button be given to every member of Army Air Forces honorably discharged", on 2 November, Brigadier General W. E. Hall, Deputy Assistant Chief of Air Staff-1, Washington, directed ATSC to produce at their

*The numbers placed in parentheses in the margin refer to the documents found in the Document File attached.

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depots 2,375,000 buttons which would be stored and distributed by Continental Air Force, Bolling Field, D. C., and Personnel Distribution
(14) Command. Brigadier General I. W. Ott, Chief, Maintenance Division,
(11) Wright Field, directed that San Antonio Air Technical Service Command, Kelly Field, Texas, (SAATSC) undertake the production of these buttons. SAATSC requested that the Office of Quartermaster General, Washington, release facilities to aid in the manufacture of these buttons, but as
(21) the Office of Quartermaster General had only six contractors available whose production capacity was already strained, no assistance could be given.

One of the major problems in the production of the discharge pins revolved around the procurement of grip fasteners for the buttons. B.
(7) A. Ballou and Co., Inc., Providence, R. I. (Ballou) quoted a price of $ .98 per gross for these clips and indicated that they could be supplied beginning 25 days after receipt of the order. Purchase Order 46-1900 (Contract No. 41-142 ac-739) was issued Ballou covering procurement of 13,959 gross of clips at a cost of $13,679.82 and verbal approval was given by Lieutenant Colonel E. W. Brackett, Chief, Local Purchase Branch,
(23) Procurement Division, Wright Field, subject to review of the written instrument. Upon review of the Purchase Order, Ballou advised SAATSC that it would be impossible for them to meet requirements of adherence to provisions of the Walsh-Healey Act in production of clips for the AAF. If
(18,37,38) separate production under the Walsh-Healey Act were begun, delivery would be delayed approximately eight weeks. In response to Procurement Divi-
(35) sions's inquiry as to the status of the SAATSC contract with Ballou, Colonel R. C. Harmon, Judge Advocate, Wright Field, submitted the opinion that P. O. 46-1900 amounted to a counter-proposal to Ballou's bid of 18 October and would not be binding unless deliveries had been made; an explanatory statement from Ballou would clear the issue with the General Accounting Office; and an order for a smaller quantity would be legal
(36) if procedure was bona fide and not a subterfuge. Colonel J. W. Sessums, Assistant Deputy CG, Engineering, Wright Field, in a draft of an R&R, 28 December, recommended procurement of as many clips as possible from
(39) Ballou without forcing him to operate under the Walsh-Healey Act. SAATSC
(39) could then investigate other sources or make plans for the manufacture of clips as shipments from the Depot were being held up pending receipt
(25) of clips. This would not be an evasion of the Walsh-Healey Act, as no more orders with that company were contemplated, but merely an attempt to expedite delivery of pins in accordance with the wishes of General Arnold. Colonel Don Coupland, upon replacing Colonel Sessums as Assistant Deputy CG, Engineering, placed the blame for the proposed cutback on ex-
(39) cessive cost and on 29 December suggested that an order for $9,000 or $10,000 be issued in lieu of $13,000. By January 1946, the clasp situation became so critical that Colonel Coupland was ready to "get or make any type of fastener that anybody can dream up. Beat the dead line and spend what is necessary." However, on 4 January SAATSC was directed to reduce by Supplemental Agreement their contract with Ballou to 9,700 gross of clips. Ballou agreed to expedite delivery of clips on their smaller contract and begin shipment immediately upon receipt of the Sup-
(40,42,43) plemental Agreement.

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In accordance with the directive from General Hall, the Supply Division, Wright Field, requested Continental Air Forces and Personnel Distribution Command to take action preparatory for receipt of the discharge buttons. Although both Commands indicated that they had no previous knowledge of this responsibility, Personnel Distribution Command immediately appointed an accountable property officer. Continental Air Force presented a much more difficult problem, for following the initial contact they refused to take any steps until instructions were received from AAF Headquarters, Washington. Furthermore on 11 December they forwarded directly to SAATSC instructions for the shipping of the buttons to various points for distribution. It was not until 8 January that Continental Air Forces finally informed Wright Field of their action which only came after the Field had twice requested such information. Despite the action of Continental, which [illegible] was not able to understand, the Command authorized SAATSC to comply with the shipping instructions but forbade SAATSC to recognize any additional instructions received direct from Continental Air Force.

Final distribution of the individual buttons was not difficult at Air Force separation centers but presented more of a problem for AAF dischargees from Army Service Force separation centers. AAF Liaison officers were maintained at these centers and through them the buttons might be distributed. However, on 3 January 1946, Personnel Distribution Command indicated the impossibility of getting an AAF button to men discharged through Army Service Force Centers. Therefore buttons were being mailed to veterans previously or currently discharged through Army Service Force Centers. As "this matter is very close to General Arnold's heart", Brigadier General L. M. Johnson, Chief, Personnel Services Division, Washington, expressed the desire that Personnel Distribution Command make every effort to see that each AAF veteran received a button.

Status reports forwarded to Colonel Smart periodically gave a clear picture of the "bang up job Beverly [Brigadier General C. M. Beverly, Commanding General, SAATSC] has done" for, as of 27 January 1946, approximately 35,000 discharge buttons were being produced per day. Original estimates on cost for the production of AAF discharge buttons were placed at 2 1/2 cents per unit. A report from SAATSC in February 1946 showed a cost of $ .10004 per button which did not include the cost of the clips at $ .00680 each.

J. B. Pollack and Co., Inc., Chicago, Illinois, inquired 6 February 1946 about the accuracy of a rumor that a distinct insignia had been authorized as an honorable discharge emblem for Army Air Force personnel. In reply, Brigadier General R. C. Hood, Jr., Deputy Assistant Chief of Air Staff-1, Washington, stated on 5 March 1946 that the rumor was probably based on an Air Forces "identification pin" which had been given to personnel upon separation. General Hood stated that it was not a discharge emblem and had no official status; also, its distribution had been discontinued.

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General D. D. Eisenhower, Chief of Staff, War Department, Washington, saw the AAF discharge emblem at Kelly Field, Texas, 25 February 1946, and his office subsequently requested information about the emblem. A summary of the background of this case was forwarded by the Deputy Assistant Chief of Air Staff-4 on 27 February 1946. On 5 March 1946, General Carl Spaatz, Commanding General, Army Air Forces, Washington, directed SAATSC to discontinue manufacture of the button and to ship all the available supply to Army Air Force Headquarters at once. SAATSC was not to distribute any of the buttons to individuals, commands or agencies.

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ARMY AIR FORCES DISCHARGE EMBLEM

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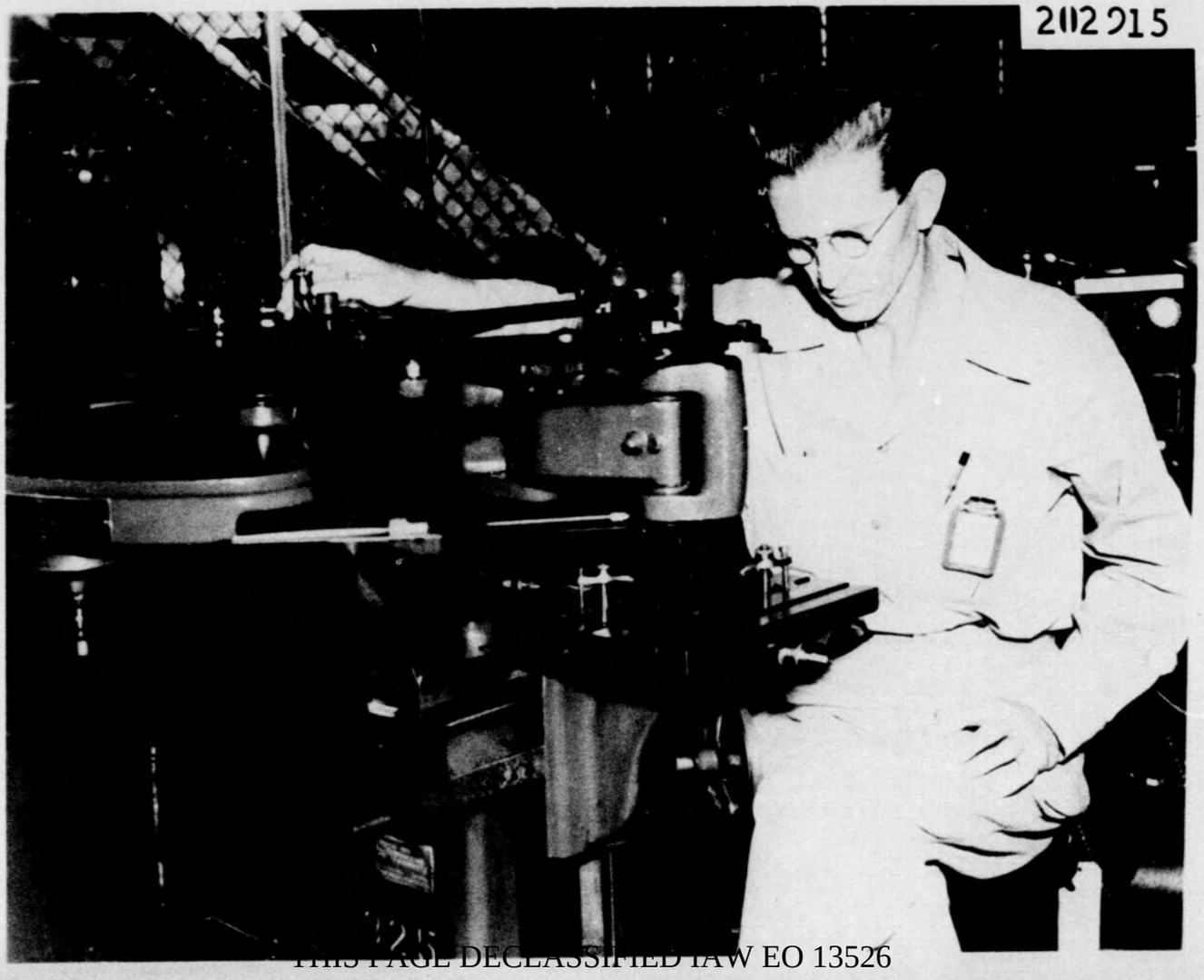

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No. 1 - Dies Manufactured From Tool Steel.

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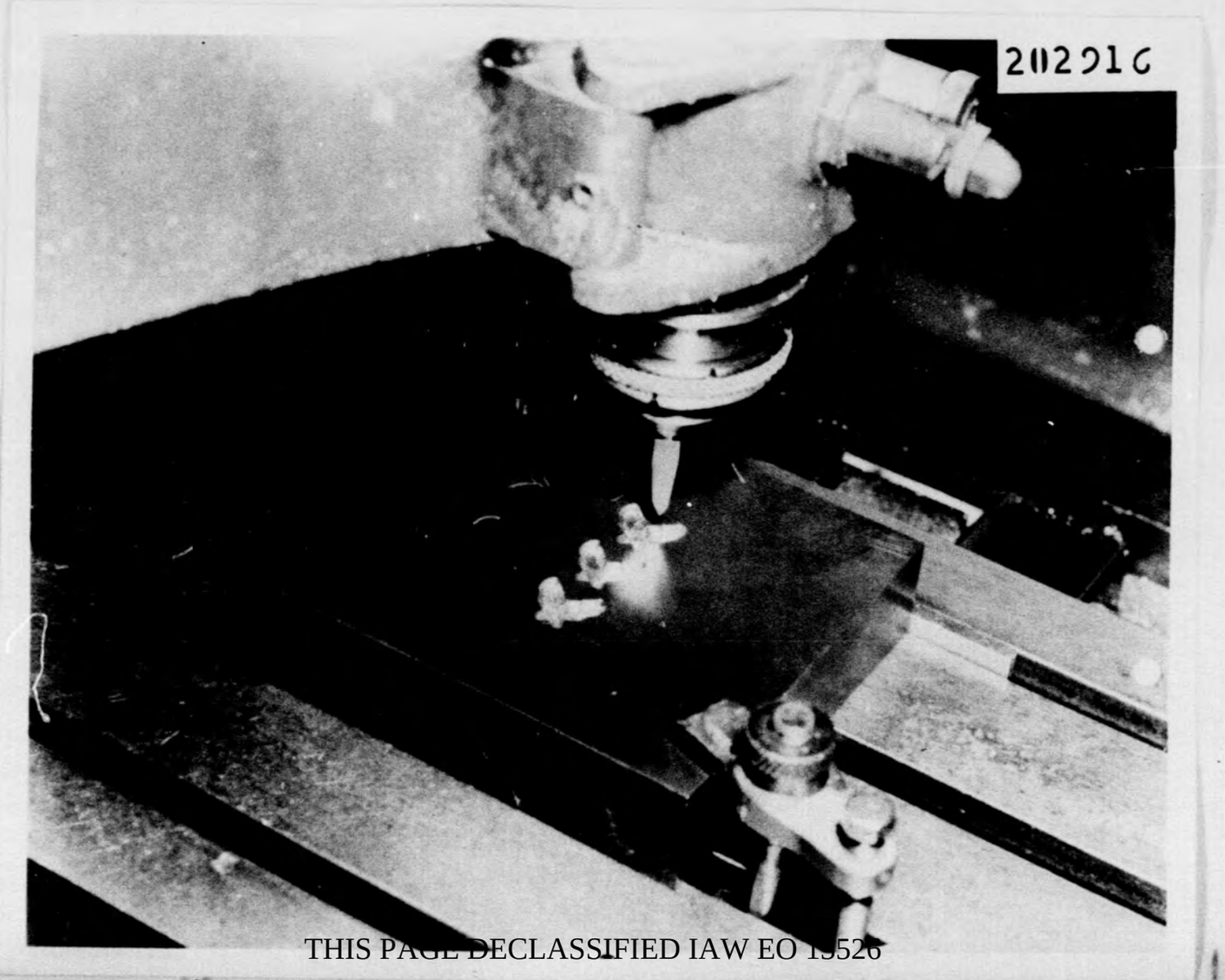

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No. 2 - Insignia For Embossing Cut In The Die.

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No. 3, Punch Presses Emboss and Blank 18,000 Buttons in 8 Hours.

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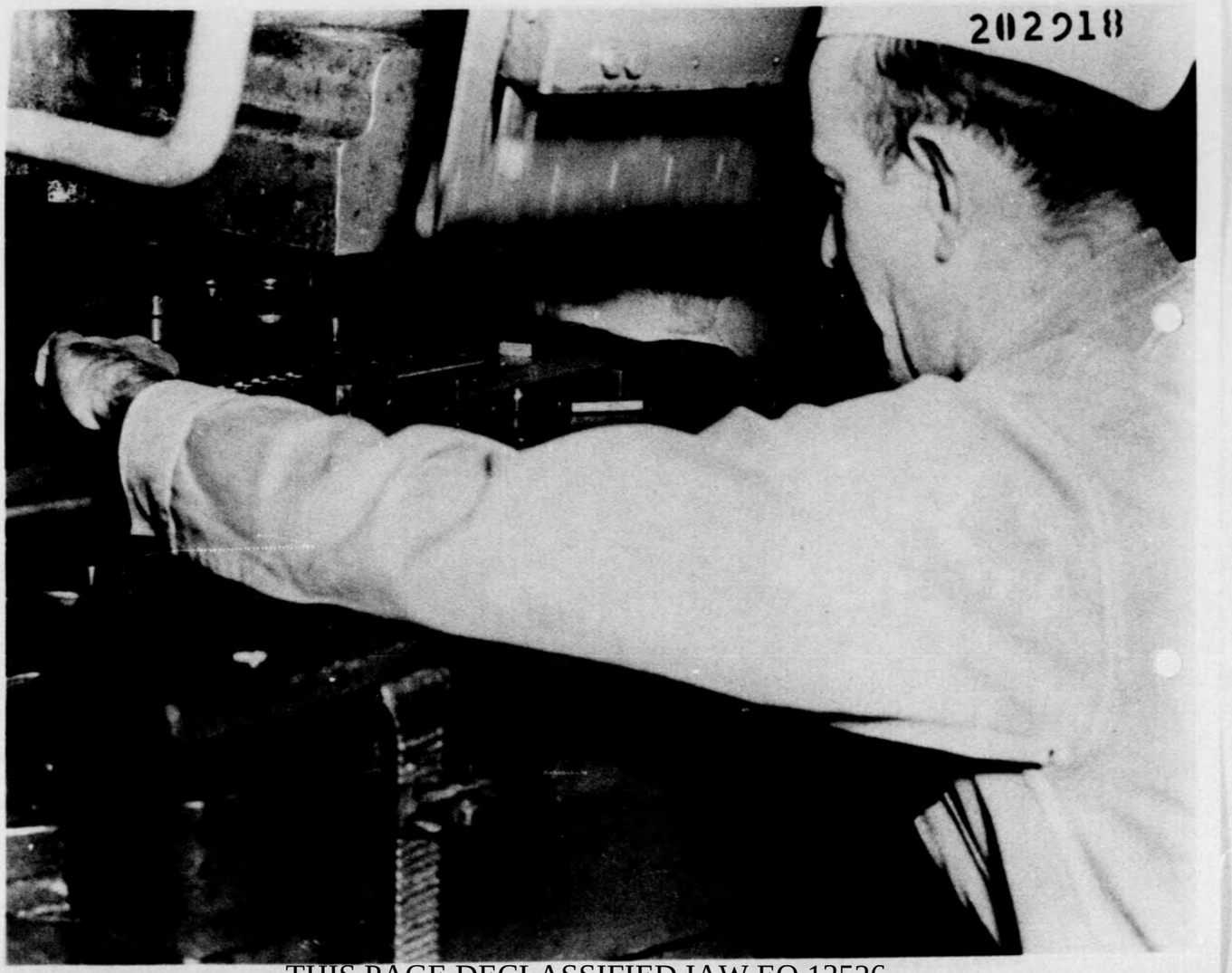

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No. 4 - Punch Presses.

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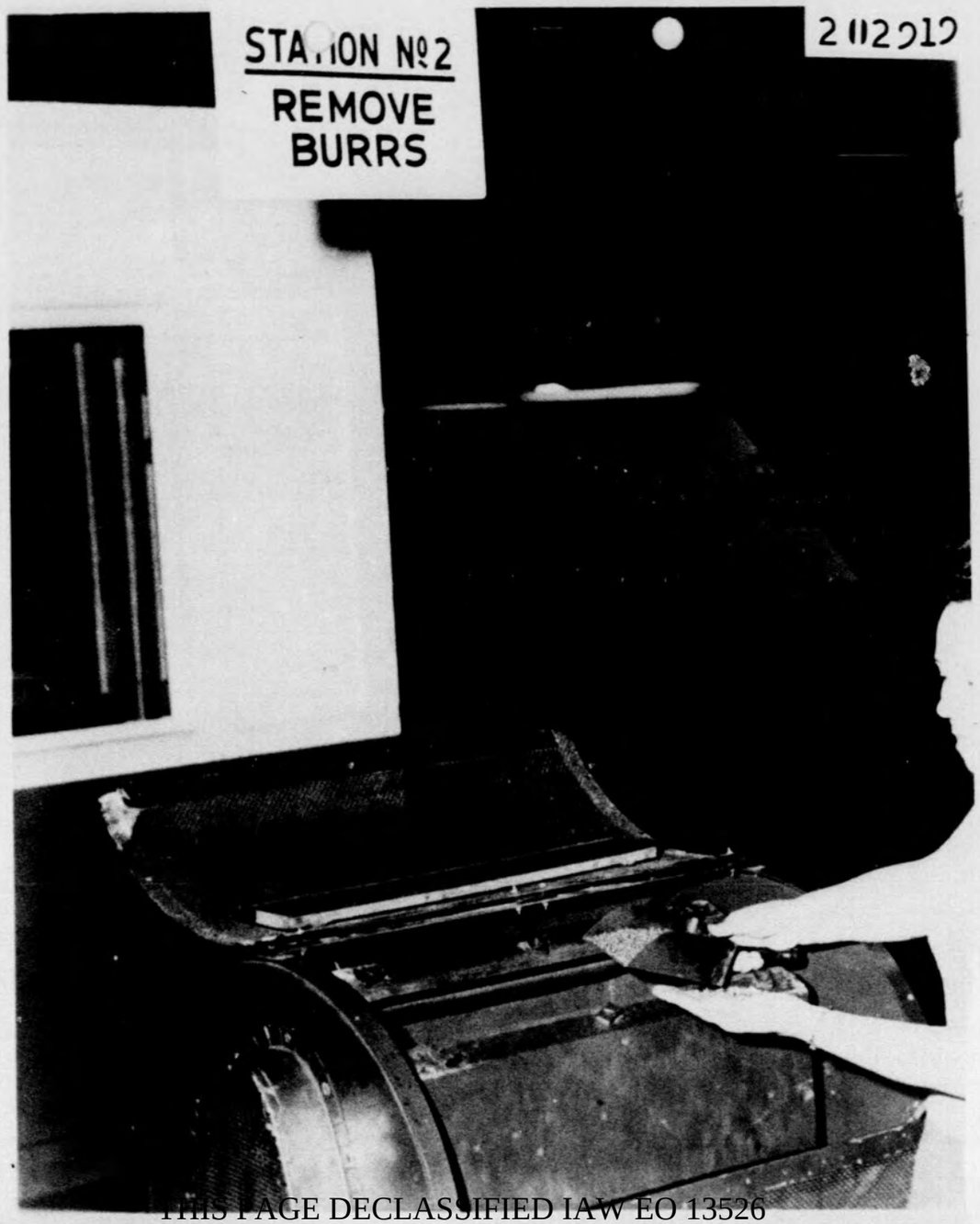

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No. 5 - Burrs Removed By Tumbling In A Barrel With Steel Shot.

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No. 6 - Soldering The Studs To Backs Of Insignia.

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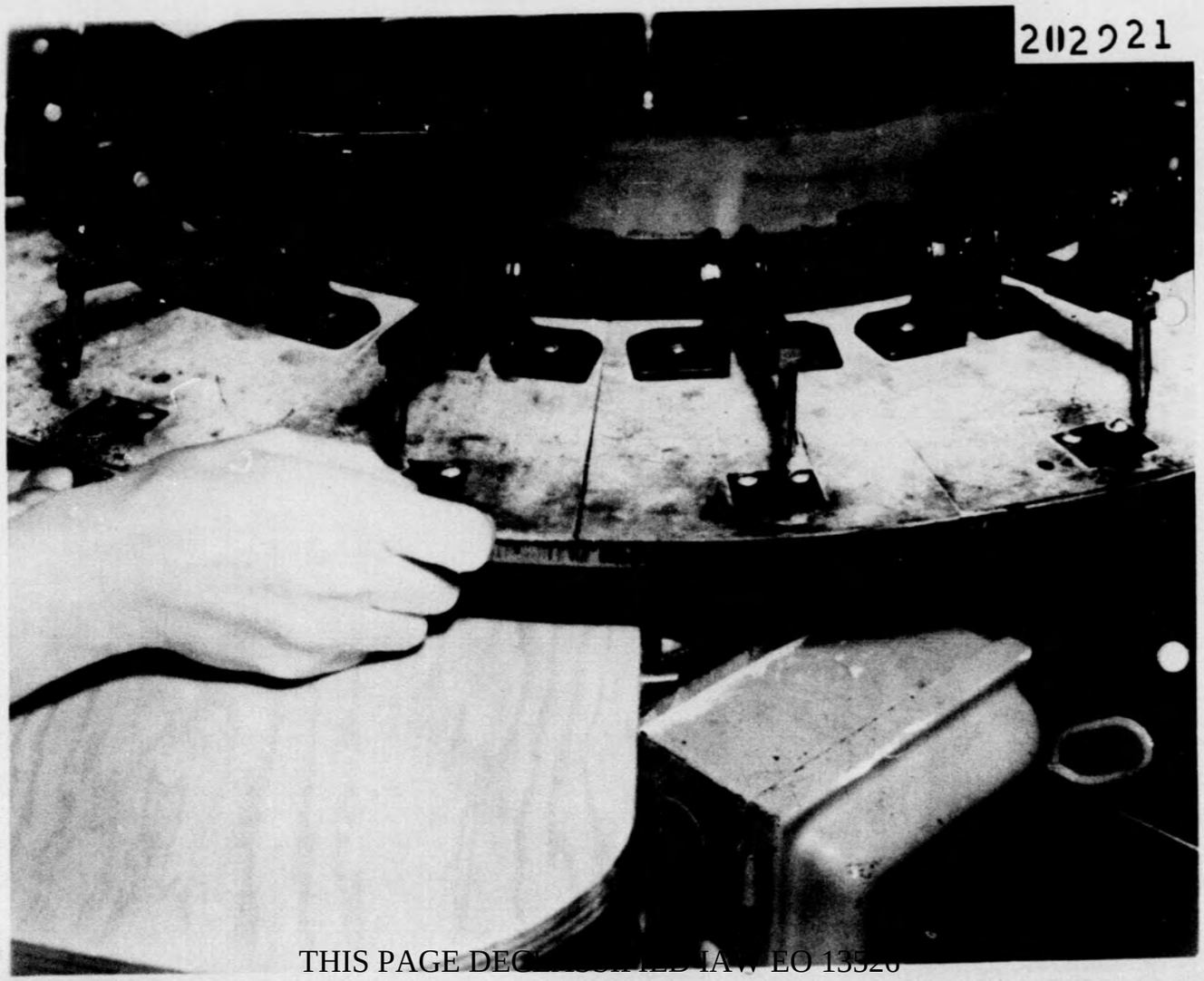

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No. 7 - Soldering The Studs To Backs Of Insignia.

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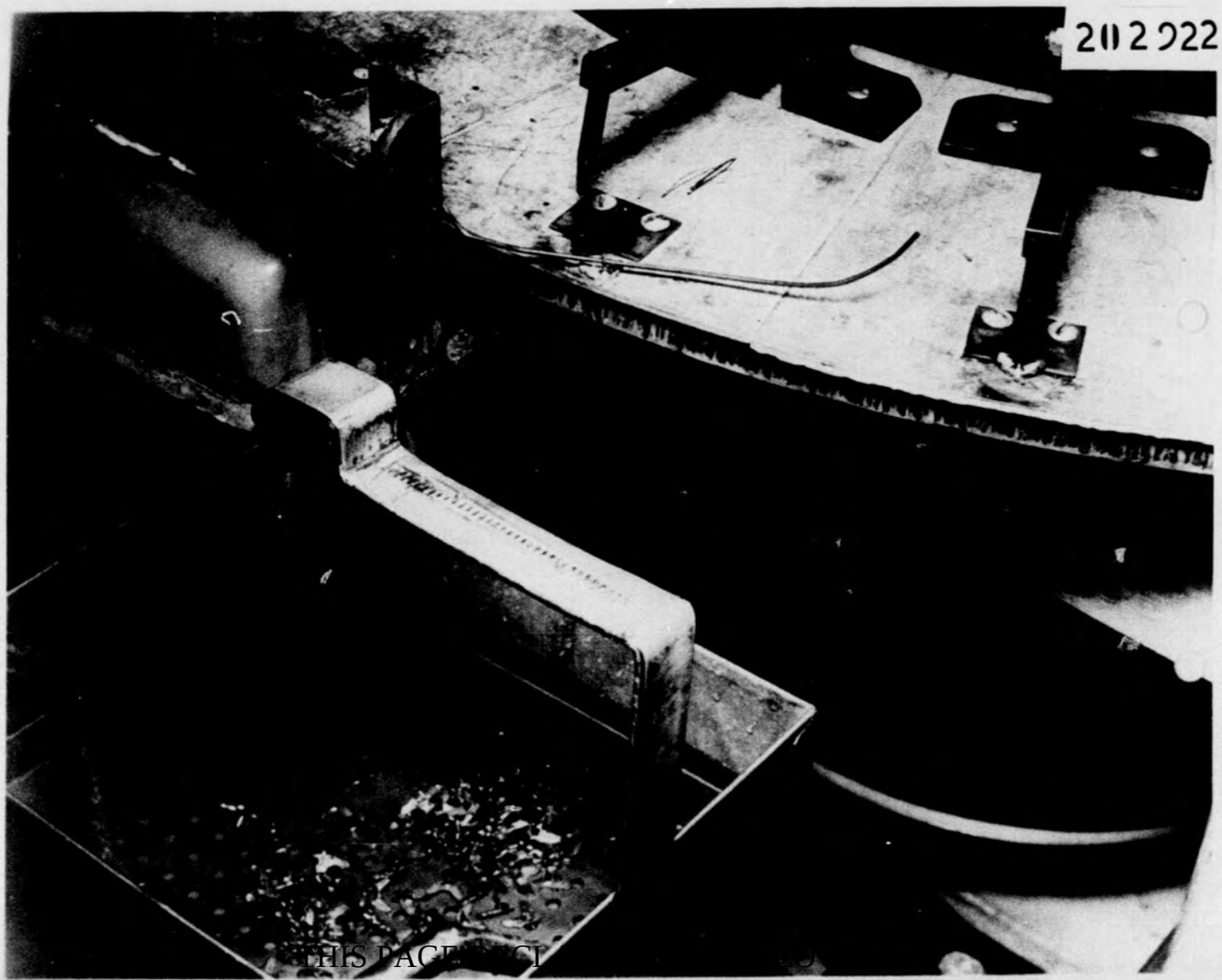

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No. 8 - Soldering The Studs To Backs Of Insignia.

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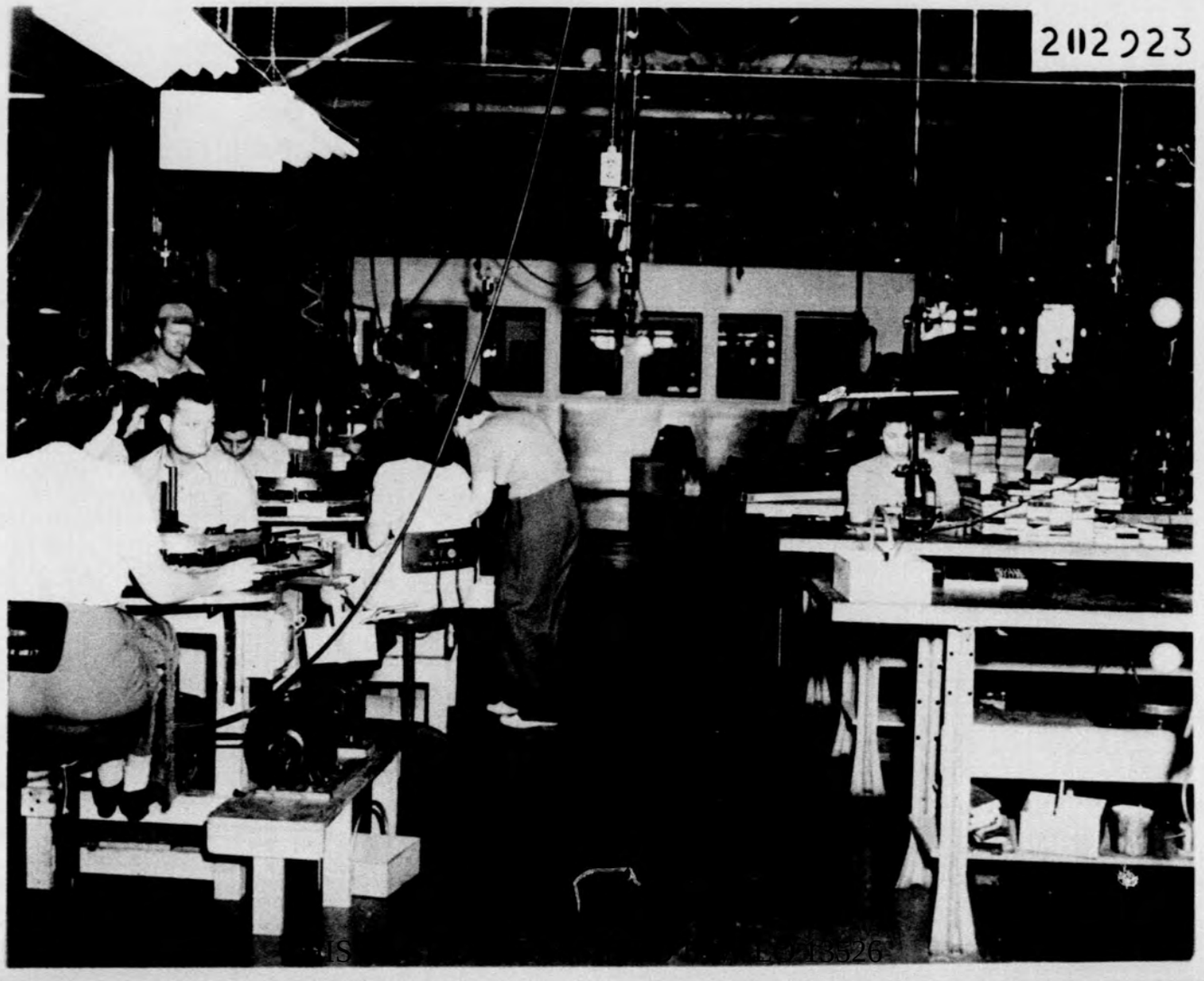

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No. 9 - General Manufacturing Layout.

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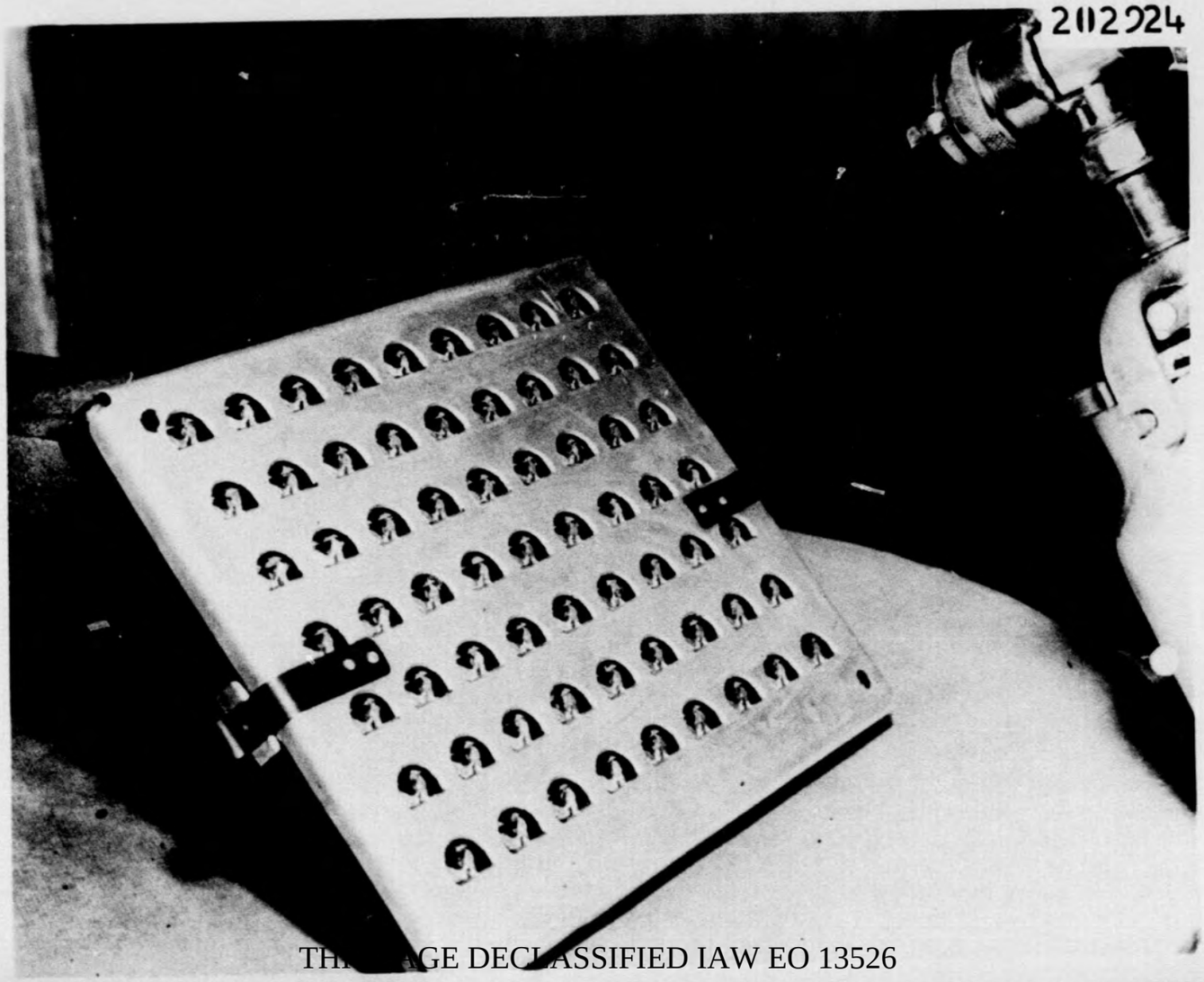

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No. 10 - Coat Of Lacquer Sprayed On Wings Before Plating.

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No. 11 - Nickel Plated On The Stars.

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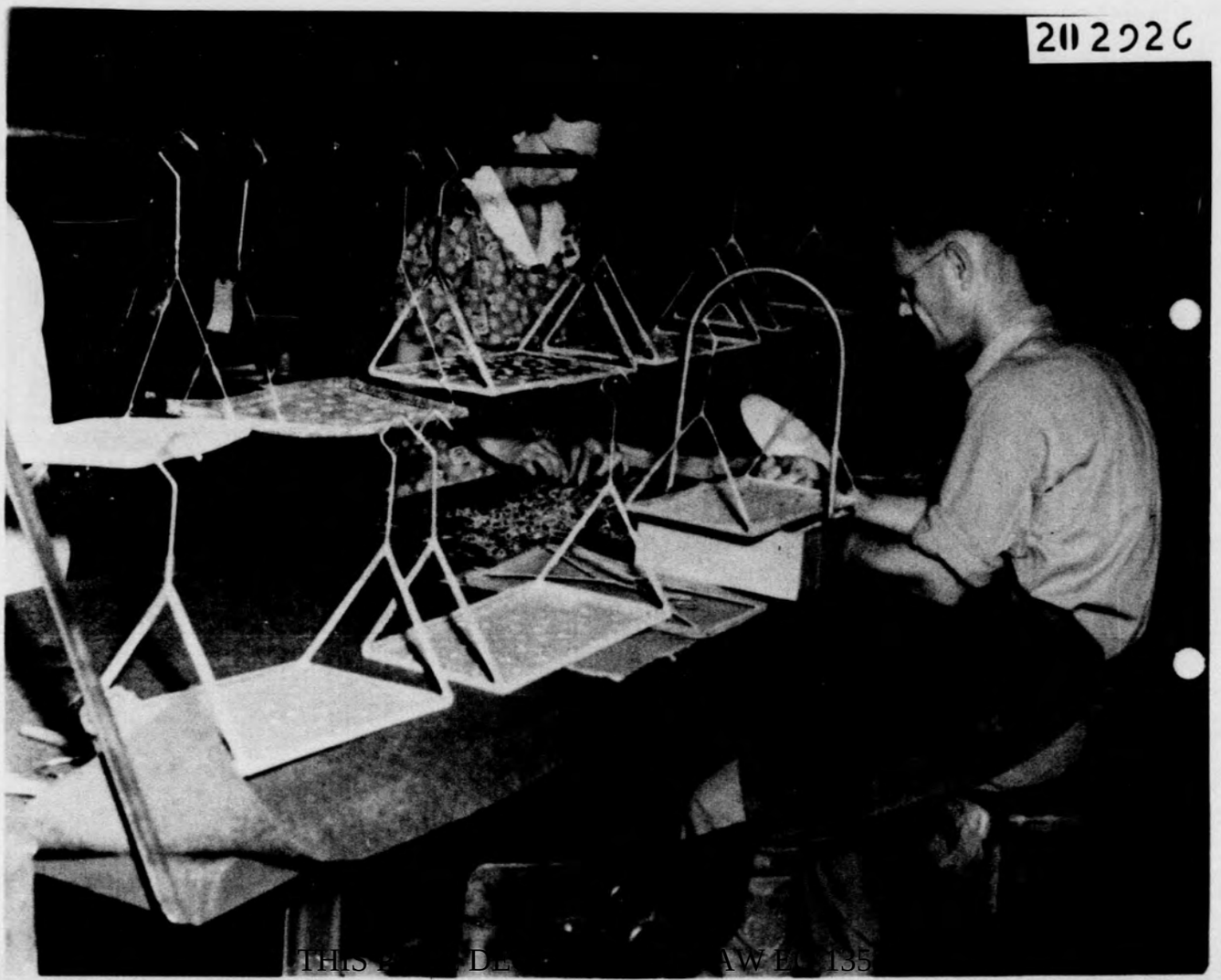

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No. 12 - Nickel Plated On The Stars.

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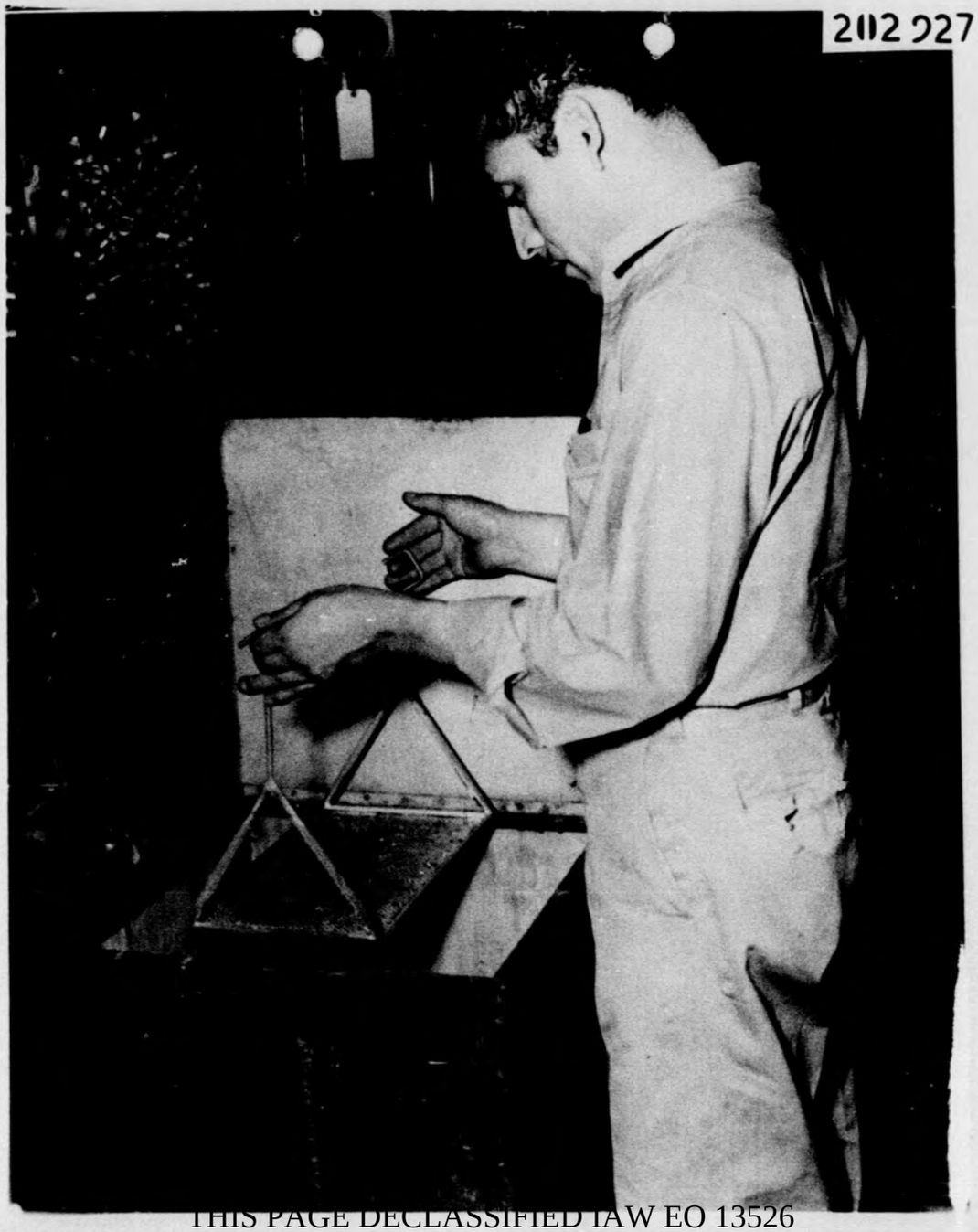

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No. 13 - Lacquer Removed From Wings By Rinsing in Lacquer Thinned.

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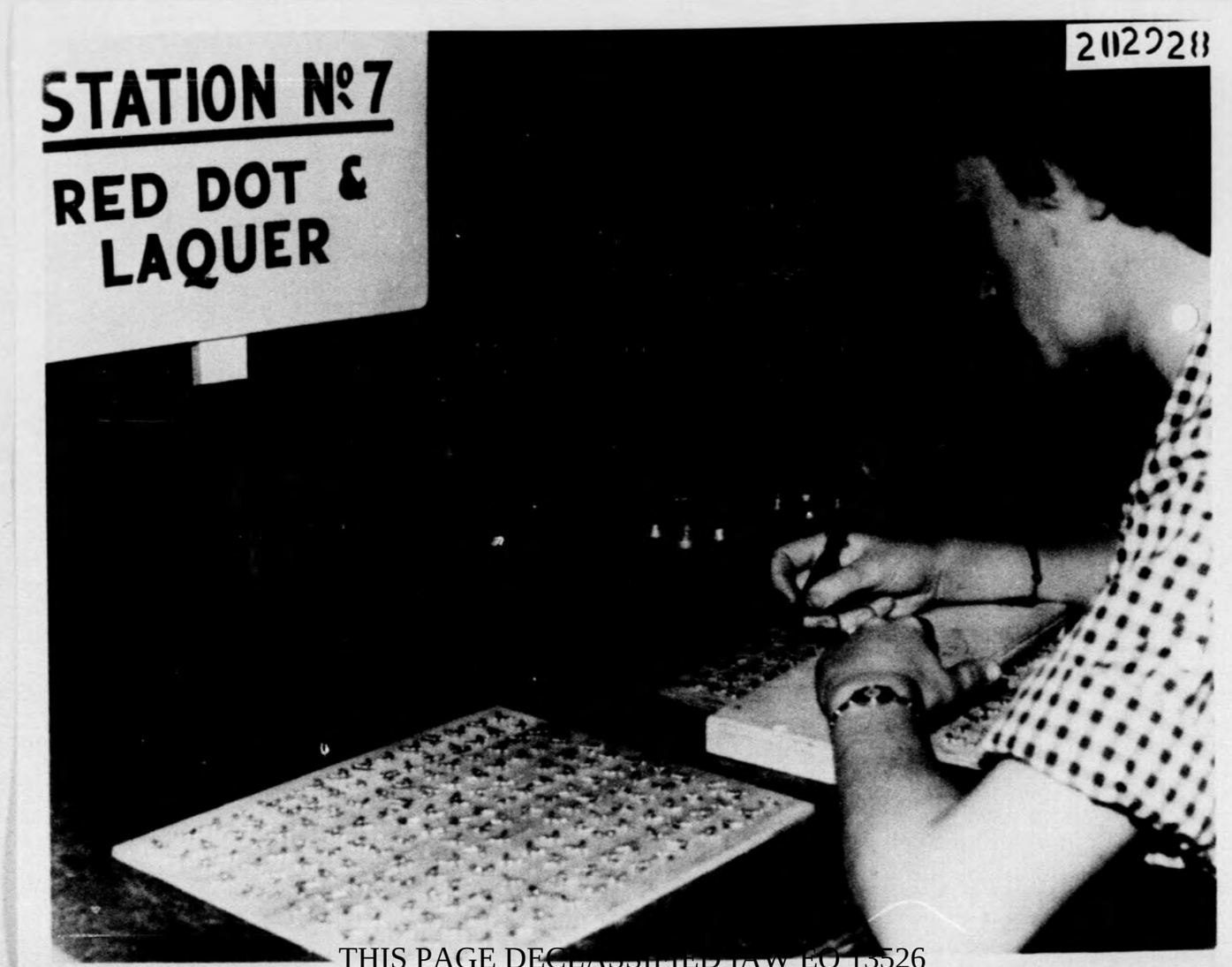

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No. 14 - Red Dot Placed In The Star.

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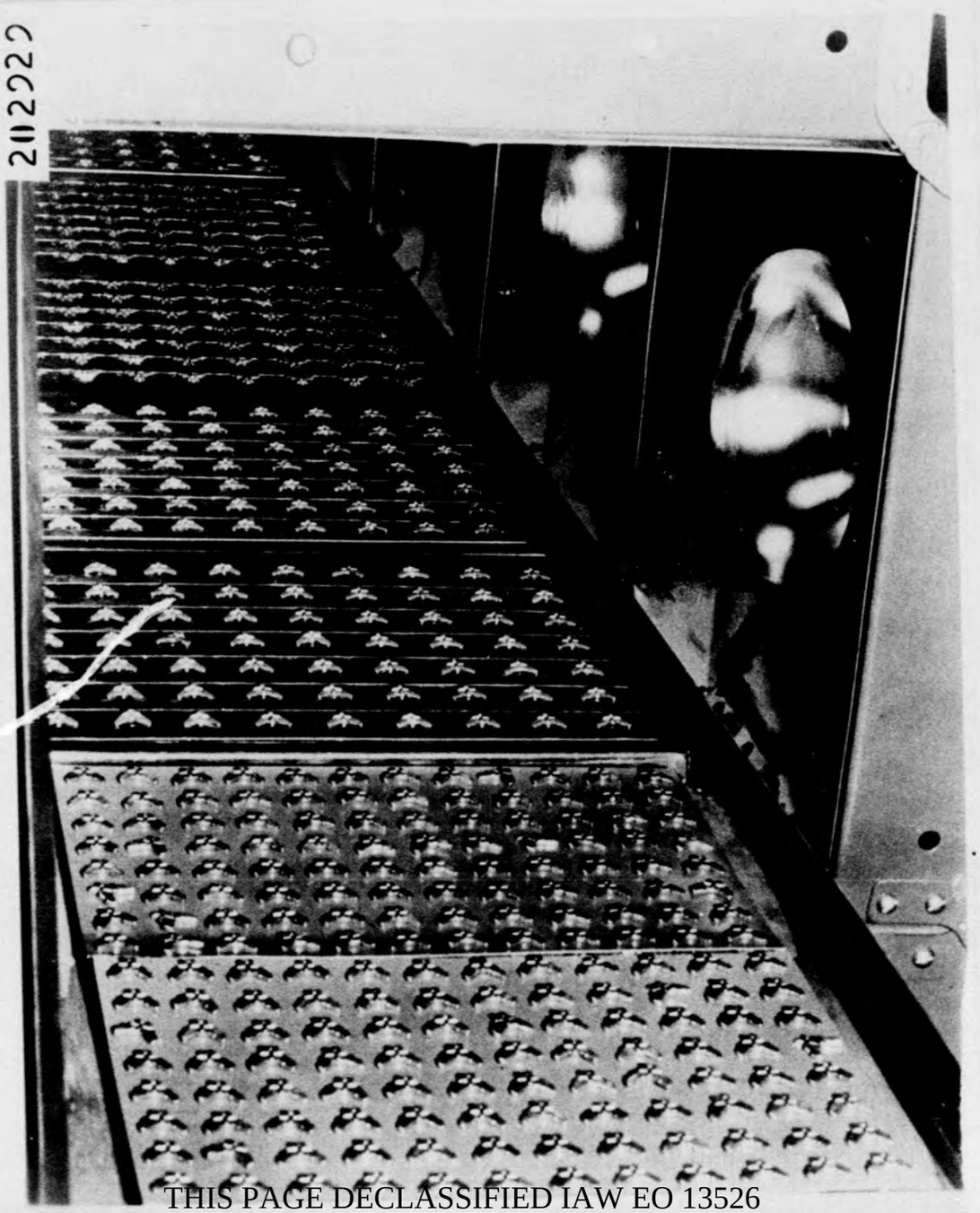

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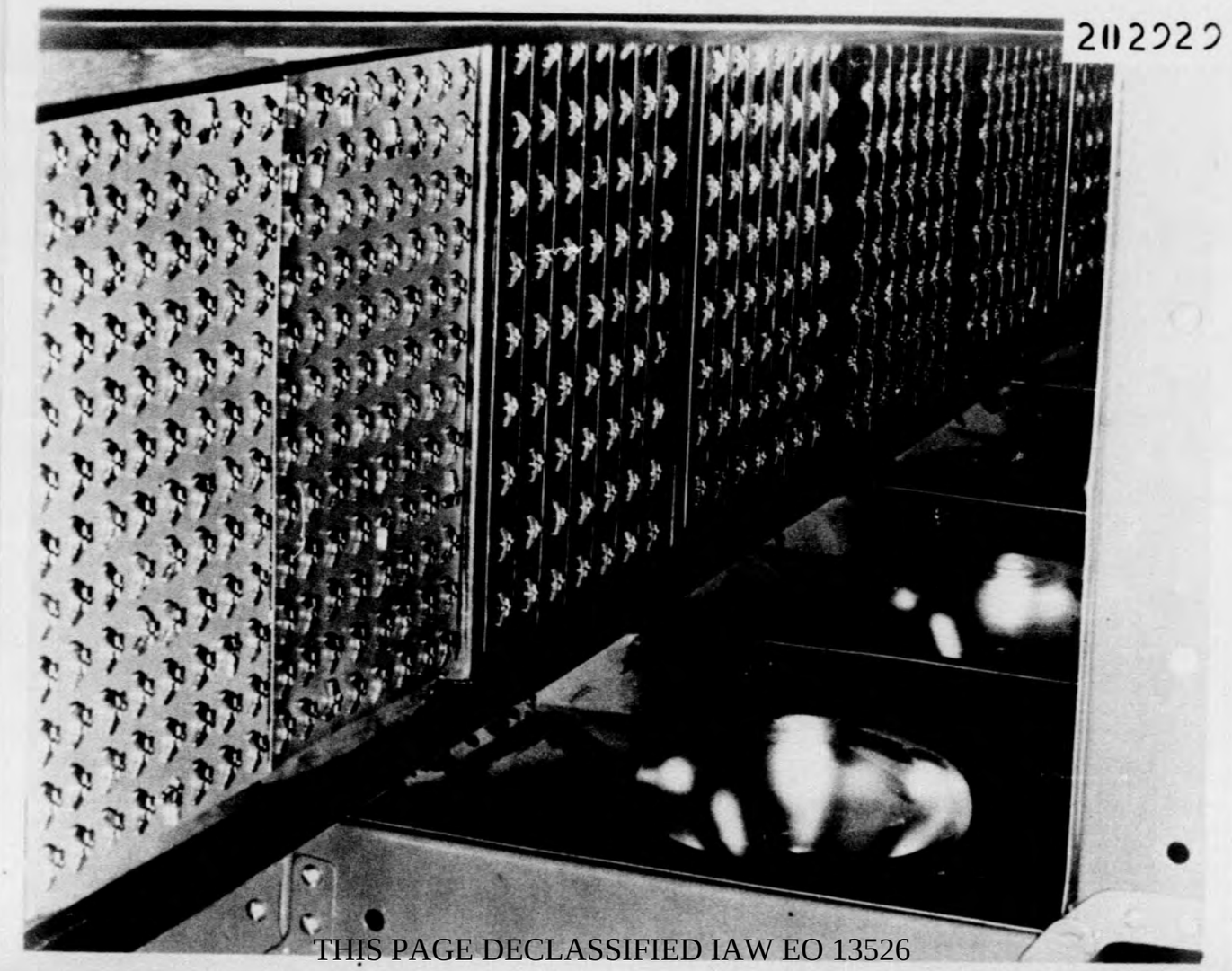

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No. 15 - Drying With Infra Red Rays.

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No. 16 - Inspection.

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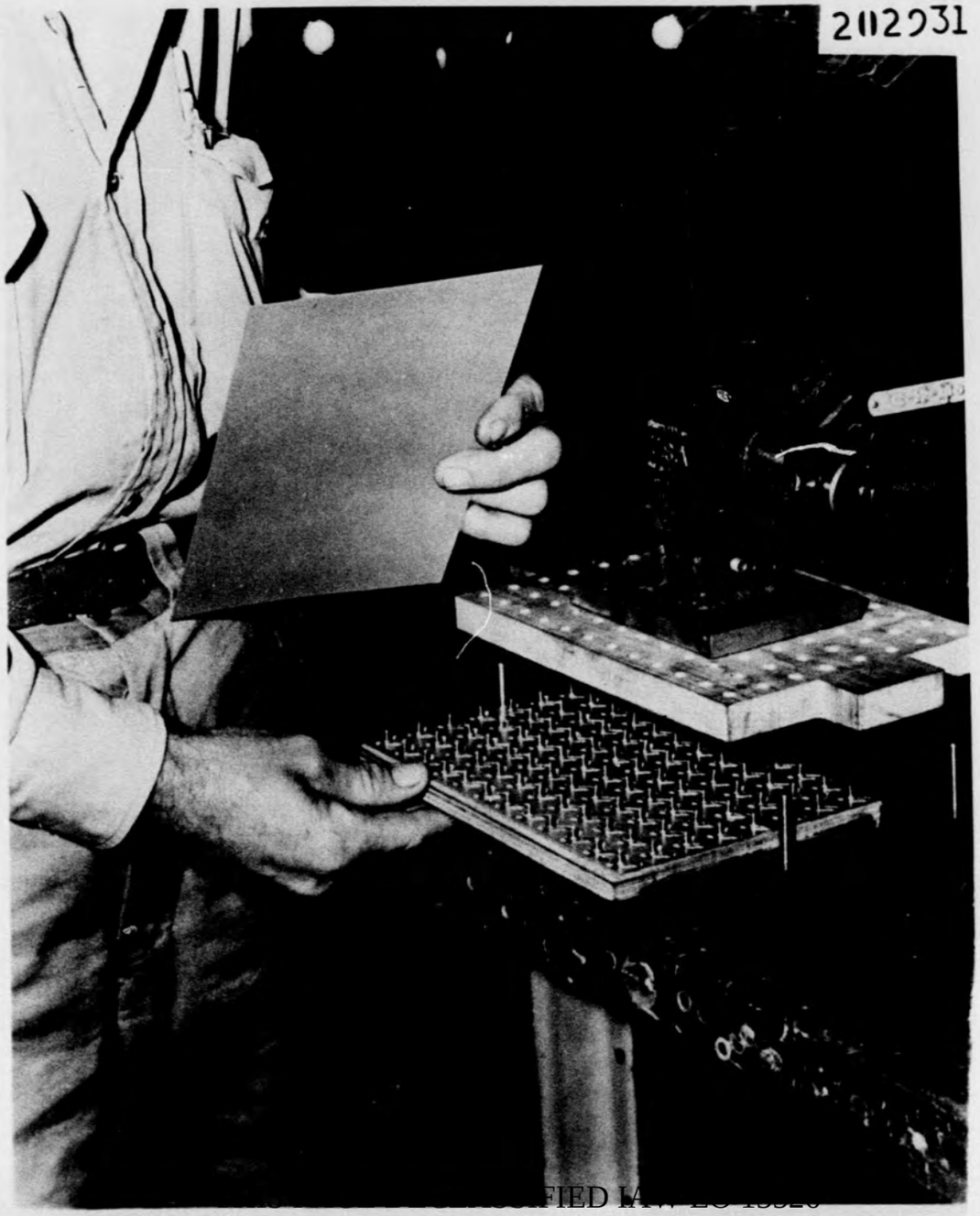

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No. 17 - Buttons Mounted on Blue Cardboard.

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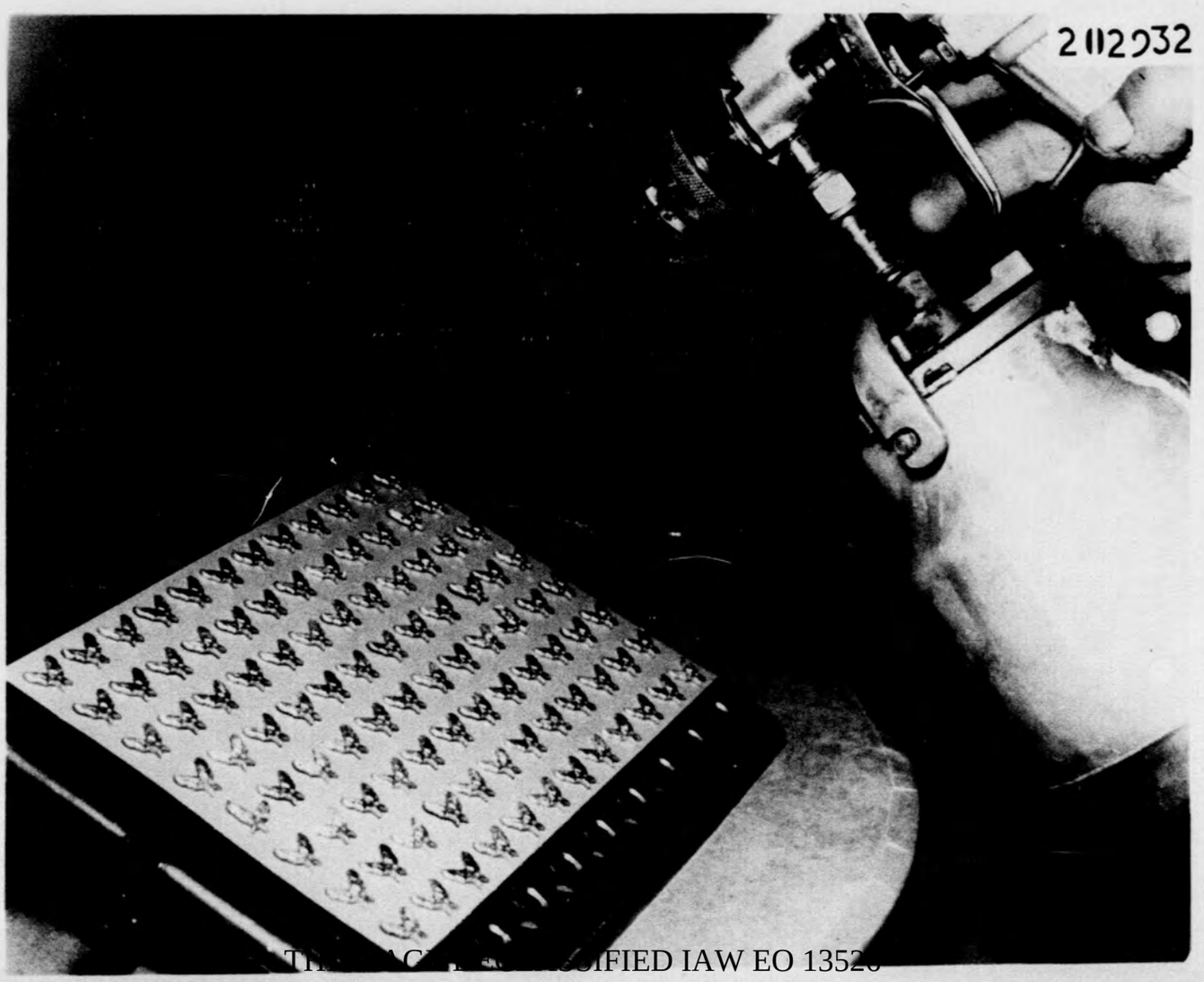

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No. 18 - Final Coat of Lacquer Applied.

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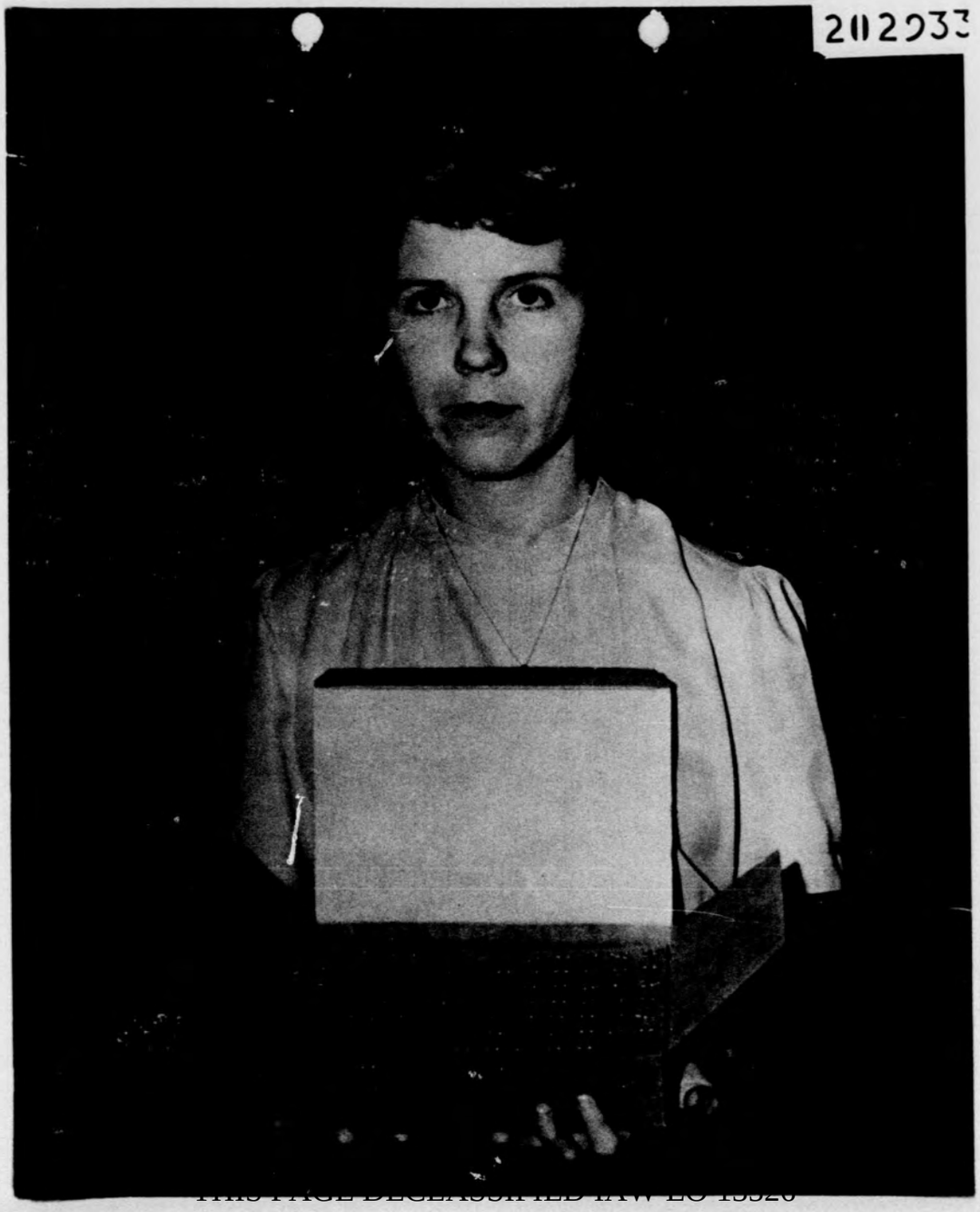

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No. 19 - 480 Buttons Packed In Each Box.

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1. (U) Memo 23 April 1945
Fr: Lt. Col. H. D. Krafft
Recorder, AAF Awards Bd.
Office AC/AS, Personnel
Wash.
To: Lt. Col. E. A. McCabe
Exec. Asst. to CG, AAF
Wash.
(File: AC/AS-1, Wash.)

In response to a verbal request, Office of AC/AS, Personnel (Wash.) suggested that an associate membership in the AAF Aid Society be formed for all honorably discharged AAF veterans. This membership would entitle the veteran to buy a distinctive lapel emblem and would bring discharged veterans into contact with the aims and work of the Aid Society. AAF personnel "in common with thousands of others do not like the present plastic lapel button" which had been authorized for service in World War II. Office of AC/AS, Personnel believed that any action taken by AAF Aid Society would not be subject to criticism by the War Dept.

2. (U) Rpt. 5 July 1945
(File: AC/AS-1, Wash.)

A conference was held 5 July 1945 between representatives of AC/AS, Personnel (Wash.). Maj. Gen. F. L. Anderson, AC/AS, Personnel advised the meeting of a discussion he had had with Gen. H. H. Arnold, CG, AAF (Wash) and of the responsibility of Personnel for the future of the AAF from the morale and public relations view points. Various plans were presented whereby the integrity of the AAF would be maintained among the discharged veterans. Gen. Anderson presented the question "shouldn't every man who gets out of the Air Forces have a button or something? What has the War Department to do with that? I don't see any reason why it shouldn't be." Col. Charles Maylon, Exec. AC/AS, Personnel, stated "We will get the pin." The design had already been prepared and the buttons could be ready in a very few weeks by turning them over to a civilian manufacturer. Col. T. C. Odom, Chief, Plans and Liaison, AC/AS, Personnel, felt there was a good opportunity that the buttons would be made official since the approved War Department button was not popular.

3. (U) R&R-1, 7 July 1945
Fr: Col. T. C. Odom
Chief, Plans & Liaison
AC/AS, Personnel, Wash.
To: Chief, Policy Planning
AC/AS, Personnel, Wash.
(File: AC/AS-1, Wash.)

Col. Odom forwarded to Chief of Policy Planning, AC/AS, Personnel (Wash.), an outline of four projects to be initiated as presented during the conference, 5 July 1945. Gen. Anderson desired AAF personnel to return to civilian life with the best possible impression of the AAF as these veterans would be its strongest supporters during the post war period. One of the four outlined projects covered a study of a separate lapel insignia for Air Force veterans. This study should show the effectiveness of a special pin in mobilizing the air veterans support during the post war period and also should cover means of procurement and distribution.

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4. (U) Memo 20 July 1945
Fr: Maj. Gen. F. L. Anderson
AC/AS-1, Wash.
To: Chief of Air Staff, Wash.
(File: AC/AS-1, Wash.)

In presenting the idea for a separate Air Force lapel emblem to the Chief of Air Staff (Wash.), Gen. Anderson pointed out the following desirable features: (1) source of pride to individual to be identified as a former member of the AAF (2) stimulate continued interest in the Air Forces among the veterans (3) keep Air Forces in minds of families and acquaintances of wearers of the emblem (4) effect the support of the Air Forces during the post war period by Air Force veterans. Office of AC/AS-1 (Wash) recommended that (1) the AAF be authorized to distribute the emblems (2) the emblem be procured and furnished to AAF in sufficient quantities. Upon approval by C/S (Wash) the Quartermaster would procure the emblems for AAF and these would be distributed by Personnel Distribution Command, Louisville, Ky. (hereafter Pers. Dist. Com.). If disapproved by the C/S, the same end could be accomplished by using insignia as a membership emblem of the AAF League or a similar organization. Also on 20 July Maj. Gen. C. C. Chauncey, Dep. C/AS (Wash) forwarded proposal and recommendations for the AAF emblem to AC/S, G-1 (Wash). A description was attached indicating that the honorable discharge button of the War Dept. would retain its identity and a "Clip on Tab" would identify the wearer as an Air Force veteran.

5. (U) Project Record
23 July 1945
By: Lt. Col. Louis Nippert
Office of AC/AS-1, Wash.
(File: AC/AS-1, Wash.).

The project for AAF discharge emblems was assigned to Lt. Col. Louis Nippert, Office of AC/AS-1, (Wash.) 16 July 1945. On 17 July, Col. E. A. McCabe, Exec. Asst., CG, AAF (Wash) had indicated that the War Dept. would not approve a separate button for the AAF. Col. Nippert's project record included a chronological outline of transactions through 23 July 1945.

6. (U) R&R-1, 12 Sept. 1945
Fr: Col. H. D. Krafft
Chief, Awards Br.
AC/AS-1, Wash.
To: Per. Serv. Div.
AC/AS-1, Wash.
(File: AC/AS-1, Wash.)

Col. H. D. Krafft, Chief Awards Br., AC/AS-1 (Wash) advised that during conferences held since the inception of the plan, the feasibility and desirability of having an AAF discharge emblem had been determined.

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7. (U) Ltr. 15 Oct. 1945
Fr: B. A. Ballou & Co., Inc.
Providence, R. I.
To: Purchasing Agent
San Antonio ATSC
Kelly Field, Texas
(File: Local Pur. Cont.
Sect., Proc. Div.)

In order to confirm information supplied by telephone, B. A. Ballou & Co., Inc., Providence, R. I. (hereafter Ballou) quoted prices for brass grip fasteners with posts (clips or clasps) at 98 cents per gross. They stated that all their production of these fasteners was for orders originating in the various Departments of Govt., bulk of the orders being from the Philadelphia Quartermaster Depot. Ballou believed an AAF order could be supplied, with shipments beginning 25 days after receipt of an order, provided early shipments could utilize materials on hand for Quartermaster orders.

8. (U) R&R-1, 22 Oct. 1945
Fr: Col. J. E. Smart
Secy. of Air Staff
Wash.
To: AC/AS-1, Wash.
(File: AC/AS-1, Wash.)

Since the CG, AAF (Wash.) desired every service man to have an AAF service button, Col. J. E. Smart, Secy. of Air Staff (Wash.) directed that AC/AS-1 (Wash.) instruct ATSC (WF) to manufacture and distribute such a button. ATSC had indicated that these pins could be produced at a cost of 2 1/2 cents each. AC/AS-1 was to be responsible for providing each service man already separated with a pin.

9. (U) Ltr. 24 Oct. 1945
Fr: Brig. Gen. W. E. Hall
Dep. AC/AS-1, Wash.
To: Col. J. W. Sessums
Asst. Dep. CG, Eng., WF
(File: Office Asst. Dep., CG,
Eng.)

To confirm verbal instructions, Office of Dep. AC/AS-1 (Wash) stated that a sample of the AAF discharge pin to be produced by ATSC was being forwarded. To expedite production and distribution, manufacture of the buttons should start immediately and a formal directive including quantity required and distribution points would be sent immediately.

10. (U) R&R-1, 26 Oct. 1945
Fr: Col. C. B. Thornton
Chief, Office of Stat.
Cont. Wash.
To: Per. Serv. Div.
AC/AS-1, Wash.
(File: AC/AS-1, Wash.)

Figures furnished by Stat. Cont. (Wash.) indicated that through 7 Oct. 1945, approximately 375,000 AAF personnel had been separated by ASF in AAF and, as of 21 Oct., 215,371 had been separated by AAF separation activities. The expected number of separations for 1946 was 2,000,000.

11. (U) TT 29 Oct. 1945
Fr: Col. C. L. Munroe
Actg. Chief, Cont. Sect.
Main. Div., WF
To: CG, San Antonio, ASC
Kelly Field, Texas
(File: Cont. Sect., Main. Div.)

Cont. Sect., Main. Div. (WF) directed that San Antonio ATSC, Kelly Field, Texas (hereafter SAATSC) manufacture 2,000,000 pins as ordered by Brig. Gen. I. W. Ott, Chief, Main. Div. (WF). Pins were to be completed at the earliest possible date.

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12. (U) TT 31 Oct. 1945
Fr: Col. C. L. Munroe
Actg. Chief, Cont. Sect.
Main. Div., WF
To: San Antonio ATSC
Kelly Field, Texas
(File: Cont. Sect., Main. Div.)

In reply to an inquiry from SAATSC, 31 Oct. 1945. Cont. Sect., Main. Div. (WF) advised that material requirements for AAF discharge pins should be figured on the basis of 2,400,000 as originally requested.

13. (U) Daily Activity Log
1 Nov. 1945
By: Capt. M. J. Garland
Equip. Sect., Supply
Div., WF
(File: Equip. Sect., Supply
Div.)

SAATSC had requested authorization of $24,000.00 to be used for procurement of material for fabrication of two million discharge buttons as directed by Hdqs., AAF (Wash.). A stock of 10,500 sq. ft. of low brass sheet, which had been declared excess and transferred to Class 27-A, was ordered released and shipped from storage at the 832nd AAF Specialized Depot, Topeka, Kan., to SAATSC for use in the manufacture of the AAF discharge buttons.

14. (U) Ltr. 2 Nov. 1945
Fr: Brig. Gen. W. E. Hall
Dep. AC/AS-1, Wash.
To: CG, ATSC, WF
(File: Cont. Sect., Main. Div.)

Brig. Gen. W. E. Hall, Dep. AC/AS-1 (Wash.) stated "It is the desire of the Commanding General, Army Air Forces that a service button be given to every member of the Army Air Forces honorably discharged from the service." Production of 2,375,000 AAF discharge buttons in ATSC "air depots" was to be initiated as early as possible. Distribution would be (1) 1,500,000 to Personnel Distribution Command, Louisville, Ky. (2) 875,000 to Continental Air Forces, Camp Springs, Md. (hereafter CAF); these two Commands would supply necessary facilities for storage and distribution of the buttons. Headquarters ATSC was authorized to communicate directly with CAF and Pers. Dist. Com. in order to arrange storage and reception facilities.

15. (U) TT 2 Nov. 1945
Fr: San Antonio ATSC
Kelly Field, Texas
To: Budget and Fiscal Officer
ATSC, WF
(File: Cont. Sect., Main. Div.)

SAATSC requested a suballocation of (1) $300 for purchase of lacquer and tool steel and (2) $14,000 for purchase of grip fasteners. This material was to be used in the manufacture of the AAF discharge buttons.

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16. (U) H&R-1, 14 Nov. 1945
Fr: Col. C. L. Munroe
Actg. Chief, Cont. Sect.
Main. Div., WF
To: Cont. Sect., Supply Div.
WF
(File: Cont. Sect., Main Div.)

Cont. Sect., Main. Div. (WF) advised Cont. Sect., Supply Div. (WF) that SAATSC was in process of fabrication of the AAF discharge buttons but would not reach capacity production for approximately 10 days. Supply Div. (WF) was requested to furnish Supply, SAATSC with necessary instructions for shipment of these buttons to the two designated Commands and also to notify Cont. Sect., Main. Div. of the action taken. On 28 Nov. 1945, Cont. Sect., Supply Div., stated that CAF and Pers. Dist. Com. had no knowledge of the discharge emblems when requested to designate an AAF accountable officer to receive the buttons.

17. (U) TF 14 Nov. 1945
Fr: Col. C. L. Munroe
Actg. Chief, Cont. Sect.
Main. Div., WF
To: CG, San Antonio ATSC
Kelly Field, Texas
(File: Cont. Sect., Main. Div.)

In order to clarify previous conflicting directives as to the number of service buttons to be fabricated at SAATSC, Cont. Sect., Main. Div. (WF) stated that the quantity was to be 2,375,000 in accordance with the 2 Nov. directive from Gen. Hall.

18. (U) Ltr. (19 Nov. 1945)
Fr: B. A. Ballou & Co., Inc.
Providence, R. I.
To: Contracting Officer
San Antonio ATSC
Kelly Field, Texas
(File: Local Pur. Cont. Sect.
Proc. Div.)

Ballou advised SAATSC that after reviewing the terms of Contract W41-142 ac-739 they had found it would be impossible for them to meet the requirements of adherence to the provisions of the Walsh-Healey Act in the production of clips for the AAF discharge buttons. As production of such clips usually was on a subcontract basis, Ballou had not previously been required to obey this act, and the inclusion of its provisions into this contract would seriously delay production of clips. If separate production, under Walsh-Healey provisions, was begun, initial shipments probably could not begin until 1 Feb. 1946 and the contract would not be completed before April. Because of these considerations, Ballou suggested that the act be waived on this contract in accordance with Public Contracts Act, Sect. 6, "Modification of Contract Stipulations."

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19. (U) TT 20 Nov. 1945
Fr: Col. A. W. Lishawa, Jr.
Chief, Cont. Sect.,
Supply Div., WF
To: CG, Personnel Distribution
Command, Louisville, Ky.
(File: Cont. Sect., Supply Div.)

Cont. Sect., Supply Div. (WF) requested that they be advised immediately of the accountable Supply Officer at Pers. Dist. Com. who would receive shipment of the AAF discharge buttons from SAATSC. On 23 Nov., Pers. Dist. Com. reported that Capt. Jesse Tessier of that Command would handle receiving, storing and shipping of the discharge buttons. On 30 Nov. Pers. Dist. Com. amended their instructions, designating Capt. T. N. Britton as the accountable officer.

20. (U) TT 20 Nov. 1945
Fr: Col. A. W. Lishawa, Jr.
Chief, Cont. Sect.,
Supply Div., WF
To: CG, Continental Air Forces
Bolling Field, D. C.
(File: Cont. Sect., Supply Div.)

A similar TT was forwarded CAF requesting that they also appoint an accountable officer to receive the AAF discharge buttons. CAF replied on 24 Nov. stating that a stock account number of stations to receive AAF service buttons could not be given until further information was received from Headquarters, AAF, which would probably be about 27 Nov. "at which time you will be advised."

21. (U) Extracts From Daily Diary
20 Nov. 1945
By: Office of Air Quartermaster
(File: Air Quartermaster, Wash.)

Representatives from the Office, Quartermaster General (Wash), (hereafter OQMG) stated that a call had been received from SAATSC requesting Quartermaster to release manufacturing facilities tied up by OQMG. This was due to fact that SAATSC had received a directive from higher AAF headquarters to procure 2,500,000 discharge buttons for the AAF. OQMG objected on basis that it would interfere with their production, and they were of the opinion that Quartermaster was charged with supply of Army discharge buttons. Supply Div., M&S, "A-1, Personnel and A-3, Requirements" (Wash) had no knowledge of such an AAF directive. A second diary, 21 Nov. 1945, indicated that Col. Peter Van Der Lugt, OQMG (Wash) had discussed with Col. J. W. Sessums, Asst. Dep. CG, Eng. (WF), the possibility of OQMG assisting in obtaining the AAF discharge buttons. Since OQMG had only six contractors available who were having difficulty in producing sufficient War Dept. buttons, OQMG felt it not advisable to release their contractors.

22. (U) TT 21 Nov. 1945
Fr: San Antonio ATSC
Kelly Field, Texas
To: Cont. Sect., Main. Div.
WF
(File: Cont. Sect., Main. Div.)

SAATSC reported that 8000 buttons had been completed and were awaiting shipping instructions. Estimated completion date of total quantity of buttons depended upon receipt of 2,010,000 "grip fast with nail head post" on Purchase Order (P.O.) 46-1900 with Ballou.

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23. (U) P.O. 46-1900
23 Nov. 1945
(File: Local Pur. Cont. Sect. Proc. Div.)

P.O. 46-1900 (Contract No. 41-142 ac-739) dated 23 Nov. 1945, with Ballou, authorized purchase of 13,959 gross of grip fast with nail head post at a cost of $13,679.82. Delivery would start within 25 days at rate of 100 gross a day and would continue until the order was completed. Authorization to enter into this contract had been obtained in a telephone conversation with Lt. Col. E.W. Brackett, Chief, Local Pur. Br., Proc. Div. (WF), subject to review and approval of the written instrument.

24. (U) Ltr. 23 Nov. 1945
Fr: Lt. Col. T.F. Bowes
Chief, Serv. Sect.,
Proc. Div., WF
To: Contracting Officer
San Antonio ATSC
Kelly Field, Texas
(File: Local Pur. Cont. Sect. Proc. Div.)

Proc. Div. (WF) returned to SAATSC approved copies of Contract W41-142 ac-739, P.O. 46-1900 on condition that the f.o.b. point was changed from "point of origin" to read "contractors plant." The bid had read, f.o.b., Providence, R. I. Proc. Div. also pointed out that there appeared to be some discrepancy in delivery dates as quoted in contractor's bid and in the contract. If this clause was modified at a later date, Proc. Div. should be notified. SAATSC replied on 30 Nov. 1945 stating that the f.o.b. point had been changed per instructions. They also explained that the delivery schedule used in subject contract had been obtained from the contractor in a telephone conversation.

25. (U) Ltr. 23 Nov. 1945
Fr: Lt. Col. J.N. Sammons
Chief, Main. Div.
San Antonio ATSC
Kelly Field, Texas
To: Cont. Sect., Main. Div.
WF
(File: Cont. Sect., Main. Div.)

SAATSC outlined production procedures as employed at the depot in the manufacture of the discharge buttons. They reported that 8000 buttons had been shipped but additional shipments could not be made until grip fasts were received. SAATSC stated that the grip fasts had been ordered on P.O. 46-1900 with Ballou with a 30 day delivery date from verbal approval of the instrument, 13 Nov. 1945. The contract was in Proc. Div. (WF) for review and written approval. Daily deliveries of 14,400 grip fasts would be delayed because Ballou was running behind on Quartermaster contracts for the same item and these contracts carried a time priority due to prior contracts.

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26. (U) Ltr. 28 Nov. 1945
Fr: Lt. Col. F. J. Novak
Asst., Cont. Sect.
Supply Div., WF
To: Chief, Supply Div.
San Antonio ATSC
Kelly Field, Texas
(File: Central Files)

Supply Div. (WF) notified Supply Div. SAATSC of their responsibility regarding shipping of the AAF discharge buttons. The emblems should be placed in Class 13 (Clothing and Parachutes; their equipment and supplies) and the quantity obligated to Pers. Dist. Com. shipped immediately. However, the quantity for CAF was to be held in stock pending subsequent shipping instructions. SAATSC replied on 10 Dec. 1945 indicating that shipments of 57,120 buttons to Pers. Dist. Com. and 25,680 to CAF had been made prior to receipt of instructions from WF.

27. (U) Ltr. 29 Nov. 1945
Fr: Col. J. W. Sessums
Asst. Dep. CG, Eng., WF
To: Col. J. E. Smart
Office Dep. Commander
AAF, Wash.
(File: Office Asst. Dep.
CG, Eng.)

Col. Sessums forwarded Col. J. E. Smart, Office of Dep. Commander, AAF (Wash.), the following status report on the AAF discharge buttons as supplied by SAATSC: (1) 70 to 80,000 pins completed, 4,000 shipped both to CAF and to Pers. Dist. Com. (2) 41,000 clasps received 28 Nov., all completed pins would be distributed, using clips "as far as they go." (3) Deliveries of clasps had been promised for 15 Dec., in excess of 20,000 per day. (4) Production rate on pins had reached approximately 20,000 per day. (5) SAATSC would attempt to manufacture clasps to take care of the deficit. If this proved impossible, pins would be delivered without clasps.

28. (U) RAR-1, 5 Dec. 1945
Fr: Maj. Geraldine W. Barry
Pers. Serv. Div.
AC/AS-1, Wash.
To: Col. J. E. Smart
Secy of Air Staff, Wash.
(File: AC/AS-1, Wash.)

CAF had advised that Pers. Dist. Com. maintained an AAF Liaison Officer for counseling at all AAF separation centers for these services were given only upon request. In order to distribute the AAF discharge button, Hdqs. AAF (Wash) should direct Pers. Dist. Com. to make sure that counselors at Army Service Force separation centers see all AAF dischargees and distribute the AAF buttons to them. CAF had not issued a distribution directive to their stations but such a directive was in process and provided for mailing the emblems to persons previously separated. The directive was being delayed pending receipt of instructions as to separation centers to receive the pins. CAF desired instructions for the wearing of these pins. Judge Advocate General's office (Wash) had advised that there would be no question as to the legality of mailing these buttons in Air Force franked envelopes.

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29. (U) TT 6 Dec. 1945
Fr: San Antonio ATSC
Kelly Field, Texas
To: Cont. Sect., Main. Div.
WF
(File: Cont. Sect., Main. Div.)

SAATSC requested authority to make shipments of buttons by rail express, shipments were being held up pending instructions. Cont. Sect., Main. Div. (WF), by return TT, granted subject authority.

30. (U) R&R-1, 10 Dec. 1945
Fr: Maj. Geraldine W. Barry
Per. Serv. Div.
AC/AS-1, Wash.
To: Col. J. E. Smart
Secy. of Air Staff, Wash.
(File: AC/AS-1, Wash)

Verbal information from Pers. Dist. Com. indicated that counselors at all Army Service Force separation centers saw all AAF dischargees. However on 3 Jan. 1946, in a second R&R, Pers. Dist. Com. stated that distribution of the AAF buttons to each Air Force separatee processed through Army Service Force separation centers was impossible. Therefore the buttons were being mailed to discharged veterans, 30,000 buttons had been mailed since 24 Dec. CAF had advised that since 20 Dec. a button had been given to each person being separated and buttons were being mailed to those previously discharged. CAF separation centers were running approximately 2500 per day.

31. (U) TT 11 Dec. 1945
Fr: Maj. H. L. Holcomb
Actg. Asst. Adj. Gen., CAF
Bolling Field, D. C.
To: CG, San Antonio ATSC
Kelly Field, Texas
(File: Cont. Sect., Supply Div.)

CAF on 11 Dec. 1945 furnished SAATSC with detailed shipping instructions for their quantity of discharge pins by communicating directly with that Command. CAF directed that the pins in the designated quantities be sent directly to the indicated stations. These instructions were based on the number of personnel already separated at each station plus the estimated future separations. CAF amended these shipping instructions on the 17th and 19th of Dec. 1945.

32. (U) Ltr, 12 Dec. 1945
Fr: Brig. Gen. L. W. Johnson
Chief, Per. Serv. Div.
AC/AS-1, Wash.
To: Maj. Gen. H. R. Harmon
CG, AAF Pers. Dist. Com.
Louisville, Ky.
(File: AC/AS-1, Wash.)

Brig. Gen. L. W. Johnson, Chief, Per. Serv. Div. AC/AS-1 (Wash) verified previous instructions to Pers. Dist. Com. as to the distribution of the AAF discharge buttons. He pointed out that issuance of these pins to persons discharged through Army Service Force separation centers might involve difficulty. "There will be no directive prepared as to distribution of the buttons, but, this matter is very close to General Arnold's heart, and it is hoped that you will see that the button reaches every Air Force separatee who is processed through Service Command centers at which you maintain liaison."

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33. (U) Ltr. 14 Dec. 1945
Fr: Col. J. W. Sessums
Asst. Dep. CG Eng., WF
To: Col. J. E. Smart
Office Dep. Commander
AAF, Wash.
(File: Office, Asst. Dep. CG, Eng.)

Office of Dep. CG, Eng. (WF) advised that as of 13 Dec. 1945, 274,560 discharge buttons had been manufactured and 208, 560 had been shipped. Of the number shipped, 25,680 had been sent to CAF and 182,880 to Louisville. The current production rate was from 20,600 to 21,600 per day.

34. (U) 2nd Ind. 20 Dec. 1945
Fr: Lt. Col. R. G. Fuller
Actg. Chief, Cont. Sect.
Supply Div., WF
To: CG, CAF, Bolling Field, D.C.
(File: Central Files)

Cont. Sect., Supply Div. (WF) again requested that CAF advise them of the stock record account number of the accountable officer designated to receive the AAF discharge buttons.

35. (U) R&B-1, 21 Dec. 1945
Fr: Lt. Col. T. F. Bowes
Chief, Serv. Sect.,
Proc. Div., WF
To: Lt. Col. G. I. Shannon
Office of Judge Advocate, WF
(File: Local Pur. Cont. Sect. Proc. Div.)

In view of the question raised by Ballou on 19 Nov. regarding the legality of their contract under the Walsh-Healey Act, Serv. Sect., Proc. Div. (WF) requested an opinion from the Judge Advocate's office on three questions concerning the contract with Ballou for clips: (1) Did a contract already exist between the parties? (2) If a contract did not exist, what action should be taken to dispose of the original copy in the General Accounting Office? (3) Could another order be placed with this company in an amount of less than $10,000 in order that the Walsh-Healey Act would not be applicable?

36. (U) R&B-2, 25 Dec. 1945
Fr: Col. R. C. Harmon
Judge Advocate, WF
To: Serv. Sect., Proc. Div., WF
(File: Local Pur. Cont. Sect. Proc. Div.)

In reply to the questions presented by Proc. Div. (WF), the Judge Advocate's office (WF) submitted the following opinions regarding the contract with Ballou: (1) The subject Purchase Order did not constitute an acceptance of Ballou's proposal of 18 Oct. 1945 but amounted to a counter-proposal on the part of the Government, which would have no binding force until accepted by the company. However, if deliveries had been made, this might not apply. (2) A statement of facts and a document from Ballou giving their position should be sufficient explanation for the General Accounting Office. (3) An order for a different quantity of supplies would be legal if the procedure was bona fide and not a subterfuge.

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37. (U) Tel. Conv. 26 Dec. 1945
Maj. G. A. Miller, Actg. Chief, Local Pur. Br. Proc. Div., WF and
H. A. Raney
B. A. Ballou & Co., Inc. Providence, R. I.
(File: Local Pur. Cont. Sect. Proc. Div.)

During a telephone conversation on 26 Dec. 1945, Mr. H. A. Raney of Ballou stated that the company had not refused the order for clasps for the AAF but that it would be difficult for them to comply with the Walsh-Healey Act unless a revised delivery schedule was provided. Mr. Raney was to wire WF as soon as possible giving an acceptable schedule.

38. (U) TT 26 Dec. 1945
Fr: B. A. Ballou & Co., Inc. Providence, R. I.
To: Maj. G. A. Miller Actg. Chief, Local Pur. Cont. Sect., Proc. Div., WF
(File: Local Pur. Cont. Sect. Proc. Div.)

Ballou advised that immediate shipment of clasps could be made from current production if the provisions of the Walsh-Healey Act were waived for the order. However, if this act was applicable, deliveries could not begin until approximately eight weeks from the date of final acceptance, to allow time for procurement of necessary materials. Weekly shipment of 1500 gross could begin approximately one week after the material was received.

39. (U) R&R-1, 29 Dec. 1945
Fr: Col. Don Coupland Asst. Dep. CG, Eng., WF
To: Maj. G. A. Miller Actg. Chief, Local Pur. Cont. Sect., Proc. Div., WF
(File: Local Pur. Cont. Sect. Proc. Div.)

Col. Sessums in a draft of an R&R on 28 Dec. 1945, pointed out the desirability of continuing deliveries of clips from Ballou, in order to permit SAATSC to investigate additional sources or make plans to manufacture a clip at SAATSC. Col. Sessums recommended procurement of as many clips as possible from Ballou "without forcing him to operate under the Walsh-Healey Act" which would delay deliveries. "It is not contemplated that any more fasteners will be ordered from this source and this is not an evasion of the Walsh-Healey Act but an attempt to expedite delivery of Army Air Forces discharge pins in accordance with General Arnold's wishes." On 29 Dec. a second R&R was prepared by Col. Don Coupland, Asst. Dep. CG, Eng. (WF) in which he explained the cut back in Ballou's contract as due to excessive cost. Col. Coupland requested that about $9,000 or $10,000 worth of these clips be placed on contract instead of $13,000.

40. (U) R&R-2, 3 Jan. 1946
Fr: Lt. Col. T. F. Bowes Chief, Serv. Sect. Proc. Div., WF
To: Dep. CG, Eng., WF
(File: Local Pur. Cont. Sect. Proc. Div.)

Proc. Div. (WF) reported that approximately 2800 gross of clasps had already been purchased and delivered and an order was pending for 13,959 gross more. Any additional clips needed would probably be manufactured at SAATSC. Ballou's price for clips remained at $.98 a gross. SAATSC should be advised of the actual number of clips to be obtained by local purchase so that only the required number would be obtained by that Command. A subsequent

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comment (undated) from Col. Coupland stated that two million clasps were needed at once, "get or make any type of fastener that any body can dream up. Beat the dead line & spend what is necessary." Main. Div. (WF) in a later comment advised that SAATSC was being directed to reduce Ballou's contract from 13,000 gross of clips to 9700.

41. (U) 3rd Ind. 2 Jan. 1946
Fr: Asst. Adj. Gen.
CAF, Bolling Field, D.C.
To: CG, ATSC, WF
(File: Cont. Sect., Supply Div.)

Finally after two requests from ATSC (WF) dated respectively 20 Nov. 1945 and 20 Dec. 1945, on the 2nd of Jan. 1946 CAF furnished WF with a copy of the shipping instructions which had been sent to SAATSC giving that Command the distribution for the AAF discharge buttons. In a 4th Ind., dated 10 Jan. 1946, Cont. Sect., Supply Div. (WF) stated that the issuance of shipping instructions from CAF direct to an ATSC activity was not understood, but in order to avoid any further delay in the distribution of the buttons, WF had notified SAATSC to comply with the CAF instructions. It was requested, however, that any further instructions to SAATSC be forwarded through WF.

42. (U) Tel. Conv. 4 Jan. 1946
Lt. Col. E. W. Brackett
Chief, Local Pur. Br.
Serv. Sect., Proc. Div.
WF and
H. A. Raney
B. A. Ballou & Co., Inc.
Providence, R. I.
(File: Local Pur. Cont. Sect.
Proc. Div.)

Local Pur. Br., Proc. Div. (WF) informed Ballou that Main. Div. (WF) had reduced the requirements for clips to 9700 gross. The reduction in Contract W41-142 ac-739 was to be made by a supplemental agreement which would probably be received from SAATSC soon. Ballou agreed to this reduction and promised that deliveries would be made on schedule under the smaller contract already in operation and would be speeded up as much as possible as soon as the supplemental agreement was received. On the same date Proc. Div. (WF) advised SAATSC of the results of this conversation.

43. (U) TT 4 Jan. 1946
Fr: Col. C. L. Munroe
Cont. Sect., Main. Div. WF
To: CG, San Antonio ATSC
Kelly Field, Texas
(File: Cont. Sect., Main. Div.)

Main. Div. (WF) directed that SAATSC reduce the number of clasps on contract with Ballou from approximately 13,000 gross to 9,700 gross. The remainder of the fasteners were either to be procured from another source or to be manufactured at SAATSC. The total quantity of service buttons remained at 2,375,000.

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44. (U) R&R-1, 4 Jan. 1946
Fr: Lt. Col. E. W. Brackett
Chief, Local Pur. Br.
Proc. Div., WF
To: Lt. Col. T. F. Bowes
Chief, Serv. Sect.
Proc. Div., WF
(File: Local Pur. Cont. Sect.
Proc. Div.)

On 4 Jan. 1946, Local Pur. Br., Proc. Div. (WF) summarized the developments on the procurement of clasps from Ballou. Ballou would see that shipments on the smaller contract were brought up to or ahead of schedule and that a large stock was prepared for immediate shipment upon receipt of the supplemental agreement. Mr. Raney of Ballou had promised that the latter schedule would exceed the schedule as given in the original purchase order. This procedure was believed to have solved the clasp situation.

45. (U) TT 5 Jan. 1946
Fr: Lt. Col. F. J. Novak
Asst., Cont. Sect.
Supply Div., WF
To: CG, San Antonio ATSC
Kelly Field, Texas
(File: Cont. Sect., Supply Div.)

Cont. Sect., Supply Div. (WF) informed SAATSC that WF had been notified that CAF had issued shipping directions direct to them, contrary to WF instructions. To avoid any further delay in the distribution of these buttons, SAATSC was authorized to make the shipments as requested by CAF; however, any further communication to CAF regarding these buttons was to be made through WF and any further instructions from CAF were to be disregarded unless WF had subsequently directed otherwise.

46. (U) Ltr. 25 Jan. 1946
Fr: Brig. Gen. G. H. Beverly
CG, San Antonio ATSC
Kelly Field, Texas
To: Col. J. W. Sessums
Chief of Admin. ATSC, WF
(File: Hist. Sect.)

SAATSC advised that as of 24 Jan. 1946, 1,094,208 AAF discharge pins had been manufactured and the entire order was expected to be completed by 15 March 1946. Approximately 35,000 pins a day were being produced. With regard to the clasps, all but 600,000 were to be received from Ballou and the 600,000 remaining clasps would be made at the SAATSC activity.

47. (U) Ltr. 29 Jan. 1946
Fr: Col. J. W. Sessums
Chief of Admin., ATSC, WF
To: Col. J. E. Smart
Exec. Asst., AAF, Wash.
(File: Office, Chief of Admin.
ATSC)

On 29 Jan. 1946, Col. Sessums, Chief of Admin., ATSC (WF) forwarded Col. Smart the letter from Gen. G. H. Beverly, CG, SAATSC, dated 25 Jan. 1946. Col. Sessums stated that no additional reports would be submitted unless requested, as the original plan to reach a peak production of 20,000 buttons per day had been exceeded, "and you can see from this what a bang up job Beverly has done."

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48. (U) Statement 13 Feb. 1946
By: Maj. J. O. Moench
Cont. Sect., Main. Div., WF
(File: Hist. Sect.)

Cont. Sect., Main. Div. (WF), upon receipt of information from SAATSC, quoted the following unit cost for the AAF discharge buttons: [This does not include clips, which cost approximately $.00680 per clip.]

Material - - - - - - - - - - -	$.01081
Labor (Direct only) - - - -	.02391
Burden - - - - - - - - - - -	.05762
Misc. Tools, etc - - - - - -	.0077
	$.10004

49. (U) Ltr. 6 Feb. 1946
Fr: J. O. Pollack & Co., Inc.
Chicago, Ill.
To: CG, AAF, Wash.
(File: AC/AS-4, Wash.)

J. O. Pollack & Co., Inc., Chicago, Ill. (hereafter Pollack & Co.) inquired about the accuracy of a rumor that a distinct insignia had been "authorized as an Honorable Discharge emblem for the personnel of the Army Air Forces." Pollack & Co. stated that their firm held a War Dept. license which permitted manufacture and sale of all authorized insignia. In reply Dep. AC/AS-1 (Wash.) stated on 5 March 1946 that the rumor was probably based on an Air Forces "identification pin" which had been issued to personnel upon separation. It was not a discharge emblem and had no official status. Further, its distribution had been discontinued. Authorization to manufacture the emblem under the license Pollack & Co. held from the War Dept. could not be authorized by AAF headquarters.

50. (U) R&R-1, 27 Feb. 1946
Fr: Col. J. G. Moore
Dep. AC/AS-4, Wash.
To: Gen. Carl Spaatz
Actg. CG, AAF, Wash.
(File: AC/AS-4, Wash.)

27 Feb. 1946, Dep. AC/AS-4 (Wash) supplied the Actg. CG, AAF (Wash) with a resume of the steps taken to provide discharged AAF personnel with a distinctive lapel device in accordance with the wishes of Gen. Arnold. Dep. AC/AS-4 stated that the original suggestion, 20 July 1945, to provide subject device was disapproved by G-1. 11 Sept. 1945 Gen. Arnold brought the subject to the attention of AC/AS-1 (Wash) and the possibilities of securing an insignia by other than War Dept. means were explored. 22 Oct. 1945 Gen. Arnold directed that the proposed emblem be given to all persons discharged from the AAF and on 2 November CG, ATSC (WF) was directed to begin manufacture. AC/AS-4 attached a Memo to the C/S, War Dept. for the signature of the CG, AAF. This Memo gives in less detail the facts set forth in the R&R. [This correspondence was prepared as a result of a telephone inquiry from the Office of Gen. Eisenhower. It is understood that Gen. Eisenhower first saw the AAF discharge emblem during a visit to Kelly Field, Texas, on 25 Feb. 1946.]

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51. (U) TT, 5 March 1946
Fr: Gen. Carl Spaatz,
Chief, AAF, Wash.
To: CG, San Antonio ATSC,
Kelly Field, Texas
(File: ATSC - T-2)

Gen. Spaatz, Chief, AAF (Wash.) directed SAATSC on 5 March 1946 to discontinue at once the manufacture of the AAF discharge button. All the available supply was to be shipped to AAF Hdqs. SAATSC was not to distribute any of the buttons to individuals or commands.

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MEMORANDUM FOR LT COLONEL EMMETT A. McCARE
(Executive Assistant to Commanding General, Army Air Forces)

SUBJECT: Army Air Forces Lapel Pin

1. In concurrence with verbal request, the following suggestion is made with regard to the possibility of establishing a lapel emblem to be worn by personnel who have served honorably in the Army Air Forces.

2. It is believed that an associate membership could be formed in the Army Air Forces Aid Society. Those who have honorable discharge papers from the United States Army and have served in the Army Air Forces could buy a membership which would entitle the member to a distinctive lapel emblem.

3. Such a plan would accomplish two objectives:

a. A distinct discharge emblem would be available for all honorably discharged personnel of the Army Air Forces.

b. The associate membership in the Army Air Forces Aid Society would bring all honorably discharged personnel into contact with the aims and work of the Aid Society.

4. Army Air Forces personnel in common with thousands of others do not like the present plastic lapel button currently authorized for service in World War II. The Army Air Forces is in position to take positive action if desired.

5. It is recommended that a meeting of all those interested in such a project be called to establish the feasibility of the idea. It is believed that any action taken by the Army Air Forces Aid Society will not be subject to criticism or review by the War Department.

/s/ HAROLD D. KRAFFT
Lt. Colonel, Air Corps
Recorder, AAF Awards Board
Office, Asst Chief of Air Staff,
Personnel

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6

Conference - 5 July 1945

General Anderson, General Hall, Colonel Dodson, Colonel Odom, Colonel Maylon.

Gen A - I had a long talk with General Arnold and The Personnel Division is more responsible than any other division for the future of the Air Forces from the morale and public relations point of view. I am not sure, nor is General Arnold sure, that we are doing everything that can be done to assure that individuals going through PDC get the necessary indoctrination so they will follow up the policy of the AAF. ... personal appeals by commanders to these key people getting out, not a blanket thing to everybody. General Arnold is signing a letter to the officers and giving a certificate to the enlisted men. We want to go further. We must to take a lot of the senior men who are going back to responsible positions in their communities and give them an emblem in addition. Special cases should be given promotion before getting out. If a man is getting out, if he served well, it won't hurt us to promote him one rank - from Lt Col to Colonel or from Major to Lt Col ..... When he gets out we have our vacancy again.

Col M - We have already done that in several cases.

Gen A - There will be hundreds of them.

Col D - On the promotions - if that goes to very many people and gets out, we will be flat on our backs.

Gen M - It will have to be done on a personal basis.

Col D - It can't get out.

Gen A - I would like to work up an agenda so we can get the commanders in here and tell them what our suggestions are.

Gen M - You are thinking of indoctrinating prominent civilians with General Arnold's ideas of the AAF and National Defense and all that.

Gen A - We had a large Veterans Organization after the last war and now in this war we have some two and a half million men in the Air Corps and about three and a half million people who have gone through the Air Forces and why shouldn't there be a veterans association created by these veterans of the Air Force. Any reason why not?

Col D - There is one reason that should be considered. If that is done you are splitting into three parts the national defense.

(2)

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Custom Dinner 8 Oct
SC/AS, Policy
Planning - 3(2/3 pp)

7

Gen A - We want to just make it the Army, Navy and Air Forces. We do want an Air Force representation rather than an Army representation - that is what I am after. ... various veterans organizations broken down.

Col D - The American Legion was Navy and Army.

Gen H - There was a project running around here about a year ago which was to give birth to an Air Force American Legion.

Gen A - That is our responsibility .... We should be giving publicity to what we are doing for our AAF people in our redistribution stations - we should have magazine articles, movies, newsreels, -- on the March of Time, etc. You can do a lot if you advertise. What I want to have drawn up and put into action is a public relations program -- use public relations people but we will monitor it. I would like in about 10 days a planned program. It may involve lectures and it may involve talking to the 78 Club in New York City and things of that type. .. very sketchily - not in detail.

Gen H - Which is better in your way of thinking for the AAF to have an AAF American Legion with its members also in the American Legion.

Gen A - I would think so, yes.

Gen H - I believe we would be stronger. Have our own association and vote in the other one too.

Gen A - A man in the Air Forces should be able to belong to both.

Gen H - What about the paper you sent down to the front office

Gen A - It was sent back to hold, because it might conflict with the Air Power League. No one has said - No,— we will just set it up and let it grow. I do not want to conflict with the Air Power League. ... Now here is another thing - shouldn't every man who gets out of the Air Forces have a button or something? What has the War Department to do with that? I don't see any reason why it shouldn't be. Now all of these ideas will not work but we have got to try them and see how many of them will work. Casey, most of that comes to you. We have got to do a great deal right now.

Col D - I believe it would come under General Johnson's outfit also.

Col H - We will get the pin. We already have the design and everything.

Gen A - I mentioned the hotels and said that is the best thing we have

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right now. General Arnold says we will not give them up. So our position is just as it was before - we will keep the hotels.

Gen H - On this hotel business, did General Arnold say anything that would specifically preclude the AAF from going into the hotel business on a bigger scale because there is a big fallacy in our PDC?

Gen A - What is the fallacy?

Gen H - We send one guy to a swamp and another guy to a hotel.

Gen A - General Arnold did not say anything against the hotels.

Col M - We can get the buttons in a very few weeks. We can turn them over to a civilian manufacturer and ...

Gen A - I hope we can make it official if possible.

Col C - There is a particularly good opening there because they don't like the War Department approved button.

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Cys/0 - Bolero - Ruhr
Bolero - Berlin
Planning - Allied

9

COPY

SUBJECT: Research Projects

TO: Chief of Policy Planning DATE 7 July 1945

FROM: AC/AS, Personnel, Plans and Liaison CONCEPT No. 1

Attached please find a copy of conference notes dated 5 July 1945 in which General Anderson has outlined the following projects for study:

1. Preparation of agenda for indoctrination of station commanders regarding General Arnold's conception of the air role in the national defense.

2. The advantage of forming a separate veteran's association for World War II, Air Force Personnel.

3. The preparation of an outline of a Public Relations program to be used as a guide by the Army Air Forces Public Relations Organization.

4. The desirability of designing and approving a lapel insignia or button for Army Air Forces World War II personnel who have returned to civilian status.

DISCUSSION OF PROJECTS

Project 1. General Anderson is desirous for the Army Air Forces to return their personnel to civilian life with the best possible impression of the Army Air Forces. He feels that these veterans of the Air Forces will be the strongest supporters the Air Forces will have during the post war period. He wants to assure that these veterans have the clearest possible conception of the Air Forces role in the current war and the probable role of the Air Force in the future and defense of the United States. General Anderson desires a program for the indoctrination of the station commanders in ways and means of inducing this favorable impression of the Air Forces in the minds of veterans on the eve of their separation.

2. General Anderson desires that a study be made on the advisability and means of sponsoring a separate Army Air Force Veterans Association. He also wants to know what the nature of the association should be.

3. Since it is felt that public Relations people are not attacking the Public Relations problem with sufficient vigor, it is desired AC/AS, Personnel develop the outline program that may be used by the Public Relations people in carrying out their work with greater effectiveness. This program should be centered upon the subject of care of Air Force personnel and the role of Air Force personnel in both war and peace.

3

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SUBJECT: Research Projects

TO: Chief of Policy Planning DATE 7 July 1945

FROM: AC/AS, Personnel, Plans and Liaison COMMENT No. 1 (cont'd)
Col Odom/gk/4225

4. A study of a separate lapel insignia for Air Forces veterans should cover the effectiveness of this action in mobilising the air veteran's support of the Forces during the post war period. This study should also cover the means of procurement and distribution of this insignia, should the adoption of the insignia idea be considered desirable.

/s/ T. C. Odom
THEMUS C. ODOM
Colonel, Air Corps
Chief, Plans and Liaison

NOTE:
Item 3 should be completed within 10 days.

Incl
Conference notes
5 July 45

(13)

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Comm. Air ... Butler
B/O S-1 Postwar Planning - 5

AF NO-12 Comm - HEADQUARTERS AAF

ROUTING SLIP

TO:

1. OFFICE: AC/AS - 1	DATE
ATTENTION: Major General F. L. Anderson	7-20-45
2. OFFICE	DATE
ATTENTION	
3. OFFICE	DATE
ATTENTION	

FOR: FOLLOWING ACTION(S) AS CHECKED

COORDINATION	NOTE AND RETURN	INFORMATION
NECESSARY ACTION	RECOMMENDATION	FILE
SEE ME PHONE ME	APPROVAL	SIGNATURE

COMMENT

In compliance with your directive at a conference on 7 July 1945 there is attached hereto a Memorandum for the Chief of Air Staff, Subject: Distinctive Lapel Emblem for Army Air Forces veterans". The clip-on Tab in three colors - which may be fitted to the lower portion of the Discharge Button is recommended as the most suitable for the purpose of the AAF.

FROM:

OFFICE: AC/AS-1, Policy and Control	ROOM NO. 2E-279
NAME: Colonel R. L. Waldron	PHONE 2970

AF (NOV 10 AND 43)

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AFPPL
Lt Col Nippert/vbs/2970
20 July 1945

ORGANIZATION G-1

MEMORANDUM FOR THE CHIEF OF AIR STAFF:

SUBJECT: Distinctive Lapel Emblem for Army Air Forces Veterans

DISCUSSION

1. Some distinctive device or emblem that might be worn by Air Force veterans of World War II would have several desirable features.

a. It would be a source of pride to the individual to be identified as a former member of the Army Air Forces.

b. It would stimulate continued interest in the Air Force among those veterans who could recognize at a glance another former member of "the greatest team on earth" - provoking reminiscences of their service days, discussion of the current situation and conjecture as to the prospects for the future of the Air Force.

c. In turn it would keep alive the interest in the service as a whole.

d. It would keep the Air Forces in the forefront of the minds of the families and acquaintances of the wearers of the emblem.

e. In general it would be an effective and simple means of effecting the support of the Air Force during the Post-War period by Air Force veterans and others in their sphere of influence.

2. There is inclosed a Summary Sheet to the Asst Chief of Staff, G-1 (TAB A) setting forth reasons why this plan should be to the advantage of the service as a whole and recommending that--

a. The Army Air Forces be authorized to distribute the emblems.

b. The emblem be procured and furnished to the Army Air Forces in sufficient quantity.

3. Several suggested designs are inclosed (Incl. 1 to TAB A). The design indicated by the figure "1" is considered to be the most desirable.

OFFICE SYMBOL	1. AFPPL	2. AFAAP	3.	4.	5.
GRADE AND SURNAME OF COORDINATING OFFICERS					

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AFPPL
Lt Col Nippert/vbs/2970
20 July 1945

4. Upon approval of the plan by the Chief of Staff, the Quartermaster would procure the emblems and furnish them to the Air Forces for distribution.

5. The Personnel Distribution Command can effect the distribution of the emblem.

6. In the event the recommendation to the Asst Chief of Staff, G-1 is disapproved, an alternate method of accomplishing practically the same end would be through the membership emblem of the Army Air Force League or similar association when such an organization is established.

ACTION RECOMMENDED

That the inclosed Summary Sheet be approved and forwarded with the approved design.

1 Incl.
TAB A w/1 Incl.

(Sgd.)
F. L. ANDERSON
Major General, U.S.A.
AC/AS - 1

OFFICE SYMBOL	1.	2.	3.	4.	5.
GRADE AND SURNAME OF COORDINATING OFFICERS					

- 2 -

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X C-1

Hqs AAF
AC/AS - 1, Policy & Control

Lt. Col. Nippert/vbs/2970

Distinctive Lapel Emblem for
Army Air Forces Veterans

20 July 1945

DISCUSSION

1. It is considered desirable to maintain the continued active good will of personnel who have served in the armed forces during the current emergency after they return to civil life.

2. Most individuals are primarily interested in the service in which they served and secondarily in the military service in general. To stimulate interest in one service will in turn be reflected by increased interest in the whole.

3. It would be to the advantage of the service in general if any one or all of the three major forces were authorized to design and issue distinctive lapel emblems to personnel who have served honorably with the respective forces.

4. The Army Air Forces has designed a lapel emblem (Incl. 1) which is considered appropriate. It will be observed that the proposed emblem is for service in the Army Air Forces and does not encroach on the significance of the Honorable Discharge Emblem of the services in general.

ACTION RECOMMENDED

1. That the proposed lapel emblem for the Army Air Forces be approved and procured.

2. That the Army Air Forces be furnished sufficient quantity of the emblems.

3. That the Army Air Forces be authorized to distribute the emblem to those individuals who have served honorably with the Army Air Forces in World War II.

For the Commanding General, Army Air Forces
Signed

1 Incl.
Emblem

OFFICE SYMBOL	AFPE	
GRADE AND SURNAME OF COORDINATING OFFICERS		21

TAB A

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Attention is directed to the following features of this "Clip on Tab".

1. The Honorable Discharge button (Eagle and Circle) retains its identity.
2. The Clip on Tab identifies the wearer as an AAF veteran.
3. The design of the Clip on Tab is adaptable to use by AGF and ASF.
4. The Clip on Tab being secured to the lower portion of the discharge button would assure upright position of the discharge button at all times.
5. It does not displace the Honorable Discharge Button.
6. It can be manufactured and issued independently of the Discharge button.
7. Taken by itself it has no significance, thus could not be used for ulterior purposes by unscrupulous individuals.

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PROJ. NO.	PROJ	Priority	Assigned To	Est.Comp. Date	Date Comp.	Destn.
20-E-A	Lapel Button for World War II, AAF Veterans		Col. Nippert			5

SOURCE AND REFERENCE DATA:

TO BE COORDINATED WITH:

OBJECTIVE OF STUDY:

CHRONOLOGY OF ACTIONS:

16 July 45 - Project assigned.

17 July 45 - Discussed with Mr. Ewin, insignia design for submission of sketches. Discussed with Lt. Col. Krafft Awards Board, as to station of study he had in hand. Col Krafft had been advised by Col. McCabe, Executive Assistant to Commanding General that War Department would not approve a separate button for Army Air Forces as a part of the Army and was ordered to proceed to devise means of getting buttons to Army Air Forces verterans. He had proceeded along line of having buttons issued by Air Force League at one dollar a piece, and previous material had been destroyed. Received from Col. Krafft the information he had and took over project.

18 July 45 - Proposed rough drafts of memorandum (staff study) to Chief of Air Staff and Summary sheet to G-1.

19 July 45 - Mr. Erwin submitted sketches. Prepared memo to Chief of Air Staff and Summary Sheet G-1 recommending approval of a separate AF emblem - not included.

21 July 45 - Memorandum to C/AS, Summary Sheet and sketches forwarded to AC/AS - 1

23 July 45 - Comeback copies came back without change.

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Army Air Forces Lapel Pin

AC/AS-1, Personal Services Division 12 September 45

AC/AS-1, Personal Services Division
Awards Branch

1
Col Krafft/mk/73420

1. As requested by telephone, copy of original Memorandum to Colonel McCabe is attached.

2. Since the initial Memorandum was written, conferences have been held in which the feasibility and desirability of the plan have been determined. Colonel McCabe has investigated costs and upon his return to this Headquarters will be in position to present the idea for formal concurrence.

1 Incl:
Cy of Memo to
Col McCabe dtd
23 Apr 45

HAROLD D. KRAFFT
Colonel, Air Corps
Chief, Awards Branch

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Air Pur. Cert. Sup. Supply
D-3

5

B. A. BALLOU & CO. INC.
Established 1858
Makers of Findings
Providence 2, R.I.
U.S.A.

October 18, 1945.

Army Air Forces
Kelly Field,
San Antonio, Texas.

Attn: Purchasing Agent

Gentlemen:

Confirming information supplied by telephone this noon, we would advise that brass grip fasteners with parts are priced at 95 cents per gross, and in sterling silver at $5.75 per gross, F.O.B. Providence.

All production of grip fasteners is for orders originating in the various War Departments and the bulk of the orders covering current production are from the Philadelphia Quartermaster Depot. All of these orders are under MM ratings which we understand would be available for your order.

Current production is in brass and in sterling silver. We believe it probable that your order for either or both qualities can be accompodated by shipments beginning twenty-five days after receipt of such order. These beginning shipments would necessarily be from materials already in hand and which have been obtained to cover the Quartermaster orders. Deliveries of new materials in brass, sterling or nickel silver are slow, and the completion of your entry might be delayed by this fact.

Very truly yours,

B. A. BALLOU & CO., INC.

/s/ B.A. KENNY

CERTIFIED TRUE COPY
[illegible] C. GROOVER
CAPT. AIR CORPS
CONTRACTING & PURCHASING OFFICER

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Carton - Buttons
A-1-d (1/1)

COPY

ROUTING AND RECORD SHEET

SUBJECT: Service Buttons for personnel who have been honorably discharged from the AAF

TO: Assistant Chief of Air Staff - 1

DATE 22 October 1945

COMMENT NO. 1
JES/hd/3373

FROM: Secretary of the Air Staff

1. The Commanding General, Army Air Forces desires that every person honorably discharged from the Army Air Forces be given a service button of the type attached hereto.

2. The Commanding General, Air Technical Service Command has indicated that this button can be manufactured in air depots at a cost of 2½¢ each. It is desired that you send a directive to the Commanding General, Air Technical Service Command to manufacture these buttons and distribute them in the quantities and to the stations designated by you, in order that each person may be presented with one upon his discharge from the service.

3. You will take steps necessary to provide AAF personnel who have already been separated from the service with a service button.

/s/ Jacob E. Smart

JACOB E. SMART
Colonel, Air Corps
Secretary of the Air Staff

1 Incl
1 service button

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C. Button
S-1-6(2/2)

SAVE

IN REPLY REFER TO:

HEADQUARTERS, ARMY AIR FORCES
WASHINGTON

FOR VICTORY BUY UNITED STATES WAR BONDS AND STAMPS

24 October 1945

SUBJECT: Air Force Lapel Button

TO: Commanding General
Air Technical Service Command
Wright Field, Dayton, Ohio

Attn: Colonel J. W. Sessums

1. Confirming telephone conversation this day between Colonel J. W. Sessums and Major Greene Benton, Jr. of this office, the Air Force pin to be produced by your command for all AAF personnel honorably discharged from the Service is attached.

2. To expedite production and distribution, this pin is being sent immediately that you may start production at the earliest possible date.

3. Necessary directive, quantity required, and distribution points will follow immediately.

4. Request the attached pin be returned to this Headquarters when it has served its immediate purpose.

BY COMMAND OF GENERAL ARNOLD:

William E. Hall

WILLIAM E. HALL
Brigadier General, USA
Deputy AC/AS - 1

1 incl.
sample pin

Incl 1

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O - Button
A-1 - 61 1/2)

1 PS - May 12 Th

SUBJECT: Air Force Lapel Button.

1st Ind. TSDSG:JWS:MS

Hqs., Air Technical Service Command, Wright Field, Ohio. 13 Nov. 1945.

TO: Commanding General, Army Air Force, Asst. Chief of Air Staff - 3, Washington 25, D. C.

1. As requested in paragraph 4 of basic communication, attached Air Force Lapel Button is returned to your office.

For the Commanding General:

J. W. SESSUMS
Colonel, Air Corps
Asst. Deputy Commanding General
Engineering (T-3)

Incl.
Sample Pin

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FOR VICTORY BUY UNITED STATES WAR BONDS AND STAMPS

AAFSC FORM NO. 10-501
31 DECEMBER 1943

SAVE

HEADQUARTERS SANTN/JAS/fd
SAN ANTONIO AIR TECHNICAL SERVICE COMMAND
KELLY FIELD, TEXAS

400.

IN REPLY ADDRESS BOTH COMMUNICATION AND ENVELOPE TO ATTENTION OF FOLLOWING OFFICE SYMBOL

SANTN

SUBJECT: Air Force Lapel Button

TO: Commanding General
Air Technical Service Command
Wright Field, Dayton, Ohio

Attn: Colonel J. W. Seesume

1. Basic communication returned for your further action as per paragraph four.

FOR THE COMMANDING GENERAL:

James N. Sammons Lt.Col.AC

For CARLTON F. SMITH
Colonel, Air Corps
Deputy for Engineering

2 Incl.
1 Letter
2 Sample Pin

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O - Benton
A-1-3

HEADQUARTERS ARMY AIR FORCES

ROUTING AND RECORD SHEET

TALLY NO.	
FILE NO.	

SUBJECT: Separation Data for Use in Distribution in Procurement of AAF Separation Pins

TO: AC/AS-1, Personal Services Division. Att: Maj Benton DATE 24 OCT 1945

FROM: Office of Statistical Control COMMENT NO. 1
Colonel Waters/vp/3633

10

Through 7 October 1945 there were separated approximately 375,000 AAF personnel including that personnel separated by ASF in the AAF. Through 21 October 1945, 215,371 people had been separated through AAF separation activities. It is estimated that there will be approximately 2,000,000 more AAF personnel separated through 1946. This exceeds the actual strength of AAF, however, it takes into consideration the fact that additional gains will be realized to the AAF personnel through induction from civilian life and transferred from the Ground and Service Forces.

CHARLES B. THORNTON
Colonel, Air Corps
Chief, Office of Statistical Control

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3-1109 A.F

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A G P	
PRIORITY	
ROUTINE	
MULTIPLE ADDRESS	

TELETYPE MESSAGE

AIR SERVICE COMMAND TELETYPE NETWORK

RW:el
5-4239

FROM: AISC

DATE: 29 OCT 45

TO: CG, SAAFSC

C. L. MUNROE
Colonel, Air Corps
NAME, RANK AND TITLE OF AUTHENTICATING OFFICER

CLASS:

TSMOOZM-10-1037.....IT IS REQUESTED YOUR ACTIVITY MANUFACTURE TWO MILLION (2,000,000) PINS AS ORDERED BY BRIGADIER GENERAL OTT. THESE PINS SHOULD BE COMPLETED AT THE EARLIEST POSSIBLE DATE. ACKNOWLEDGE.

11

COORDINATION	C. G. OR C. O.	CONTROL OFFICE	MAINTENANCE	P & T	SUPPLY	BUDGET & FISCAL	OTHERS

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hh:el
5-4239

A. G. P.	
PRIORITY	
ROUTINE	
MULTIPLE ADDRESS	

TELETYPE MESSAGE

AIR SERVICE COMMAND TELETYPE NETWORK

FROM: ASC DATE 31 OCT 45

TO: CG, SAATSC

C. L. MUNROE
Colonel, Air Corps
NAME, RANK AND TITLE OF AUTHENTICATING OFFICER

CLASS:

TSMCO2M-10-1041.....REURTEL SAMC2A-10-118 AND OURTEL TSMCO2M-10-1037 DTD 29 OCT 45. BASE MATERIAL REQUIREMENTS ON 2,400,000 AS PER ORIGINAL REQUEST. IT IS REQUESTED TWENTY FIVE (25) SAMPLES BE SHIPPED TO THIS HQS ATTN: TSMCO2M AT THE EARLIEST POSSIBLE DATE. SIGNED MAINT DIV.

12

C. G. OR C. O.	CONTROL OFFICE	MAINTENANCE	P. & T.	SUPPLY	BUDGET & FISCAL	OTHERS

COORDINATION

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MAINTENANCE DIVISION
MESSAGE CONTROL COMMUNICATIONS CENTER

FROM 1945 OCT 31 10 15 1939

OCT 31

OCT 3

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MATERIAL BRANCH

DAILY ACTIVITY LOG

UNIT TSSP-5E DATE 1 November 1945

1. Request was received from San Antonio ATSC, Contracting Officer, by Local Purchase Unit for authorization of $24,000.00. This was necessary for procurement of materials for the fabrication of 2,000,000 discharge buttons which was directed by Hqrs., AAF. It was suggested that a bill of materials be submitted for review. Material involved was 10,500 sq.ft. .064 Low Brass Sheet of which had been declared excess and transferred to Class 27-A. The Brass Sheet was recalled from Class 27-A and shipment expedited to San Antonio ATSC. Material was in stock at the 832nd AAF Specialized Depot, Topeka, Kansas, and upon being released by Class 27-A, was ordered shipped to San Antonio ATSC.

Warren Garland
Capt, C. E.

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HEADQUARTERS, ARMY AIR FORCES
WASHINGTON

REPLY REFER TO:

2 November 1945

SUBJECT: Army Air Forces Service Button

TO: Commanding General
Air Technical Service Command
Wright Field
Dayton, Ohio

1. It is the desire of the Commanding General, Army Air Forces that a service button be given to every member of the Army Air Forces honorably discharged from the service.

2. Sample button was furnished in letter this headquarters, 24 October 1945 addressed to your command for attention of Colonel J. W. Sessums.

3. Production at earliest possible date of 2,375,000 of subject buttons in air depots under your command is requested.

4. Buttons will be furnished for distribution to commands listed below in amounts as shown:

a. 1,500,000 to Personnel Distribution Command, Louisville, Kentucky.

b. 875,000 to Continental Air Forces, Camp Springs, Maryland.

5. Necessary facilities for storage and distribution of buttons will be provided by commands listed in paragraph 4a and b.

6. Direct communication between your headquarters and the commands listed above is authorized for the purpose of arranging storage and reception facilities.

BY COMMAND OF GENERAL ARNOLD:

William E. Hall
WILLIAM E. HALL
Brigadier General, U. S. Army
Deputy Assistant Chief of Air Staff-1

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FRAGØ

MAINTENANCE SECTION

10 38 2

URR V UFR NR346 WD

FROM SAATSC KELLYFLD TEX 3120112

TO CG ATSC WRIGHTFLD OHIO

GRNC

SABF04-11-1 ATTN TSBF0A RETEL TSNC02N-10-1037 REQUEST SUBALLOCATION OF 300 DOLLARS ACA PROJECT 411 FUNDS FOR PURCHASE OF LACQUER AND TOOL STEEL AND 14300 DOLLARS ACA PROJECT 422 FUNDS FOR PURCHASE OF GRIP FASTENERS ALL TO BE USED IN MANUFACTURE OF AIR CORPS DISCHARGE PINS SIGNED BUDGET AND FISCAL OFFICER

MF20282

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ATSC Form No. 10-3
(19 Mar 45)

12

ROUTING AND RECORD SHEET AIR TECHNICAL SERVICE COMMAND

Use this form for inter-office correspondence within headquarters.

Use authorized office symbols to designate addressor and addressee.

Place initials of dictator and typist, telephone number and location to right of signature.

Use entire width of sheet, both sides.

Number all comments consecutively.

Separate comments by horizontal lines across page.

SUBJECT: AAF Discharge Button

TO: TSSCO FROM: TSMCO2M DATE: 14 Nov 45 COMMENT NO. 1.

1. Your attention is invited to attached copy of letter from Hqs, AAF, requesting manufacture and shipment of 2,375,000 each AAF Service Buttons.

2. It is advised that SAATSC is in process of fabrication of the buttons at the present time, but will not be in full production for approximately ten (10) days.

3. It is requested Supply Division, this Headquarters, furnish Supply Division, SAATSC, with necessary instructions for shipment of these buttons to the two (2) activities designated in attached letter. It is suggested that partial shipments to the activities in ratio of their requirements be made.

4. It is requested this office be informed of property class or agency in Supply, SAATSC, that will moniter shipment of the buttons and of action taken to instruct that activity to ship the buttons.

FWiel
5-4239
105I #262

L. MONROE
Colonel, Air Corps
Acting Chief, Control Section
Maintenance Division

Incl: Ltr fr Hqs, AAF.

To: TSMCO2M From: TSSCO5 Date: 28 Nov 45 Comment No. 2

1. Attached hereto is copy of letter forwarded by this office to SAATSC as requested in the preceding comment.

2. For your information it is advised that Personnel Distribution Command and the Continental Air Forces had no knowledge of the buttons in question being fabricated when requested by this office to designate the AAF accountable officer who had received the buttons.

Incls:
w/d ltr fr Hqs, AAF.
added: ltr to SAATSC
dtd 28 Nov 45

F. J. NOVAK
Lt. Colonel, Air Corps
Asst., Control Section
Supply Division

TSSCO5B3/JWN/fb
5-6230
Bldg 262 - 218B

16

WP-5 14-45-2 Mil

(CONTINUE ON OTHER SIDE)

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Please return this Correspondence to:

COORDINATION

14 November 1945

Office Chief Maint. Div.

Maintenance Division (TSMOOM)

AAF HQ ATSC, Wright Field, Dayton, Ohio

Exec. Office Maint. Div.

CO, SAMTSC

Maint. Control Sec.

Access. Sec.

C. L. MUSGRAVE
Colonel, Air Corps
Acting Chief, Control Section
Maintenance Division

Aircraft Sec.

TSMOOM-11-1017.....MAINTENANCE MANUFACTURE OF A-2 DEVICE BUTTONS AT YOUR ACTIVITY. ATTACHED COPY OF LETTER FROM H.Q. AAF, IS FORWARDED FOR YOUR INFORMATION. IT WILL BE NOTED THAT TOTAL QUANTITY OF BUTTONS REQUIRED IS 2,375,000 EACH, INSTEAD OF QUANTITIES PREVIOUSLY FURNISHED YOUR ACTIVITY. IT IS REQUESTED THIS HEADQUARTERS, ATTENTION TSMOOM, BE FURNISHED ESTIMATED COMPLETION DATE, ESTIMATED DAILY PRODUCTION AND A BRIEF DESCRIPTION OF METHOD OF FABRICATION. ADVISE EARLIEST POSSIBLE DATE.

Associated Equip. Sec.

Communications Maint. Sec.

Engine Sec.

Maint. Data Sec.

ATSC

Incl: Ltr fr Hqs, AAF

Supply Div.

Personnel & Training Div.

17

Others

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For Res Cont Sect, S ply 10
D-S(3/4)

B. A. BALLOU & CO. INC.
PROVIDENCE 2, RHODE ISLAND

[19 Nov. 1945]

AAF Contracting Office, WCC
San Antonio Air Technical Service Command
Kelly Field, Texas

We have very carefully reviewed the terms of this contract and find it impossible for us to meet the requirements.

Production of grip fasteners is normally on a subcontract basis with shipments to prime contractors producing the finished decorations or insignia. We have been advised by the Division of Public Contracts, Department of Labor, that "such production would not be within the coverage of the Public Contracts Act". For this reason, our plant is not set up for Walsh-Healey Act production. We had expected to fill your order by scheduling shipments from current daily production but unless we place our entire factory under the terms of the Walsh-Healey Act for the short period necessary for filling of the order, we must segregate production [illegible] covered workers, ages 16 to 18, must be replaced by workers 18 years old or over. Stock on hand is required for present orders and there will be an additional delay of six weeks before new stock can be obtained. Production thereafter will be on a limited scale, due to the demand of other allocated contracts already on hand. We estimate that if separate production is necessary initial shipments from this order will begin about February 1st with completion probable in April.

Because of the foregoing facts, it seems entirely clear that the inclusion of the Walsh-Healey restrictions in our proposed contract will seriously impair the conduct of Government business since it will result in substantially delayed production. Accordingly, we respectfully refer you to Public Contracts Act, Section 6, "Modification of Contract Stipulations", and trust that in this instance we may have your cooperation to secure a waiver of the restriction of the Walsh-Healey Act in order that your requirements be filled from our regular and current production. The procedure to be followed for having this contract exempted from the application of the restrictions of the Walsh-Healey Act is set forth in Section 501.601 of Official Regulation 50h under the Walsh-Healey Act. This regulation provides that request for the exception or exemption of a contract from the inclusion or application of the Walsh-Healey restrictions must be made by the head of a contracting agency or a department and shall be accompanied with a finding by him setting forth the reasons why such inclusion or application will seriously impair the conduct of government business". This request is made to the Public Contracts Division of the Department of Labor. If, therefore, you wish us to proceed with your order, will you kindly institute the procedure contemplated by the act and the regulation.

Very truly yours,

B. A. BALLOU & CO. INC.

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ASC-251-C
1 NOV 45

TSSCOSE5/JMN/fb

A. G. P.	
PRIORITY	
ROUTINE	
DEFERRED	

TELETYPE MESSAGE

AIR SERVICE COMMAND TELETYPE NETWORK

FROM: ATSC DATE: 20 Nov 45

TO: CG, PERSONNEL DISTRIBUTION COMMAND
LOUISVILLE, KY.

CLASS: 142.3

A. W. LISHAWA, JR.
Colonel, Air Corps
Chief, Control Section
Supply Division
NAME, RANK AND TITLE OF AUTHENTICATING OFFICER

TELETYPE NO TSSCOSE5-11-28 . . . . . REFERENCE IS MADE TO LETTER FROM HEADQUARTERS, AAF TO THIS COMMAND, SUBJECT: "ARMY AIR FORCES SERVICE BUTTON", DATED 2 NOVEMBER 1945. THESE BUTTONS ARE CURRENTLY BEING FABRICATED BY THE SAATSC, THEREFORE IT IS REQUESTED THIS HEADQUARTERS BE ADVISED IMMEDIATELY BY RETURN TELETYPE THE STOCK RECORD ACCOUNT NUMBER OF THE SUPPLY OFFICER YOUR COMMAND DESIGNATED TO RECEIVE THESE BUTTONS FOR STORAGE AND DISTRIBUTION. ADVISE, ATTENTION: TSSCOSE.

SIGNED, SUPPLY DIVISION

COORDINATION	C & OR C. O.	CONTROL OFFICE	MAINTENANCE	P & T	SUPPLY	BUDGET & FISCAL	OTHERS
11-21-45							

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A.T.S.C. TELETYPE

URR V UHLKA NR13 WD

FROM HQ AFPDC LOUISVILLE KY 231745Z

TO CG ATSC WRIGHTFLD DAYTON OHIO

CRNC

A-4 RCW/ 1882 PD REUR TWX TSSCODE3-11-28 CMA CAPT JESSE TESSIER CMA AAF-16-SOO CMA BOWMAN FIELD CMA WILL EFFFECT STORAGE AND DISTRIBUTION AAF SERVICE BUTTONS THIS COMMAND PD

HARMON

1755Z

11-26-632

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RH6U V A.T.S. TELETYPE

WA235 22 40

1945 NOV 21 07:31

URR V UHLKA WR57 WD

FROM HHQ AFPDC LOUISVILLE KY 302215Z

TO CG AIR TECH SVC COMMAND WRIGHT FLD DAYTON OHIO

GRNC

A-4-MRM2633 PD REURTWX TSCO5E3-11-28 DATED 21 NOVEMBER REQUEST YOU AMEND OUR SHIPPING INSTRUCTIONS TO READ CAPTAIN T N BRITTON AAF-16-SO BOWMAN FIELD PD

HARMON

22192

AAF Lennie Britton

A-4-MRM2633 TSSCO5E3-11-28 21 AAF-16-SO

CORR PLS MAKE THIXXXXX FOURTH GV FIRWT LINE READ TSSCO5E3-11-28

RPT TSSCO5E3-11-28

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AGC-291-C (15-10-45)

TSSCOSEB/JHH/fb

A. G. P.
PRIORITY
ROUTINE
WEATHER
ADMIN

TELETYPE MESSAGE

AIR SERVICE COMMAND TELETYPE NETWORK

FROM: ATSC DATE: 20 NOV 45

A. W. LINHAWA, JR.
Colonel, Air Corps
Chief, Control Section
Supply Division
NAME, RANK AND TITLE OF AUTHENTICATING OFFICER

TO: CG, CONTINENTAL AIR FORCES
WASHINGTON, D. C.

CLASS:

TELETYPE NO TSSCOSEB-11-29 . . . . . REFERENCE IS MADE TO LETTER FROM HEADQUARTERS, AAF TO THIS COMMAND, SUBJECT: "ARMY AIR FORCES SERVICE BUTTON", DATED 2 NOVEMBER 1945. THESE BUTTONS ARE CURRENTLY BEING FABRICATED BY THE SAATSC, THEREFORE IT IS REQUESTED THIS HEADQUARTERS BE ADVISED IMMEDIATELY BY RETURN TELETYPE THE STOCK RECORD ACCOUNT NUMBER OF THE SUPPLY OFFICER YOUR COMMAND DESIGNATED TO RECEIVE THESE BUTTONS FOR STORAGE AND DISTRIBUTION. ADVISE, ATTENTION: TSSCOSE.

20

SIGNED, SUPPLY DIVISION

COORDINATION	C. S. OR C. O.	CONTROL OFFICE	MAINTENANCE	P & T	SUPPLY	BUDGET & FISCAL	OTHERS
11-20-45							20

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Corps Lead. & Supply 4

RF39

WA49

A.T.S.C. TELETYPE

URR V WIZ NRA18 NOV 24 03 20

FROM STREETT DEPUTY CAF BOLLING FLD DC 2402Z

TO CG ATSC WRIGHT FLD DAYTON OHIO

GRNC

A4F10 2105 PD ATTN TSSCO5E PD CITE TARE SUGAR SUGAR CHARLIE OBOE FIVE EASY THREE DASH ONE ONE DASH TWO NONE PD STOCK RECORD ACCOUNT NUMVER OF STATIONF DESIGNATED TO RECEIVE ARMY AR FORCES SERVICE BUTTONS CANNOT BE GIVEN PENDING RECEIPT OF FURTHER INFORMATION FROM HEADQUARTERS A ARMY AIR FORCES PD THAT INFORMATION PROBABLY WILL BE FORTHCOMING ABOUT TWO SEVEN NOVEMBER AT WHICH TIME YOU WILL BE ADVISED PD

0247Z WS

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EXTRACT FROM DAILY DIARY-OFFICE OF THE AIR QUARTERMASTER

20 November 1945

PROCUREMENT OF DISCHARGE BUTTONS

Mr. Eddie Shauf, Stock Control, OQMG, and Capt. Shoemocker, Procurement Division, OQMG, called and stated that they had a telephone request from Kelly Field, Procurement and Contracting Officer, for OQMG to release certain manufacturing facilities now tied up by OQMG, as that officer had a directive from higher AAF headquarters to procure 2,500,000 discharge buttons for AAF. Both gentlemen wanted to know if this were true and if it were true, would like to register a complaint as it would interfere with OQMG's procurement. Further that it was OQMG's opinion that the supply of army discharge buttons was charged to them.

Colonel Tellman, DBS-4, was contacted and his office knew nothing about the AAF Directive. Checked with A-1, Personnel and A-3, Requirements. It appears that no one in this headquarters has any information in regard to the AAF Directive.

This office gave the above information to OQMG and suggested that the Procurement and Contracting Officer at Kelly Field be requested to forward a TWX through this headquarters to OQMG so that proper identification of this directive can be made.

(Sgd.) C W W

C.W.W.

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DAILY DIARY
21 Nov. 1945

Transfer of Furniture:

Colonel Woods, ATSC, Wright Field, called to inquire what action had been taken on the transfer of furniture from certain hotels in Miami Beach for use at the Miami Air Depot in the Visiting Officers Quarters. He was informed that the request had not yet been received in this office but that we would check the mail room and take immediate action upon receipt.

Roller Conveyors:

Mr. Larson, ATSC, Wright Field, called for information as to the availability of roller conveyors. He was informed that this request had been turned over to Mr. Benning of the Supply Division of A-4 who was to call him and inform him as to whether these conveyors could be obtained. Mr. Larson will check further with Mr. Benning.

Request for Discharge Buttons:

Called Colonel Sessums, Wright Field, in regard to his request for assistance in obtaining discharge buttons. He was informed that the QMG has available only six contractors and that it is with extreme difficulty that they are being held in line to produce sufficient War Department discharge buttons, and that at the present time it is not deemed practicable to release the pressure on these contractors by allowing them to make other than the official War Department button.

(Sgd.) P. v. d. L.
PETER VAN DER LUGT
Colonel, Air Corps

(Office of the Air Quartermaster)

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COPY

OFFICE OF THE AIR QUARTERMASTER
HEADQUARTERS, ARMY AIR FORCES
WASHINGTON

23 November 1945

MEMORANDUM FOR THE AC/AS-4:

COLONEL McCULLOUGH'S DAILY ACTIVITY REPORT

Negative.

DIVISION DAILY ACTIVITY REPORT

1. TEMPORARY DUTY, LANGLEY FIELD, VIRGINIA

Col. James E. Mayberry returned from three days' temporary duty at Langley Field, Virginia, where he observed quartermaster activities.
(Col. J.E. Mayberry - 72365)

2. WAR DEPARTMENT DISCHARGE BUTTONS

Col. Sessums, Wright Field, who requested assistance of this office in obtaining War Department discharge buttons, was advised that OQMG has available only six contractors and it is with extreme difficulty that they are being held in line to produce sufficient discharge buttons. At present it is not deemed practicable to release the pressure on these contractors by allowing them to make other than the official War Department button.
(Col. P. van der Lugt - 5624)

3. TENTS

The request of the AAF Board, Orlando, Florida, for samples of British Tents and enemy captured German and Japanese tents was coordinated with OQMG, who stated that the tents were not available for present stock but action could be initiated with the British Staff to obtain British Tents, which would require a period of from 6 to 8 weeks. OQMG further advised there will be a meeting on tentage at Camp Lee, Virginia, 3 and 4 December, with representatives from industry, Jeffersonville Research & Development, and OQMG Research & Development, and requested that two AAF representatives attend. Lt. Col. H. K. Gilbert, AAF Board, and Lt. Col. C. W. Weikert, this office, will represent AAF at this meeting.
(Lt. Col. C. W. Weikert - 71617)

E. T. McCULLOUGH
Colonel, QMC
Deputy Air Quartermaster
Office of AC/AS-4

(Stamped)
JAMES E. MAYBERRY
Colonel, A. C.
Executive Officer

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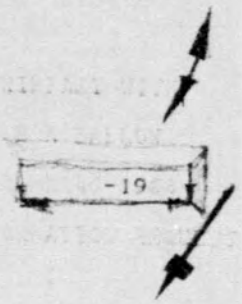
A.T.S.C. TELETYPE



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D-1(1/2)

CONTRACT NO. W 41-142 ac-739
PURCHASE ORDER NO. 46-1900

CONTRACTOR: B. A. Ballou & Co. Inc.
Providence 2, Rhode Island

APPROVED: 23 November, 1945
By direction of the Secretary of War under the provisions of The First War Powers Act of 1941 and Executive Order No. 9001, dated December 27, 1941.

ERNEST W. BRACKETT
Lt. Colonel, Air Corps
Chief, Local Purchase Branch
Services Section
Procurement Division

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Lor. Gen. Cont. Sec., Supply Div. (1/2)

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AAF Form No. 98-A
(Rev. May 2, 1942)

WAR DEPARTMENT
ARMY AIR FORCES
—— on
PURCHASE ORDER

CONTRACT No. W-[illegible]-739
ORDER No. (41-142)46-190X
To insure prompt payment, place this Order Number on all Packages, Bills, and Correspondence.

Address all correspondence regarding this order for attention of AAF Contracting Office, SABCN, SAATSC, Kelly Field, Texas.

To
B. A. Ballou & Co. Inc.,
Providence 2, Rhode Island.

Ship to
SEE BELOW

Date 15 November 1945
Ship via See Below
Delivery within See Below days from date of receipt of this order.
Terms: Net
ALL ARTICLES MUST BE DELIVERED F. O. B. Providence, Rhode Island.

In accordance with your Written Quotation dated 18 October 1945 and subject to all conditions and requirements hereof and to all advertisements, circulars, specifications, and samples pertaining hereto, award is hereby made you for furnishing the following articles at the prices shown at the time, place, and in the manner herein specified.

Item No.	Quantity	Unit	Cl. 29 KAC ARTICLE	Unit Price	Total Price
			SHIP TO: Transportation Officer, Bldg. #171, SAATSC, Kelly Field, Texas. Marked for: AAF 910 CSD, SAAD; for Liaison Unit on SBP-7794.		
			SHIP VIA: AIR EXPRESS COLLECT OR RAIL EXPRESS COLLECT AS DIRECTED BY CONTRACTING OFFICER FOR CONVERSION TO GOVERNMENT BILL OF LADING AT DESTINATION.		
			DELIVERY WITHIN: INITIAL SHIPMENT TO BE MADE WITHIN 25 DAYS AND TO BE DELIVERED AT THE RATE OF 100 GROSS PER DAY UNTIL ORDER COMPLETED.		
			Item listed on continuation page 1-A	TOTAL	$13,679.82
			Confirmation of telephone order dated 13 Nov. 1945.		
			By authority of the War Production Board the preference ratings indicated are assigned to the deliveries on this purchase order or contract. PREFERENCE RATING M4		
			Forward copy of voucher to Budget & Fiscal Office, Kelly Field, Texas, Station 41-142.		
			All articles and conditions contained on continuation schedule attached are considered a part of this contract. Acknowledge this order and state definitely when shipment will be made.		

Final inspection and acceptance at Destination

Auth: Par. 11 Circular No. 310 WD 1944 and Par. 3 (c) ATSC Reg. 70-17, dated 24 May 1945, TSSAC7D-11T-119 Dated 11/9/45 and TSBLP-19125.

The supplies and/or services to be obtained by this instrument are authorized by, are for the purpose set forth in, and are chargeable to Procurement Authority 212/60705 662-2325 P 422-18 S 41-142, the available balance of which is sufficient to cover the cost of same.

The Finance Officer, Kelly Field, Texas, is hereby designated to make payment for such supplies and/or services.

Req. No. SAAF340 46-[illegible] 1st Ind.

[illegible] Contracting Officer.

THIS ORDER AND ALL ATTACHED SHEETS ARE MADE PART OF THIS ORDER, TO WHICH VENDOR AGREES BY AN ACCEPTANCE OF THIS ORDER.

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For Purch. Card + Supply D-2 (2/2)

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B. A. Ballou & Co., Inc.,
Providence 2, Rhode Island.

PAGE 1-A

Contract W-41-142-ac-739
P. O. (41-142)46-1900
cm

1	13,959	Gross	Gripfast with nail head post brass B. A. BALLOU NUMBER 50	$0.98	$13,679.82

NOTE: Okayed by Lt. Col. E. W Brackett 11/13/45 per Telephone conversation. Request original Express receipts be forwarded for conversion to Government Bills of Lading.

"Authorization to enter into this contract has been obtained in telephone conversation with Lt. Col. Ernest W. Brackett, Chief, Local Purchase Branch, Services Section, Procurement Division, dated 13 November 1945, subject to review and approval of the written instrument by Chief, Local Purchase Branch, Services Section, Procurement Division."

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SAVE

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BUY

HEADQUARTERS
AIR TECHNICAL SERVICE COMMAND

TSBPS7/MEW/md

IN REPLY ADDRESS BOTH COMMUNICATION AND ENVELOPE TO ATTENTION OF FOLLOWING OFFICE SYMBOL:

TSBPS7

WRIGHT FIELD, DAYTON, OHIO
23 November 1945

SUBJECT: Contract W 41-142 ac-739

TO: Commanding General, San Antonio Air Technical Service Command, Kelly Field, San Antonio, Texas. Attn: Contracting Officer

1. Inclosed herewith are three copies of Contract W 41-142 ac-739 together with approval sheets thereon executed in triplicate.

2. The approval of this Headquarters is conditioned upon changing the f.o.b. point from "point of origin" to "contractor's plant, (city and state in which plant is located)". The copies of the bid submitted with reference contract indicated that the f.o.b. point was to be Providence, Rhode Island.

3. It is not clear to this Headquarters as to the origin of the delivery schedule as set forth in reference contract. The contractor's bid above referred to does not appear to support the terms of the contract. In the event that it is considered necessary by your Headquarters to modify the contract in this particular, request this Headquarters be furnished with a copy of the amended instrument.

By Command of Major General KNERR:

Ernest W Brackett, Lt Col A.C
for THEODORE F. BOWES
Lt. Colonel, Air Corps
Chief, Services Section
Procurement Division

Incl: 1
3 copies of Contract
W 41-142 ac-739
Approval Sheets (triplicate)

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Basic: Ltr 734 Hq. AMSC, Wright Fld. Dayton, O., dtd 23 Nov. 45, Subj: "Contract W41-142 ac-739."

1st Ind.

HQS OCD AMSTSC Kelly Field, Texas, 30 November 1945.

To: Commanding General, AMSC, Wright Field, Dayton, O. Attention: [redacted], Chief, Services Section, Procurement Division.

1. Inclosed herewith copy of subject contract which has been corrected per paragraph 2 basic communication.

2. Delivery Schedule referred to in paragraph 3 was obtained from contractor in telephone conversation.

FOR THE COMMANDING GENERAL:

[redacted] C. GROVER,
Captain, Air Corps,
Contracting Officer.

1-Incl.
cy.Contract W41-142ac-739.

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SAATSC FORM NO. 10-801
REVISED 10 MARCH 1945

HEADQUARTERS
SAN ANTONIO AIR TECHNICAL SERVICE COMMAND SAATSC/LLVR/oil
KELLY FIELD, TEXAS

IN REPLY, ADDRESS BOTH COMMUNICATION AND ENVELOPE TO ATTENTION OF FOLLOWING OFFICE SYMBOL:
400, (SAATSC)

SUBJECT: Army Air Forces Service Button

TO: Commanding General
Air Technical Service Command
Wright Field
Dayton, Ohio

ATTENTION: TSMCO2M

1. With reference to messageform TSMCO2M-11-1017, dated 14 November, the following information and a brief description in the method of fabrication is submitted.

2. The present daily production of the AAF Service Button is 10,000. Action is being taken, however, to tool up and increase this to 20,000 per day. The method being used in the manufacture of the AAF Service Buttons is as follows:

a. Attention is invited to the attached photographs in connection with the following:

(1) Re photographs 1 and 2. Dies were manufactured from tool steel. Insignia for embossing is cut in the die on a pantograph engraving machine.

(2) Re photographs 3 and 4. Two punch presses emboss and blank approximately 10,000 buttons from .062 inches thick sheet, one-half hard brass, in eight hours.

(3) Re photograph 5. The parts are then tumbled in a small tumble barrel with steel shot which removes all burs.

(4) Re photographs 6, 7 and 8. A power driven turn table faced with hard sheet asbestos which revolves at a fixed speed is used for soldering the studs to the backs of the insignia. Two of these turn tables produce 30 complete assemblies per minute. The finished part is automatically kicked off of the turn table with a spring wire into a bucket of water shown in photograph 8. Small fingers on the jig hold the button in position

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B-1 (2/3

Ltr, SAATSC, (400.), to CG, ATSC, sub: Army Air Forces Service Button, Page two.

during the soldering operation. A cam lists the fingers when they come into position for the installation of the parts. A high temperature solder is used in fastening the studs in place.

(5) Photograph 9 shows the general layout of the progressive set-up.

(6) Reference photograph 10. A masking fixture is used to mask off the stars and a light coat of lacquer is sprayed over the wings before plating.

(7) A flash coat of bright nickel is then plated on the stars as shown in photographs 11 and 12. Approximately 100 assemblies are plated in five minutes in each basket.

(8) Reference photograph 13. Lacquer is removed from the wings by rinsing in lacquer thinner.

(9) Reference photograph 14. The red dot is placed in the star.

(10) Reference photograph 15. All drying is done with infra red rays.

(11) Reference photograph 16. Inspectors check for rejects.

(12) Reference photograph 17. A specially designed fixture is used to mount the buttons on blue cardboard with one stroke of a small arbor press.

(13) Reference photograph 18. Final lacquering is done with a good grade of acid resisting lacquer.

(14) Reference photograph 19. Ninety-six (96) (or 8 dozen) buttons are placed on each card and 5 cards are packed in a box, which makes 40 dozen (or 480 buttons each) to the package. The packages are then sealed and labeled for shipping.

2. The 8,000 buttons, previously reported by teletype, are being shipped and until such time as a grip fast is received, additional shipment cannot be made. Production, however, on the balance of the pins is continuing. The following is the information on the procurement status of 2,010,000 each grip fast with nail head posts, B. A. Ballou Company No. 50, applicable to AAF Service Button

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Ltr, CMATSC, (400.), to CG, ATSC, sub: Army Air Forces Service Button, Page three.

a. Material was ordered on contract #W41-142AC739, Purchase Order #46-1[illegible], dated 15 November 1945 with the B. A. Ballou & Company, 61 Peck Street, Providence, Rhode Island with a 30 day delivery date from 13 November at which time the Purchase Order was confirmed to B. A. Ballou & Company by telephone and teletype.

b. B. A. Ballou & Company does not have the actual signed copy of the contract as yet; however, that Company has the necessary confirmation under which shipments can be made.

c. The actual contract is now at Headquarters, ATSC, being reviewed by Colonel Brackett, Procurement Division, TSPCP7. This is a necessary procedure inasmuch as contracts exceeding $5,000 must be agreed upon in writing by the Procurement Division, Headquarters, ATSC.

d. When this contract is returned to the Contracting Officer at this Depot, it will then be immediately forwarded to the B. A. Ballou & Company.

e. Daily deliveries of 14,400 each Grip Fasts will not start until approximately 30 days due to the fact that the B. A. Ballou Company, is running behind on Quartermaster Contracts for the same items which carry a time priority due to prior contracts.

f. The Contracting Office of this Depot contacted Captain Schumacher, Office of Quartermaster General, Washington, D. C., Phone Republic 6700, extension 74714 on 15 November 1945. Captain Schumacher was asked if it would be possible for 25,000 each Grip Fasts to be obtained from the Quartermaster General's Purchase Order with B. A. Ballou & Company and be diverted to this Depot. Captain Schumacher was advised that the 25,000 each Grip Fasts would be repaid to the Quartermaster General when 25,000 each Grip Fasts became available on this Depot's Purchase Order. In answer to our request, Captain Schumacher advised that it would be necessary for this Depot to take action through Headquarters, AAF, Washington, D. C.

3. It is to be understood, however, that regardless of the rate of progress on the manufacture of the Wing and Nail Posts portions of the button, it will be impossible to make further shipments, other than the 8,000 shipped this date, until such time as delivery is consumated on the Grip Fast.

FOR THE COMMANDING GENERAL:

James C. O'Neill Capt AC

JAMES B. SAMMONS
Lieut. Colonel, Air Corps
Chief, Maintenance Division

Incl.
19 Photograms (in dup)

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ATSC Form No. 10-508 (3 Jan 45)
(OM ATSC Form No. 43)

COORDINATION
DIRECTOR
AIR INSPECTOR
MGT. CONTROL
CHIEF OF ADMN
SPECIAL STAFF
MAINT. ENG & PROD
CHIEF, SUPPLY & MAINT.
PERS & BASE SERV DIV.
MAINT. DIV.
SUPPLY DIV.
ENGINEERING DIV.
PROCUREMENT DIV.
READJUST DIV.
OTHER

WF-Ltr-6 AUG 45 4764M

Army Air Forces Service Command

20 November 1945

Commanding General
San Antonio Air Technical Service Command
Kelly Field
San Antonio, Texas

Attention: Chief, Supply Division

1. Reference is made to the attached letter from Headquarters, AAF, dated 2 November 1945, subject as above. Fabrication of the buttons referred to in the attached letter is now in process by the Maintenance Division, your Headquarters.

2. When fabricated, subject buttons shall be picked up in Class II. The quantity obligated to the Personnel Distribution Command will be immediately shipped to the AAF 18 SD, Ramey Field. The quantity obligated to the Continental Air Forces will be held in store pending subsequent shipping instructions from this Headquarters.

3. Advise this Headquarters when shipment to the AAF 18 SD is effected.

BY COMMAND OF MAJOR GENERAL KNERR:

P. J. NOVAK
Lt. Colonel, Air Corps
Asst., Control Section
Supply Division

1 Incl:
ltr fr Hq AAF
dtd 2 Nov 45

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ATSC, 28 Nov 45, subj: AAF Service Button, to: CG, SAATSC

425 (28 Nov 45) 1st Ind SASAF5A8/MD/pgt

HQ, SAATSC, Kelly Field, San Antonio, Texas, 10 December 1945

TO: Commanding General, Air Technical Service Command, Wright Field Dayton, Ohio. ATTN: TSSCO5E3

1. On 7 December 1945, prior to receipt of basic communication, 57120 each Buttons were shipped on a Special Maintenance Project to Personnel Distribution Command Louisville, Kentucky and 25680 each Buttons were shipped to Continental Air Forces Camp Springs Maryland.

2. Beginning 7 December 1945, shipments will be made as requested.

FOR THE COMMANDING GENERAL:

1 Incl
m/c

JUNE A. MEREDITH
1st Lt., Air Corps
Asst. Engine Parts
Clothing & Hardware Branch
Supply Division

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22

29 November 1940.

SUBJECT: .45 Discharge Buttons.

TO: Commanding General, Army Air Forces,
Washington, D.C.

Attention: Colonel Jacob E. Smart.

1. Reference our phone conversation this date, I just talked to General Beverley in San Antonio, who states as follows:

a. 70 to 80,000 pins have been finished of which 4,000 have been forwarded to Louisville a week ago. 4,000 to Dayton and 4,000 to Washington a week ago.

b. Yesterday he received 41,000 clasps to secure the pins, and he will immediately distribute all completed pins, using these 41,000 clasps as far as they go.

c. Additional deliveries of clasps have been promised for 10 December, in excess of 20,000 per day.

d. The production rate of pins at present will be 20,000 per day within the next two days; is slightly under that at present.

e. General Beverley will attempt to manufacture a sample clasp to furnish with pins delivered prior to 10 December, to cover the deficit of clasps already received. Should he experience difficulty in the manufacture of clasps he will deliver pins without clasps.

J. E. HEDDEN,
Colonel, Air Corps,
Assistant Deputy Commanding General,
Engineering (P-3).

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O. Dutton
Branches 7 also - 12 HEADQUARTERS ARMY AIR FORCES AAF ORGANIZATION

ROUTING AND RECORD SHEET

TALLY NO.	
FILE NO.	

SUBJECT: Air Force Lapel Button

TO: Office of the Deputy Commanding General, AAF
Attn: Colonel Smart

DATE 5 December 1945

COMMENT No. 1
Maj Barry/dg/72644

FROM: AC/AS-1, Personnel Services Division

1. Continental Air Forces Personal Affairs Officer, Colonel Cassidy advises that:

   a. Personnel Distribution Command maintains an Air Force Liaison Officer for counseling at all Army Service Force separation centers where Air Force personnel are being or may be separated.

   b. However, the services of Army Air Force counselors are only given in case of request by Air Force separatees.

   c. In order to make sure that the Air Force lapel button is issued to Air Force personnel being separated at ASF separation centers it would be necessary that Headquarters AAF direct Personnel Distribution Command that Air Force counselors see all Air Force personnel at ASF centers and/or distribute Air Force lapel buttons to them.

2. CAF has not as yet issued directive to their stations for distribution of these buttons. Directive is in process and was read to me over the telephone. It provides for mailing buttons to personnel separated before they are ready for issue. Copy of the directive is being withheld awaiting notice as to just what separation centers are to get the buttons and what amounts will be sent to us when ready.

3. In this connection CAF wished advice as to any instructions for wearing the button; (i.e., is it to be worn in place of or in addition to regular honorable discharge button?)

4. Colonel O'Keefe, Judge Advocate General's Office advises that there can be no question as to the legality of mailing these buttons in Air Force franked envelopes.

Geraldine W. Barry

GERALDINE W. BARRY
Major, Air Corps

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ACTION INFOR INFOR

DEC 6 05 39

DEC 6 [illegible]

FROM SAATSC KELLYFLD TEX 052254Z

TO CG ATSC WRIGHTFLD OHIO ATTN TSNCS2D

CRNC

SAATSC2A-12-1 SL MFG PROJECT OF 320302 AAF SERVICE BUTTONS AUTHZ TO MAKE SHIPMENT BY RAIL EXPRESS TO THE DISTRIBUTION CENTERS AVISE EFD INASMUCH AS SHIPMENT IS BEING HELD UP AWAITING AUTHORITY

AVP 23012

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2 5

FW: el
5-41239

A C P
PRIORITY
ROUTINE
MULTIPLE ADDRESS

TELETYPE MESSAGE

AIR SERVICE COMMAND TELETYPE NETWORK

FROM: ATSC

DATE: 6 DEC 45

TO: CO, SAATSC

C. L. MUNROE
Colonel, Air Corps

CLASS

TFX0[illegible]-12-1001.....RELETEL SAATC2A-12-18 AND MSG O[illegible] AAF SERVICE BUTTONS.

AUTOR TO MAKE SHIPMENT TO DISTRIBUTION CENTERS BY RAIL EXPRESS. SIGNED MAINT DIV.

COORDINATION	C G OR C O	CONTROL OFFICE	MAINTENANCE	P & T	SUPPLY	BUDGET & FISCAL	OTHERS

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O - Pentz
A-1-1

HEADQUARTERS ARMY AIR FORCES

ROUTING AND RECORD SHEET

TALLY NO.	
FILE NO.	

SUBJECT: Army Air Force Lapel Button

TO: Office of the Deputy Commanding General, AAF
Attn: Colonel Smart

DATE 10 December 45

FROM: AC/AS-1, Personnel Services Division

COMMENT No. 1
Maj Barry/dg/72644

1. Reference paragraph 1c attached memorandum, telephone call to Personnel Distribution Command in Louisville advises that Air Force counselors see all Air Force separatees at Army Service Forces separation centers.

2. Suggest, therefore, that preparation of directive referred to be delayed pending receipt of Personnel Distribution Command confirmation of above and suggested plan for distribution of lapel button.

Geraldine W. Barry

GERALDINE W. BARRY
Major, Air Corps

1 Incl

Concur
JS

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B - Button
A-1-11

HEADQU TERS ARMY AIR FORCES

ROUTING AND RECORD SHEET

TALLY NO.	
FILE NO.	

SUBJECT: Air Force Lapel Button

TO: Colonel Smart

DATE 3 Jan 46

COMMENT No -2-
Maj Barry/ds/72414

FROM: Major Barry, Personnel Services Division

1. Telephone call to Personnel Distribution Command revealed that distribution of the buttons personally to each Air Force separatee processed through Army Service Forces separation centers was impossible, and that buttons are being mailed to each such separated person at his home. Mailing has only been done within the last ten (10) days; approximately 30,000 buttons have been mailed during the past week and it is anticipated that this average will be maintained. The buttons are being sent out with a letter from General Harmon and the Air Forces identification card. [illegible] sixty (60) people working on this project now.

2. Continental Air Forces advised that a button is being given to each person presently being separated and this has been done for the past two (2) weeks. At the same time buttons are being mailed to persons previously separated. Each separation centers are presently running about 2500 per day.

GERALDINE M. BARRY
Major, Air Corps
Personnel Services Division

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Com & Rec'd by Ltr dtd 5-6-46 (113)

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11 DEC 45

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HQ CAF A-4 SUPPLY QM A4F10

BOLLING FIELD 20, D.C.

MULTIPLE ADDRESS AIR MAIL

ACTION COPY:
Commanding GENERAL
SAN ANTONIO AIR TECHNICAL SERVICE COMMAND
SAN ANTONIO, TEXAS

s/t/ R. L. HOLCOMB
Major, AC
Act Asst Adj Gen

INFORMATION COPY:
COMMANDING GENERAL
ARMY AIR FORCES
WASHINGTON 25, D.C.
ATTN: AC/S, A-1 PERSONNEL SERVICES DIVISION

A4F10 975 PD CITE SUGAR ABLE MIKE PETER CHARLIE TWO ABLE DASH ONE ONE DASH ONE ZERO PD SHIPPING INSTRUCTIONS FOR ARMY AIR FORCES SERVICE BUTTONS TO ARMY AIR FORCE SEPARATION BASES ARE FURNISHED HEREWITH PD IT IS NOTED THAT ENTIRE QUANTITY ALLOCATED TO THIS COMMAND IS EIGHT HUNDRED SEVENTY FIVE THOUSAND PD ENCLOSED INSTRUCTIONS ARE BASED ON NUMBER OF PERSONNEL ALREADY SEPARATED AT EACH STATION PLUS ESTIMATED FUTURE SEPARATIONS PD ANDREWS FIELD HAS BEEN DESIGNATED AS THE STATION TO RECEIVE THE REMAINING BLK BALANCE OF BUTTONS AFTER REQUIREMENTS OF OTHER SEPARATION BASES HAVE BEEN MET OD THE FIGURE OF TWELVE THOUSAND NINE HUNDRED SIXTY BUTTONS ALREADY SHIPPED TO ANDREWS FIELD HAVE NOT BEEN INCLUDED IN ATTACHED SHIPPING INSTR* UCTIONS PD

FIRST AIR FORCE:

STATION	NO. OF BUTTONS	
MITCHEL FIELD, NEW YORK	55,000	AAF 75 SO
WESTOVER FIELD, MASSACHUSETTS	53,000	AAF 319 SO
SEYMOUR JOHNSON FIELD N.C.	58,000	AAF 37 SO
RICHMOND ARMY AIR BASE, VIRGINIA	7,500	AAF 368 SO
GODMAN FIELD, KENTUCKY	100	AAF 412, SO

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Cont sheet of Supplies
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SECOND AIR FORCE:		
SIOUX FALLS, AAFLD, S.D.	20,000	AAF 99 SO
SIOUX CITY AAB, IOWA	14,000	AAF 347 SO
ROSWELL FIELD, NEW MEXICO	8,000	AAF 91 SO
THIRD AIR FORCE:		
DREW FIELD, FLORIDA	40,000	AAF 26 SO
THIRD AIR FORCE AUXILIARY BASES (TO BE DIRECTED TO HQ THIRD AIR FORCE CMA MACDILL FIELD CMA FLORIDA FOR REDISTRIBUTION	7,500	AAF 62 SO
FOURTH AIR FORCE		
PORTLAND ARMY AIR BASE, OREGON	15,000	AAF 337 SO
MARCH FIELD, CALIFORNIA	16,000	AAF 64 SO
GOWEN FIELD, IDAHO	6,000	AAF 14 SO
AIR TRANSPORT COMMAND:		
NEW CASTLE ARMY AIR BASE, WILMINGTON DELEWARE	1,600	AAB 343 SO
ROMULUS ARMY AIR FIELD, MICHIGAN	1,800	AAF 316 SO
GORE FIELD, GREAT FALLS, MONTANA	3,500	AAF 34 SO
GRENIER FIELD, NEW HAMPSHIRE	5,500	AAF 333 SO
CONTINENTAL AIR FORCES:		
ANDREWS FIELD	214,540	AAF 503 SO

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Cmd Decl of Supply
E-6 (3)

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AIR TECHNICAL SERVICE COMMAND:

MCCLELLAN FIELD, COLORADO	24,000	AAF 901 CSD
PATTERSON FIELD, OHIO	60,000	AAF 909 SO
ATSC AUXILIARY BASES (TO BE SHIPPED TO HQ ATSC, WRIGHT FIELD, OHIO FOR REDISTRIBUTION)	5,500	AAF 196 SO
DAVIS MONTHON FIELD, ARIZONA	10,000	AAF 308 SO
SAN BERNARDINO ARMY AIR FIELD, CALIFORNIA	14,000	AAF 911 CSD
ROME ARMY AIR FIELD, NEW YORK	21,000	AAF 905 CSD

AAF TRAINING COMMAND:

TRAINING COMMAND AUXILIARY BASES (TO BE SHIPPED TO HQ AAF TRAINING COMMAND, BARKSDALE FIELD, LA., FOR REDISTRIBUTION)	6,500	AAF 8 SO
ELLINGTON FIELD, TEXAS	12,000	AAF 28 SO
TRUAX FIELD, WISCONSIN	12,000	AAF 63 SO
ARMARILLO ARMY AIR FIELD, TEXAS	13,000	AAF 4 SO
SHEPPARD FIELD, TEXAS	19,000	AAF 320 SO
LINCOLN ARMY AIR FIELD, NEBR	12,000	AAF 54, SO
CHANUTE FIELD, ILLINOIS	36,000	AAF 18 SO
RANDOLPH FIELD, TEXAS	24,000	AAF 89 SO
MAXWELL FIELD, ALABAMA	35,000	AAF 68 SO
LOWERY FIELD, COLORADO	30,000	AAF 59 SO
SCOTT FIELD, ILLINOIS	45,000	AAF 94 SO
BARKSDALE FIELD, LA.	23,00	AAF 8 SO

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Cmd. Lt. Shipp
E-5

5

December 1945

HQ CAF A-4 SUPPLY QM 4535

BOLLING FIELD 20, D.C. A4F10

CG, SAATSC

A4F10 2535 PD CITE OUR MESSAGE ABLE FOUR FOX ONE ZERO NUMBER NINE SEVEN THREE DATED ONE ONE DECEMBER FOUR FIVE PD REQUEST TWENTY THOUSAND ARMY AIR FORCES SERVICE BUTTONS ORIGINALLY DESTINED FOR SHIPMENT TO SIOUX FALLS ARMY AIR FIELD CMA SOUTH DAKOTA AND FOURTEEN THOUSAND ARMY AIR FORCES SERVICE BUTTONS ORIGINALLY DESTINED FOR SIOUX CITY ARMY AIR BASE CMA IOWA BE SHIPPED TO FORT WORTH ARMY AIR FIELD CMA TEXAS CMA ATTENTION ABLE ABLE FOX THREE EIGHT NINE SUGAR OBOE PD

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17 Dec 45

4535

HQ CAF A-4 SUPPLY CM A4F10

BOLLING FIELD 20, D. C.

MULTIPLE ADDRESS AIR MAIL

ACTION COPY:

COMMANDING GENERAL
SAN ANTONIO AIR TECHNICAL SERVICE COMMAND
SAN ANTONIO, TEXAS

INFO COPY:
COMMANDING OFFICER
ANDREWS FIELD
CAMP SPRINGS, MARYLAND

/s/t/ WILLIAM F. DOUGHERTY
Capt, AC
Act. Asst Adj Gen

COMMANDING GENERAL
ARMY AIR FORCES
WASHINGTON 25, D.C.
ATTN: AC/S, A-1, PERSONNEL SERVICES DIVISION

COMMANDING GENERAL
HQ AIR TECHNICAL SERVICE COMMAND
WRIGHT FIELD, DAYTON, OHIO

A4F10 1519 PD CUTE CHARLIE ABLE FOX MESSAGE ABLE FOUR FOX ONE ZERO NINE SEVEN THREE PD DESIRE SHIPPING INSTRUCTIONS ATTACHED THERETO BE AMENDED IN ACCORDANCE WITH INSTRUCTIONS LISTED HEREIN COLON FIVE THOUSAND FIVE HUNDRED BUTTONS FOR ABLE TARE SUGAR CHARLIE PARENTHESIS TO BE SHIPPED TO ABLE ABLE FOX ONE NINE SIX SUGAR ORO HQ ABLE TARE SUGAR CHARLIE CMA WRIGHT FIELD CMA DAYTON CMA OHIO FOR REDISTRIBUTION PARENTHESIS SHOULD BE MARKED COLON FOR STORAGE AND DISTRIBUTION DIVISION CMA ABLE GEORGE OFFICE CMA HEADQUARTERS AIR TECHNICAL SERVICE COMMAND TO BE SHIPPED IN ACCORDANCE WITH INSTRUCTIONS

COPY PAGE ONE OF TWO PAGES

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F-7 (b)

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OF LT COLONEL MCCLURE PD REDUCE QUANTITY TO BE SHIPPED TO ABLE ABLE FOX
FIVE ZERO THREE SUGAR OBOE CMA ANDREWS FIELD BY THIRTEEN ~~XXX~~ THOUSAND AND SHIP
THAT QUANTITY TO ABLE ABLE FOX NINE ONE FIVE CHARLIE SUGAR DOG ATLANTIC
OVERSEAS AIR TECHNICAL SERVICE COMMAND CMA NEWARK CMA NEW JERSEY PD

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Card Ltr of Exp, dtd
E-8 (1/11) "

COPY

19 December 1945

4535

HQ CAF A-4 SUPPLY QM A4F10

BOLLING FIELD 20, D. C.

MULTIPLE ADDRESS

ACTION COPY
COMMANDING GENERAL
SAN ANTONIO AIR TECHNICAL SERVICE COMMAND
SAN ANTONIO, TEXAS

/s/t/ WILLIAM F. DOUGHERTY
Capt., A.C.
Actg. Asst Adj Gen

INFO COPY:
COMMANDING GENERAL
ARMY AIR FORCES
WASHINGTON 25, D.C.
ATTN: AC/S, A-1, Personnel Services Division

A4F10 1757 PD CITE MESSAGE THIS HEADQUARTERS ABLE FOUR FOX ONE ZERO NUMBER NINE SEVEN THREE PD REQUEST GOWAN FIELDCMA IDAHO BE DELETED AS A POINT TO RECEIVE SIX THOUSAND ARMY AIR FORCES SERVICE BUTTONS AND THAT QUANTITY BE ADDED TO NUMBER DESTINED FOR PORTLAND ARMY AIR BASE CMA OREGON CMA MAKING A TOTAL OF TWENTY ONE THOUSAND ARMY AIR FORCE SERVICE BUTTONS TO BE SHIPPED TO PORTLAND ARMY AIR BASE CMA OREGON PD

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Cartin Button
A-1-8

12 December 1945

Major General Hubert R. Harmon
Commanding General
AAF Personnel Distribution Command
630 West Broadway
Louisville 3, Kentucky

Dear General Harmon:

General Arnold desires that every person honorably discharged from the Army Air Forces be given a special Army Air Force service button at the time of discharge. In addition, he wishes each person discharged before the button was ready for distribution to have one of them. Inclosed is sample button, which is being manufactured by Air Technical Service Command which will provide the button to Personnel Distribution Command and Continental Air Forces for issue by them to all separated Air Forces personnel.

Issuance of the button to personnel presently being processed through Air Force separation centers, or who have previously been separated at such centers, is a comparatively simple matter. However, its issue to Air Forces separatees being processed at Army Service Force separation centers may involve greater difficulty.

There will be no directive prepared as to distribution of the buttons, but, this matter is very close to General Arnold's heart, and it is hoped that you will see that the button reaches every Air Force separatee who is processed through Service Command centers at which you maintain liaison.

Sincerely,

1 Incl
Button

LEON W. JOHNSON
Brigadier General, U. S. Army
Chief, Personnel Services Division
AC/AS-1

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O - Button

AAFATSC Form No. 10-614 (Rev. 1 Aug 45)

8-1-46

SAVE

HEADQUARTERS
AIR TECHNICAL SERVICE COMMAND

IN REPLY ADDRESS BOTH COMMUNICATION AND ENVELOPE TO ATTENTION OF FOLLOWING OFFICE SYMBOL:

TSDEG

WRIGHT FIELD, DAYTON, OHIO
14 December 1945

SUBJECT: AAF Discharge Button.

TO: Commanding General, Army Air Forces
Washington 25, D. C.

Attn: Colonel Jacob E. Smart.

1. Report as of 13 December 1945:

Total amount manufactured to date - 274,560

Total shipped - 208,560

To CAF 25,680

To Louisville 182,880
208,560

Current production rate 20,600 to 21,600 per day

For the Commanding General:

J. W. SESSUMS
Colonel, Air Corps
Asst. Deputy Commanding General
Engineering (T-3)

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Basic ltr fr AT:C, dtd 20 Nov 45, subj: "Army Air Forces Service Button".

2nd Ind. T[illegible]/JAN/fb

HQ AT:C Wright Field, Dayton, Ohio. 20 December 1945

To: Commanding General, Continental Air Forces, Bolling Field 20, D.C.

1. Reference is made to basic communication, subsequent interagency and teletype from your Headquarters, number, AAFIO 2105, dated 24 November 1945. It is requested this Headquarters be advised the stock record account number of the Accountable officer designated by your Headquarters to receive subject buttons.

FOR THE COMMANDING GENERAL:

ROGER C. MULLEN
Lt. Colonel, Air Corps
Acting Chief, Control Section
Supply Division

Incl:
n/c

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ASC-1624-WP-8-10-44-400M D-5(2/4)

ROUTING AND RECORD SHEET

HEADQUARTERS, AIR SERVICE COMMAND

INSTRUCTIONS: 1. Use this form for informal notes.
2. Number all notes consecutively from top to bottom.
3. Attach supporting papers.
4. Separate each note by horizontal line—width of sheet.
5. Conserve paper, use entire width of sheet, both sides.

FILE No.: 400.145

CROSS TO.:

SUBJECT: Request for Opinion on Contract No. (41-142) ac-739

TO: TSJAG
Attn: Lt. Col. Shannon

FROM: TSRPS7

DATE: 21 Dec. 45 COMMENT NO. 1.

1. As discussed during visit to Colonel Shannon's office yesterday, the following case if forwarded for opinion.

Case: On October 16, 1945, the Contracting Officer, San Antonio ATSC, obtained a verbal quotation by telephone from B. A. Ballou & Co. Inc., Providence, R. I. - which quotation was confirmed by letter of the same date. No mention was made as to the Walsh-Healey Act.

Contract No. (41-142) ac-739 (Purchase Order No. (41-142) 46-1900 was issued to the Contractor under date of 15 November 1945 confirming telephone order dated 13 November 1945. The purchase order contained Condition No. 12 "Walsh-Healey Act".

Upon receipt of the purchase order, the Contractor advised the Contracting Officer that he could not meet the requirements of the order due to the inclusion of this condition. The Contractor also stated this in writing by letter (date unknown but was received by the C.O., 11/19/45), copy attached.

Opinions desired on the following questions:

Is there a contract between the parties?

If a decision is reached that a contract does not exist, what action should be taken to dispose of the original copy filed in the General Accounting Office?

Is there objection to placing another order with this contractor in an amount of less than $10,000 in order that the Walsh-Healey Act is not applicable?

for Ernest W. Brackett, Lt Col, A.C.
THEODORE F. BOWES
Lt. Colonel, Air Corps
Chief, Services Section
Procurement Division

LMP/abt
5-8263

Show—To: From: Date: and Comment No.: Preceding each comment.

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TO: TSBPS7 D-5(14) FROM: TSJA02 DATE: Dec 45 COMMENT NO. 2

1. Insofar as subject Purchase Order, which went to this Company on or about 15 November 1945, contained Condition No. 12, Walsh-Healy Act, which had not been discussed in the previous negotiations, was not mentioned in the Company proposal of 18 October 1945 and had not been agreed to by the Company prior to the receipt of the Purchase Order, the opinion of this office is that subject Purchase Order did not constitute an acceptance of its offer, but amounted to a proposal or counter-proposal on the part of the Government which would have no binding force or effect unless and until accepted by the Company.

2. It is assumed that the Company, upon receipt of subject Purchase Order, did not sign an acceptance card or otherwise evidence its acceptance of this purchase order. The letter (received by Contracting Officer on 19 November 1945) constitutes, in the opinion of this office, such a qualified acceptance or counter-proposal that it, without more, would not bind the Company to the terms and provisions of the proposed Purchase Order. However, this might not be the conclusion, if deliveries have been made thereon.

3. Accordingly, on the basis of the situation submitted to this office, the opinion of this office is that subject Purchase Order is not a legally binding contract, but as mentioned above, this might not be the conclusion, if deliveries have been made thereon.

4. As to the copy in General Accounting Office (if distribution has been made), this office knows of no procedure for obtaining its return. It would seem that a complete statement of the facts and a document signed by the Company stating its position to the effect that the Purchase Order is not accepted and will not be the basis for any claim against the United States, should be a sufficient explanation for the General Accounting Office.

5. The break down of negotiations between the parties at this point need not stand in the way of subsequently placing an order with the Company for a different quantity of supplies, if this procedure is bona fide. However, this would not be proper if it were merely a subterfuge.

Show—To:-From:-Date; and Comment No.: Preceding each comment.

George I. Shannon
Lt. Col. JAGD

for R. C. HARMON
Colonel, JAGD
Judge Advocate

Incl
n/c

HWF/wff
2-7232

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.. Soc Pur Cont Sect. 2-00 .
D-5(4/4)

Vol. III No. 4 Bulletin of the J.A.G. of the Army April 1944

747. Contracts for supplies; Walsh-Healey Act.

Sec. 1, act of 30 June 1936 (49 Stat. 2036); act of 13 May 1942 (56 Stat. 277); 41 U.S.C. 35.

Two Government contracts were awarded, each in an amount exceeding $10,000. One was later cancelled and the other was modified by mutual consent. Held: Any work performed on the cancelled contract prior to its cancellation was subject to the Walsh-Healey Public Contracts Act. Assuming that the modified contract was reduced in amount to less than $10,000, the Act would not apply to any work performed after the date of the modification, but would apply to work done prior to that date.

Op. Solicitor's Office, Dept. of Labor
25 March 1944

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D-13

21

Local Purchase Control Section

RECORD OF TELEPHONE CONVERSATION

Date: 26 December 1945 Time: 1000

From: Major G.A. Miller, Acting Chief, Local Purchase Branch

To: Mr. Raney, B.A. Ballou & Co., Inc., Providence, R.I.

Approximate length of call: Ten Minutes

Subject: Contract No. W 41-142 ac-734

Summary of Conversation: (Call #62-1) After consultation with Colonel Bowes, Chief, Services, Section, this call was made to Mr. Raney of B.A. Ballou & Co., Inc. in order to clarify a letter dated 18 December 45 signed by Mr. Raney and addressed to the Contracting Officer, San Antonio ATSC. Mr. Raney stated that he had not refused the order but that it would be difficult for him to comply with the Walsh-Healey Act and that it could be done provided a different delivery schedule would be acceptable. He promised to forward this schedule by teletype at once.

Signature

GEORGE A. MILLER
Major, Air Corps

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Sec Def Cont Sect. Supply
D-6

12

BPS-1 3

DEC 2 10:02

WUA34 DL PD PROVIDENCE RI DEC 26 349P

MAJOR MILLER PROCUREMENT DIVN

LOCAL PURCHASE CONTROL BRANCH PSBPS-7 WRIGHTFIELD

LARGE IMMEDIATE SHIPMENTS CLUTCH FASTENERS POSSIBLE FROM CURRENT PRODUCTION IF PROVISIONS OF WALSH HEALEY ACT ARE WAVED FOR ORDER 46-1900 - IF NOT WAIVED ALLOW APPROXIMATELY EIGHT WEEKS FROM FINAL ACCEPTANCE DATE FOR PROCUREMENT NECESSARY MATERIALS AND FIGURE WEEKLY SHIPMENTS 1500 GROSS APPROX BEGINNING ONE WEEK AFTER RECEIPT MATERIAL

B A BALLOU & CO INC.

46-1900 1500.

832A.

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ATSC Form No. 10-5
(29 Mar 45)

ROUTING AND RECORD SHEET AIR TECHNICAL SERVICE COMMAND

Use this form for inter-office correspondence within headquarters.
Use entire width of sheet, both sides.
Use authorized office symbols to designate addressor and addressee.
Number all comments consecutively.
Place initials of dictator and typist, telephone number and location to right of signature.
Separate comments by horizontal lines across page.

SUBJECT: Clips for Army Air Force Pins

TO: TSBF37, Major Miller
FROM: TSDEG
DATE: 29 Dec 45
COMMENT NO. 1

1. This office has been making periodical reports to General Arnold's office at their request on the status of AAF discharge pin deliveries. General Beverley of San Antonio needs clips immediately for pins already manufactured at his Depot. It is essential that immediate deliveries be obtained for these clips if possible.

2. It is understood that sufficient clips have been contracted for at a cost of $15,000.00 which seems an excessive amount. It is therefore requested that you procure approximately $5,000.00 or $10,000.00 worth of these clips in lieu of the other contract in order to give General Beverley time to tool up for manufacture of these clips or find a reasonable source.

DON [illegible]
Colonel, Air Corps
Asst. Deputy Commanding General
Engineering (T-3)

JB:vg
E-0154

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(Comments on Reverse Side)

40

(CONTINUE ON OTHER SIDE)

The Direct Ptg. Co.—5-45—2 M.E.

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TO: [illegible]

COMMENT NO. [illegible]

LOCAL PURCHASE
CONTROL SECTION

1946 JAN 2 10 42

[illegible] Brackett, Lt Col A.C.

ISMTN

DCS

We need 10,000 clips - 1/10 [illegible] short of. [illegible] or make up [illegible] fastener that we can dream up. But it must not [illegible] necessary.

[illegible]

to: TSBPSJ

[illegible]

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ROUTING AND R. ORD SHEET

AIR TECHN L SERVICE COMMAND

Use this form for inter-office correspondence within headquarters. Use authorized office symbols to designate addressee and addresses. Place initials of dictator and typist, telephone number and location to right of signature.

Use entire width of sheet, both sides. Number all comments consecutively. Separate comments by horizontal lines across page.

SUBJECT: Fasteners for Army Air Force Pins.

TO	FROM	DATE	COMMENT NO.
TSE:37 Major Miller	TSLEG	28 Dec. 45	1

1. Reference our conversations on this subject, the undersigned this date in a telephone conversation with General Beverly, San Antonio Depot, was advised that it is desirable to continue deliveries from the present contractor of these fasteners, which will permit him time to investigate additional sources of this item or the manufacturer of the item by the depot. It is therefore recommended that you obtain as many of these fasteners as possible from the current contractor without forcing him to operate under the Walsh-Healy Act as I understand that will cause him to delay deliveries until March. It is not contemplated that any more fasteners will be ordered from this source and this is not an evasion of the Walsh-Healy Act but an attempt to expedite delivery of Army Air Forces discharge pins in accordance with General Arnold's wishes.

J. W. SESSUMS
Colonel, Air Corps
Asst. Deputy Commanding General
Engineering (T-3)

JWS:MS
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E-10(9/12)

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Ltr fr Hq ATSC, 28 Nov 45, subj: AAF Service Button.

A4F10

CAF 420 (28 Nov 45) 3rd Ind. 23 JAN 1946
HEADQUARTERS CONTINENTAL AIR FORCES, Bolling Field 20, D. C.

TO: Commanding General, Air Technical Service Command, Wright Field, Dayton, Ohio.

Furnished below is list of stations, stock record account numbers and quantity of buttons, Army Air Forces Service, to be furnished each. This information has already been furnished by teletype to Headquarters San Antonio Air Technical Service Command.

STATION	QUANTITY OF BUTTONS	STOCK RECORD ACCOUNT NUMBER
Mitchel Field, New York	33,000	AAF 75 SO
Westover Field, Mass.	33,000	AAF 319 SO
Seymour-Johnson Field, N.C.	33,000	AAF 37 SO
Richmond Army Air Base, Virginia	7,500	AAF 368 SO
Godman Field, Kentucky	100	AAF 412 SO
Roswell Army Air Field, New Mexico	8,000	AAF 91 SO
Ft. Worth Army Air Field, Texas	34,000	AAF 389 SO
Drew Field, Florida	40,000	AAF 26 SO
Third Air Force Auxiliary Bases (To be directed to Hq 3AF, MacDill Field, Florida, for redistribution)	7,500	AAF 62 SO
Portland Army Air Base, Oregon	21,000	AAF 337 SO
March Field, California	16,000	AAF 64 SO
New Castle Army Air Base, Wilmington, Delaware	1,800	AAF 343 SO
Romulus Army Air Field, Michigan	1,800	AAF 316 SO
Gore Field, Great Falls, Montana	3,500	AAF 34 SO
Grenier Field, Manchester, N. H.	5,500	AAF 335 SO
Andrews Field, Camp Springs, Md.	201,540	AAF 503 SO
McClellan Field, Colorado	24,000	AAF 901CSD
Patterson Field, Ohio	50,000	AAF 909 SO
Atlantic Overseas Air Technical Service Command, Newark, New Jersey	13,000	AAF 915CSD
ATSC Auxiliary Bases (To be shipped to Hq ATSC, Wright Field, Ohio, for redistribution marked for Storage & Distribution Division, AC Office ATSC, to be shipped in accordance with instructions of Lt.Col. McClure.	5,500	AAF 196 SO
Davis-Monthan Field, Arizona	10,000	AAF 308 SO
San Bernadino Army Air Field, Calif.	14,000	AAF 911CSD
Rome Army Air Field, New York	21,000	AAF 905CSD

Dec 12-20-20

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Ltr fr Hq AFTC, 28 Nov 45, subj: AAF Service Buttons.
CAF 420 (28 Nov 45) 3rd Ind. Cont'd., A4F10.

Training Command Auxiliary Bases (To be shipped to Hq AAF Training Command, Berksdale Field, La., for redistribution)	6,500	AAF	5 50
Ellington Field, Texas	13,000	AAF	25 50
Truax Field, Wisconsin	12,000	AAF	63 50
Amarillo Army Air Field, Texas	13,000	AAF	4 50
Sheppard Field, Texas	19,000	AAF	320 50
Lincoln Army Air Field, Nebraska	12,000	AAF	84 50
Chanute Field, Illinois	36,000	AAF	18 50
Randolph Field, Texas	24,000	AAF	89 50
Maxwell Field, Alabama	35,000	AAF	68 50
Lowery Field, Colorado	30,000	AAF	59 50
Scott Field, Illinois	46,000	AAF	94 50
Berksdale Field, La.,	23,000	AAF	8 50

FOR THE COMMANDING GENERAL:

5 Incls
Incl 1 - n/c
Incl 2 thru 4 - Added.
Incl 2 - Cpy TWX A4F10 1737 fr Hq CAF.
Incl 3 - Cpy TWX A4F10 1519 fr Hq CAF.
Incl 4 - Cpy TWX A4F10 973 fr Hq CAF.
Incl 5 - Cpy TWX A4F10 2336 fr Hq CAF

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Cal Bur of Supply
E-9 (1/15)

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Basic ltr fr ATSC, dtd 28 Nov 45, subj: "Army Air Forces Service Button".

4th Ind. TSSCO581/JWN/fb

HQ ATSC Wright Field, Dayton, Ohio. 10 January 1946

To: Commanding General, Continental Air Forces, Bolling Field 20, D.C.
Thru: Commanding General, Army Air Forces, Washington 25, D.C.
Attention: Deputy Assistant Chief of Staff-1

1. Reference is made to basic communication, subsequent indorsements and inclosures added hereto. The issuing of shipping instructions by your Headquarters direct to a subordinate ATSC activity is not understood by this command. However, in order to avoid any further delay in the distribution of subject buttons, this Headquarters has instructed the San Antonio Air Technical Service Command to comply with the instructions issued in Inclosures Nos. 2 and 4, attached hereto.

2. It is requested that any further instructions to be forwarded to SAATSC regarding subject buttons be forwarded through this Headquarters.

FOR THE COMMANDING GENERAL:

JOSEPH D. FULLER
Lt. Colonel, Air Corps
Acting Chief, Control Section
Supply Division

7 incls:
1 thru 5 - n/c
6 add. - cpy TT A4F10 2105
7 add. - cpy TT TSSCO583-11-29

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Local Purchase Control Section

RECORD OF TELEPHONE CONVERSATION

Date: 4 January 1946 Time: 0945

From: Lt. Colonel E.W. Brackett, Chief, Local Purchase Branch

To: B.S. Ballou Company, Providence, R.I. (Phone # - Dexter 1409)

Approximate length of call: Five Minutes

Subject: Contract No. W-11-112-ac-739

Summary of Conversation: I advised Mr. Raney that the Maintenance Division had reduced the requirements for the clips for the Air Corps discharge pins and only 2700 gross would be needed under Contract No. W-11-112-ac-739 with San Antonio ATSC. The reduction in the contract would be made by a Supplemental Agreement which would probably be received from SAATSC the middle of next week and would require Ballou Company's signature. This is agreeable to the contractor and he promises that deliveries will be made on schedule under the smaller contract now in force and he will check to see how much can be shipped immediately under the contract in question. As soon as the Supplemental Agreement is received he promises that the utmost will be done to speed up deliveries of the clips and will advise SAAISC as soon as he is able to tell definitely what the schedule of deliveries may be.

Signature
ERNEST W. BRACKETT
Lt. Colonel, Air Corps
Chief, Local Purchase Branch
Service Sec. Procurement Div.

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For Air Corps Use Only
D-11

19 7

Routine

4 January 1946

TWINING, AFSC

EMB/abt

CG, SAAFSC

Attn: Contracting Officer

THEODORE F. BONES
Lt. Colonel, Air Corps
Chief, Services Section
Procurement Division

5-8263

TSSSC7-3-4

LT. COLONEL BRACKETT TALKED BY TELEPHONE WITH MR. RAMSY OF B. A. BALLOU AND COMPANY TODAY WITH REFERENCE TO SUPPLEMENTAL AGREEMENT REDUCING THE REQUIREMENTS UNDER CONTRACT NO. W-41-142 AC-739 TO 9700 GROSS. THIS IS AGREEABLE TO THE CONTRACTOR WHO WILL EXECUTE SUPPLEMENTAL AGREEMENT UPON RECEIPT WHICH IT IS EXPECTED WILL REACH HIM BY THE MIDDLE OF NEXT WEEK. CONTRACTOR ADVISES THAT SHIPMENTS ARE ON SCHEDULE UNDER SMALLER PURCHASE ORDER OR WILL SEE THAT THEY ARE BROUGHT UP TO SCHEDULE. HE WILL ALSO ADVISE YOU AMOUNT OF POSSIBLE SPEED UP DELIVERIES UNDER SUBJECT CONTRACT AND PROMISES PROMPT SHIPMENTS. SIGNED PROCUREMENT DIVISION.

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ASC-251-D
(15-10-43)

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Total

TELETYPE MESSAGE

AIR SERVICE COMMAND TELETYPE NETWORK

A C P
PRIORITY
ROUTINE
MULTIPLE ADDRESS

FROM: ASC DATE: 4 JAN 45

C. L. [illegible]
Colonel, [illegible]

TO: CG, SAAF C

ATT: CHIEF, MAINTENANCE DIVISION

CLASS:

TCNO-[illegible]-1-ASC..... [illegible] OF AAF SERVICE DURING. IT IS [illegible]
[illegible] OF GERMANY FOR EACH OF., FOR OUR RELATIONS [illegible] ARE APPROXIMATELY
13,000 GROSS TO [illegible] AT PRESENT IS 9,700 GROSS. FOR THE [illegible] OF THE PROGRAM IT
IS DESIRED THAT [illegible] ADVISE WHETHER OR NOT YOUR ACTIVITY [illegible]
SUBSTITUTE ITEMS CAN BE MANUFACTURED BY YOUR ACTIVITY. [illegible] QUANTITY OF SPARE PARTS
REPAIRS AT 2,375.00. ACKNOWLEDGE. SIGNED PATT. DIV.

COORDINATION

C G OR C O	CONTROL OFFICE	MAINTENANCE	P & T	SUPPLY	BUDGET & FISCAL	OTHERS

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400.145

Clips for Air Corps Discharge Files.

TWPS TSHIS7 4 Jan. 46 1.
Attn: Colonel Bowes

1. Confirming conversation of the 3rd, following Comment No. 2 was sent to Maintenance Division:

"1. It is the interpretation by this office of Comment No. 1 that in order to save funds a lesser amount of clips should be obtained by local purchase and that any additional clips needed will probably be furnished by local manufacturing at SAATSC; however, to obtain an immediate supply, a certain number of clips will be purchased locally.

2. The records of this office indicate approximately 2500 gross of clips have already been purchased and delivered and there is an order pending for 13,959 gross in addition. The price charged by the contractor is 90¢ a gross and this he will not reduce.

3. It is suggested that you determine the actual number of clips to be obtained by local purchase and advise SAATSC the requirements. The Contracting Officer, upon receipt of this information from the Maintenance Division through Class 99 of the Supply Division at SAATSC, will then take the necessary contractual procedure to see that only the required number are obtained.

4. If the interpretation by this office of Comment No. 1 and the procedure suggested is correct, it is requested this office be advised immediately so that the Contracting Officer at SAATSC may be instructed in the proper procedure to be followed."

This was concurred in by the Maintenance Division and they are seeing that SAATSC is ordered to reduce the requirements to 9700 gross.

2. I then called the Contracting Officer at SAATSC and advised him that as soon as the quantity reduction ordered was received to prepare a Supplemental Agreement reducing the contract.

3. On 4 January, I called Mr. Raney of the B.A. Railou Company who is agreeable to the entire procedure and promises to see that shipments are brought up to date or made ahead of schedule under the smaller contract as some yet remain to be delivered and to bring up as large a stock as possible for immediate shipment upon receipt of the Supplemental Agreement. He did not state definitely how large this would be but promises to extend the schedule in the purchase order of 100 gross per day, 25 days after receipt of order and to advise the Contracting Officer at SAATSC of the amount possible to ship at once.

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TSUPS
Attn: Colonel Bowes

TSUPS7 Jan. 46 1.
(Cont'd)

4. Unless something unforeseen occurs, it is believed that this ends this troublesome item.

ERNEST W. BRACKETT
Lt. Colonel, Air Corps
Chief, Local Purchase Branch
Services Section
Procurement Division

EWB/abt
5-2023
P-258-7
Bldg. 262-A

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AAF-251-C (19-10-43) Com. Instr. of Supply E-14 (1/1) 19

TSSCOSE1/JHM/fb

A G P	
PRIORITY	X
ROUTINE	
MULTIPLE ADDRESS	

TELETYPE MESSAGE

AIR SERVICE COMMAND TELETYPE NETWORK

FROM: ATSC

DATE: 5 JAN 45 [1946]

TO: CO SAATSC

F. J. NOVAK
Lt. Colonel, Air Corps
Asst., Control Section
Supply Division
NAME, RANK AND TITLE OF AUTHENTICATING OFFICER

CLASS:

TSSCOSE1-1-9 . . . . . REFERENCE IS MADE TO 1ST INDORSEMENT BY YOUR ACTIVITY SASAFSAS, DATED 10 DECEMBER 1945 TO BASIC COMMUNICATION FROM THIS HEADQUARTERS SUBJECT: "ARMY AIR FORCES SERVICE BUTTON", DATED 28 NOVEMBER 1945. T IS HEADQUARTERS HAS BEEN ADVISED THAT THE CAF HAS ISSUED SHIPPING INSTRUCTIONS DIRECT TO YOUR ACTIVITY REGARDING THE BUTTONS IN QUESTION. THESE INSTRUCTIONS WERE ISSUED DIRECT TO YOUR ACTIVITY BY THE CAF CONTRARY TO PARAGRAPH 2, THE ABOVE REFERENCED BASIC COMMUNICATION AND OTHER INSTRUCTIONS FROM HEADQUARTERS, AAF. HOWEVER, IN ORDER TO AVOID ANY FURTHER DELAY IN THE DISTRIBUTION OF THESE BUTTONS, YOUR ACTIVITY IS AUTHORIZED TO MAKE THE SHIPMENTS AS REQUESTED IN VIEW OF THE UNCHANNELLED SHIPPING INSTRUCTIONS. ANY SUBSEQUENT COMMUNICATION TO THE CAF REGARDING THESE BUTTONS NECESSARY TO BE MADE BY YOUR ACTIVITY WILL BE FORWARDED THROUGH THIS HEADQUARTERS. ANY SHIPPING INSTRUCTIONS RECEIVED DIRECT FROM THE CAF REGARDING THESE BUTTONS SUBSEQUENT TO RECEIPT OF THIS TELETYPE AND TO MESSAGEFORM, A4F10 1737 DATED 19 DECEMBER 1945 FROM HEADQUARTERS, CAF, WILL BE DISREGARDED UNLESS FURTHER DIRECTED BY THIS HEADQUARTERS. THIS MATTER IS BEING TAKEN UP WITH HEADQUARTERS, CAF.

SIGNED, SUPPLY DIVISION

45

COORDINATION

C. G. OR C. O.	CONTROL OFFICE	MAINTENANCE	P & T	SUPPLY	BUDGET & FISCAL	OTHERS
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SAAF FORM NO. 10-1-33
10 JANUARY, 1945

HEADQUARTERS
SAN ANTONIO AIR TECHNICAL SERVICE COMMAND
OFFICE OF THE COMMANDING GENERAL
KELLY FIELD, TEXAS

25 January 1946

Colonel J. W. Sessums Jr.
Headquarters, ATSC
Wright Field
Dayton, Ohio

Dear Johnny:

In reply to your letter of 22 January, we have finished, as of yesterday evening, 1,094,208 pins and should be able to finish up the entire order by the 15th of March. We are doing about 35,000 pins a day.

With regard to the clasps, we are scheduled to receive all but 600,000 from the contractor. We have been able to get hold of some steel from Chicago which is being flown down to us today. We will make the 600,000 clasps here to finish the order rather than worry with trying to buy some more.

I gave General Twining a card of the pins so he could distribute them when he found some discharged Air Corps soldier without one.

With best regards,

Sincerely,

C. H. BEVERLEY
Brigadier General, USA
Commanding

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COPY

29 January 1946

Colonel J. B. Smart,
Executive Assistant, Army Air Forces,
Room 3A949 Pentagon Building,
Washington, D. C.

Dear Jake:

Attached hereto is report on the Air Forces discharge button and unless you think it necessary, I will not furnish any additional reports. You remember our plans were to only go to 20,000 a day and you can see from this what a bang up job Beverley has done. I think a note from you to him is in order.

Sincerely,

J. W. SEVERNS,
Colonel, Air Corps,
Chief of Administration.

1 Incl.
Ltr fr Gen. Beverley to Col. Jessups 29 Jan 46.

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AAF Discharge Emblems

13 February 1946

TO [illegible]

ATTN: [illegible] Major J. C. Moench

[illegible] Maintenance Control Section, WF

Confirming telephone conversation held 12 February 1946 between Production Control, Maintenance Div., San Antonio, ATSC, and Maintenance Control Section, WF, the following is an itemized account of the unit cost of the AAF Discharge Emblem:

Material	.0108
Labor (Direct only)	.0074
Burden	.0078
Misc.-Tools, etc.	.0077
TOTAL	.0337

[illegible] John C Moench Maj

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J. O. POLLACK AND COMPANY, INC

Manufacturers of Souveniors, Metal Novelties, Emblem Jewelry

337 West Madison Street, Chicago, Illinois Telephone Central 3040

Please address your reply
to Division No. 10

February 6, 1946

Commanding General
Army Air Forces
Washington, D. C.

Dear Sir:

We have heard rumors that a distinct insignia has been authorized as an Honorable Discharge emblem for the personnel of the Army Air Forces.

We would appreciate word from you as to the correctness of this rumor, and if this is the case, we would appreciate an illustration showing the new emblem.

Our firm hold a license from the War Department permitting the manufacture and sale of all authorized insignia.

Very sincerely yours,

J. O. POLLACK & CO., INC.

By (Miss) /s/ B. Golden

BG

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AFPPS/Col Agan/dg/6519

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5 March 1946

Miss B. Golden
Division No. 10
J. O. Pollack & Co., Inc.
337 West Madison Street
Chicago, Illinois

Dear Miss Golden:

Thank you for inquiring about the official status of an Honorable Discharge Emblem for the Army Air Forces prior to beginning manufacture of such an emblem.

The rumor you have heard is probably based on an Air Forces identification pin which has been given to Air Forces personnel upon separation from the service. This pin is not a discharge emblem and has no official status. Its distribution to separated Army Air Forces personnel has been discontinued.

Authorization to manufacture such an emblem under the license you hold from the War Department cannot be authorized by this Headquarters.

Sincerely yours,

/s/ Reuben C. Hood, Jr.

REUBEN C. HOOD, JR.
Brigadier General, U. S. Army,
Deputy Chief of Air Staff

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Air Force Lapel Button

Commanding General, AAF

27 Feb 46

1

AC/AS-4

ECB/hia/4869

1. On 20 July 1945 a memorandum was dispatched by the Deputy Chief of Air Staff to G-1 stating General Arnold's desire that a distinctive lapel device to indicate honorable service with the Army Air Forces in World War II be issued to personnel who has served with the Air Forces and have been discharged therefrom. This memorandum was accompanied by a sketch of proposed insignia. This suggestion was referred to the Commanding Generals of the Army Ground Forces and Army Service Forces who did not concur and was returned by G-1 with disapproval indicated.

2. On 11 September 1945, General Arnold again brought to the attention of AC/AS-1 his desire in the matter of such an insignia and possibilities of securing same by other than War Department means was explored. On 22 October 1945 General Arnold directed that the proposed emblem be given to all persons discharged from the AAF. It was found that facilities existed to produce proposed insignia within the Air Forces and on 2 November the Commanding General, ATSC, was directed to begin manufacture of buttons as per example furnished. A total of 3,375,000 buttons was ordered to be made at the San Antonio, Air Technical Service Command at a cost of 2 1/2 cents per button. Distribution of the buttons was directed through PDC and CAF. Production was begun on approximately 15 November 1945 and as of 14 December 1945, 274,560 buttons had been manufactured and distributed. Current production rate is approximately 20,000 per day.

3. Buttons are given to all Air Forces personnel discharged through AAF separation centers at the time of discharge, this being handled by CAF. AAF personnel discharged through Army Service Forces separation centers receive their buttons with a letter from the Commanding General, PDC, approximately 30 days after separation. Some distribution of the buttons has been made directly by this Headquarters upon personal request of separated personnel.

4. Attached is memorandum to the Chief of Staff for your signature which gives in less detail facts as set forth above.

1 Incl.
Memo to C/S
for sig.

(Signed) JOHN G. MOORE
Colonel, Air Corps

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Col Barber/hia/4869/AFACD
Wrn 27 Feb 46

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MEMORANDUM FOR THE CHIEF OF STAFF

Subject: Air Forces Lapel Button

1. With reference to your request for information regarding the above subject, General Arnold desired that all persons who have served honorably with the Army Air Forces during World War II be given an insignia which they might wear with civilian garments to indicate such service. It was felt that such insignia could be worn at the discretion of the individual to identify himself to others affiliated with the Army Air Forces rather as similar devices such as school rings, fraternity pins, etc. serve in civilian life.

2. The device which met with General Arnold's approval, it was found, could be manufactured by Air Forces facilities and accordingly ATSC was directed to produce sufficient buttons to provide one for each person who has served with the Army Air Forces. Distribution of the buttons is being made by CAF and PDC either by mail or personally.

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FROM SPAATZ WASHDC 0422032 1946 MAR 5 16:19
TO COMMANDING GENERAL
SAN ANTONIO AIR DEPOT
SAN ANTONIO TEXAS
GRNC
AF 221 PD THE MANUFACTURE OF THE AIR FORCE BUTTON TO BE GIVEN TO
AIR FORCE PERSONNEL ON DISCHARGE WILL BE DISCONTINUED AT ONCE.
ALL THE AVAILABLE SUPPLY WILL BE SHIPPED TO THIS HEADQUARTERS WHO
WILL BE GIVEN OUT BY YOU TO INDIVIDUALS OR ISSUED TO ANY COMMAND OR
AGENCY ALL WILL BE SHIPPED HERE
0057Z

AF 221

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152	202.4-7	Jun/45			Buda Chore Boy.	U	
310	202.4-8	N.D	1		Higgins Aircraft.	U	
675	202.4-8	N.D	2		Higgins Aircraft.	U	
1012	202.4-9	Mar/45			Solat Stills.	U	
1490	202.4-11	Mar/46			AAF Discharge Emblem.	U	
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