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DEPARTMENT OF JUSTICE
WAR DIVISION
ECONOMIC WARFARE SECTION

REPORT ON SYNTHETIC OIL & GASOLINE INDUSTRY--JAPAN

(JAPANESE FILE RESEARCH PROJECT)

August 6, 1943

Submitted by:
Fred S. Auty
Economic Warfare Section
Department of Justice
New York, N. Y.

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Economic Warfare Section
War Division
Department of Justice
Washington, D. C.

Confidential Report
August 6, 1943
Re: Synthetic Oil & Gasoline Industry--Japan
Submitted by: Fred S. Auty
Economic Warfare Section
Department of Justice
New York, N. Y.

SYNTHETIC OIL & GASOLINE INDUSTRY--JAPAN

(Japanese File Research Project)

I. Introduction

In 1937 the Japanese Diet passed the Synthetic Petroleum Development Law to place the manufacture of synthetic oil and gasoline under government control. Despite strenuous efforts during the initial period, production on any degree of commercial scale did not get under way until 1939. The first iso-octane plant was constructed in Japan in 1939. Concurrent with this program, the Asiatic Fuel Industrial Company (Toa Nenryo) was appointed to specialize in high-test aviation gasoline with funds and technical facilities to be furnished by Nippon, Okura, Hayama, and other leading companies. Further, by 1939, other organizations had been set up, such as the Artificial Petroleum Manufacturers Promotion Association, for the purpose of exchanging information and facilities among synthetic petroleum plants.

In response to the governmental support of the industry, various Japanese oil firms sought in the United States the technical assistance and producing equipment of which they were in great need. There is no doubt that valuable technical information was secured in this country. Some purchases were made by Japanese customers here.

During the latter part of 1940, the United States Department of State started the policy of placing embargoes on exports to Japan of petroleum products and allied equipment. Export restrictions became effective on December 29, 1940, on all equipment and plans of processes connected with the synthetic oil industry.

This report summarizes material relating to the synthetic oil and gasoline industry in Japan, contained in the New York office files [1] of Mitsui & Co., Ltd., Mitsubishi & Co., Ataka & Co., and Okura & Co. Inquiry and order files were examined for plants, processes, various pieces of equipment, materials, and general technical information on practically all phases of the subject industry. No attempt was made to record shipments of crude oil and petroleum products from the United States to Japan. Twenty-six summaries are included--five on actual orders, and twenty-one on inquiries.

1) Files explored cover the period from 1938 through 1941.

(OVER)

Most of the attached summaries are lacking in information such as estimated production, ultimate destination of equipment, and detail specifications. It appears that much of the necessary information was secured through personal contact of the principals, and that correspondence never did clear through the New York offices of Mitsui, Mitsubishi, Ataka, and Okura.

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* May be partial payment
** For laboratory research

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200-O	Oil Drilling Unit	6/4/41	Mitsubishi (Buenos Aires office)	"	No estimate	50
200-P	Rotary Boring Machine	6/21/40	Japanese Army	"	21,623.88	51
200-Q	High Pressure Vessels	12/26/38	Nippon Yuka Kogyo	Okura	190,000.00	52
200-R	Methane Gas Cracking Plant	11/13/36	Hayama Oil Co.	"	263,900.00	53
200-S	Methane Gas Cracking Plant	11/27/36	Okura Oil Co.	"	160,400.00	54
200-T	Oil Distillation Plant	10/5/36	Niidzu Oil Co.	"	No estimate	55
200-U	Reaction Vessels	10/2/39	Ube Yuka Kogyo K.	"	768,000.00	56

ORDERS

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NIPPON OIL CO.

(Inquiry through Mitsui)

TO 7872 Rev. 3/16/39 TO 3971 1/10/39 IF 7538

This section covers the purchase of an Iso-Octane Plant for the Nippon Oil Co. from the Universal Oil Products Company, Chicago, Illinois through Mitsui Bissan Kaisha Ltd. Detail specifications of equipment and reproduction of drawings have not been included. Routine correspondence on accounting and minor changes in design are also omitted.

I. General Requirements

A. Capacity -- The Universal Oil Products Company states as follows in a letter of 3/14/39:[1]

> The equipment will be designed in accordance with Flow Chart No. 29813 - N. Rev. 2[2] for processing 883,000 cubic feet per day of cracking plant gas (measured at standard conditions) plus 1884 bbls. per stream day of unstabilized gasoline in the gas concentration system and processing 276 bbls. of combined feed in this iso-octane plant.

An earlier inquiry from the Nippon Oil Co. to Mitsui, dated 7/12/38 states that the customer intends to install a U.O.P.[3] iso-octane plant with a capacity of 1000 kilo litre.

B. Location of Plant--the above inquiry further states that the plant is to be located at Kawasaki, Kanagawa Prefecture.

C. Preliminary Requirements--The original inquiry, dated March 16, 1939, directed to Universal Oil Products Co. describes the equipment, materials, plans, and services required in the following manner:

I.

One (1) Set - Machinery for U.O.P. Iso-octane plant consisting of:

A. Gas concentration and pretreatment

Item 1. Absorber column.
" 2. Depropanizer column.
" 3. Debutanizer column.

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1) Apparently in answer to the initial inquiry, which was not located in this file.
2) Blueprint contained in File Folder No. 1.
3) Universal Oil Products Company.

(OVER)

Item 4. Receiver tanks.
" 5. Settling tanks.
" 6. Heat exchange equipment.
" 7. Motor driven gas compressor and steam driven pump.
" 8. Mechanical equipment.
" 9. Piping.
" 10. Electrical equipment.

B. Polymerization Section.

Item 11. Reactors.
" 12. Debutanizer column.
" 13. Receiver tanks.
" 14. Heat exchange equipment.
" 15. Pumps.
" 16. Mechanical equipment.
" 17. Piping.
" 18. Electrical equipment.

C. Hydrogenation Section.

Item 19. Reactors.
" 20. Iso-octane column.
" 21. Receiver tanks.
" 22. Heat exchange equipment.
" 23. Pumps.
" 24. Mechanical equipment.
" 25. Piping.
" 26. Electrical equipment.

D. Miscellaneous part.

Item 27. Spare parts and equipment.
" 28. Operating tools and equipment.
" 29. High pressure steam boiler, but not including steel stack and building.

II. Catalyzer

Item 30.
7,500 lbs. Catalyzer for polymerization.

Item 31.
1,200 lbs. Catalyzer for hydrogenation.

III. Design and others for I. & II.

Item 32. Design, plans, specification, furnishing requisitions, ordering materials, according connected therewith, and expediting and tracing shipment.

" 33. Blueprints,

Item 34. Testing and inspecting materials manufactured in the United States.

" 35. Charges for patented features own by each maker.

IV. Operating engineer fee during test runs for I. & II.

Item 36. Engineering supervision

Item 37. Transportation and living expenses of the engineer.

Subsequently, there were some changes in design and some additions and modifications to the original inquiry. These were minor in character, and the more pertinent changes are touched upon later in the report. By and large, the final construction of the plant does not differ materially from the above general specifications.

D. Estimated Cost--U.O.P.'s preliminary estimate, dated November 15, 1938 was $187,987.50. The final cost, reflecting the minor changes, was approximately $184,040.00. The item-by-item cost which constitutes this total is shown in Exhibit 2, at the end of this report. This Exhibit also shows the general specifications of all equipment and materials items.

E. Delivery Dates--While the formal revised inquiry on the subject plant was dated March 16, 1939, earlier and probably more informal inquiry apparently was made about October, 1938. At that time (10/25/38) U.O.P. advised they could start making deliveries in from five to six months from the date the detailed flow chart was checked and approved.

On 3/20/39, U.O.P. advised that the design of the plant was now in the drafting stage. Purchase Orders for equipment were issued in May, 1939, and some shipments were actually made in this month. By July, 1939, approximately 80% of all items had been purchased. While no document in the file indicated the date of final shipment, it is reasonable to assume that shipments were completed not later than September 1939.

II. Engineering and Equipment Suppliers.

Under the terms of the agreement, U.O.P. was to do the purchasing of all equipment and material. Requisitions for materials were to be approved by Mitsui, and the terms were 50% payment to U.O.P. when placing orders, and 50% payment when shipment was made. On December 21, 1938, Mitsui made the initial deposit of $50,000 to U.O.P. as an advance working fund. The Construction and Operating Agreement between U.O.P. and Nippon Oil Co. is shown on Exhibit 1.

A. Individual Suppliers--The list of actual suppliers of equipment appears as Exhibit 3. Vouchers are in the Mitsui files and are readily available for further detailed examination.

B. Flow Sheet and Plot Plan--There are two engineering drawings in the files: (1) Flow Sheet of Process--complete with equipment layout, and (2) Plot Plan of One-Unit Installation (U.O.P. Drawing No. 29953-A).

(OVER)

III. Progress of Furnishing Equipment for Plant

As the order progressed from the initial authorization, some contributory requirements were determined, some few changes were effected in design, and specifications, and some few additions were contemplated--but apparently not executed. The more important of these considerations are briefly enumerated in the following paragraph.

A. Utilities--The estimated normal utility requirements were as follows:

High Pressure Steam	
Total pounds per hour of saturated 450# gauge supply steam, exhausting to atmosphere	10,000 #/hr.
Low Pressure Steam	
Total pounds per hour of saturated 80# gauge supply steam, exhausting to atmosphere	2,000 #/hr.
Compressor Fuel	
If Diesel drive, pounds per hour of 18,000 BTU/pound H.V. Fuel	40 #/hr.
If gas engine drive, cubic feet per hour of 1,200 BTU/cu. ft. Fuel	1,150 C.F./hr.
Water	
Total U.S. G.P.M. of water supplied at 84° for condensers and coolers	650 G.P.M.
Electric Lighting	

Note: The above quantities are for normal operation only, and 30% must be added for maximum conditions.

B. Catalyst--These requirements were estimated as follows:

Polymer Catalyst

1115# of catalyst are necessary for filling the reactors once.
5210# total order--for future operation.
#2R Polymer Catalyst; for use in reactors of U.O.P. company's Polymerization Plant

Net cost $1,593.75 (6375#)

Hydrogenation Catalyst

488# of catalyst are necessary for filling the reactors once.
812# total order--for future operation.

Net Cost $3,250.00 (1300#)

C. Additional Equipment--Two items were considered as additional to the original layout and estimate, namely, (1) Hydrogen Producing Plant, and, (2) Butane Storage Tank.

(1) Hydrogen Producing Plant. While an inquiry was made re--this equipment, there is no evidence in the files that it ever passed the inquiry stage.

A memo dated 2/25/39 from Mitsui (N.Y.) to Mitsui (Japan) states as follows:

"We have now received estimate from C. F. Brown & Co., dated February 6, through Universal Oil Products Co., for plant of Shell Development Co. process for menthane gas cracking and producing 50,000 cu. ft. of hydrogen per 24 hours. We are also enclosing covering letter of U.O.P. dated February 20, from which you will note price of catalyst for the CO converters. Should your clients take interest in this plant, we shall be pleased to estimate ocean freight and charges". (Estimate $71,760, not including Royalty Boiler Catalyst - or Catalyer)

(2) Butane Storage Tank. Inquiry was made, about January 1939 for this item, specified to withstand 80# pressure, capacity 25,200 gallons, size--9' radius, 2 dished heads, each 2850#, 2 manholes, each 500#, 6 flat plates, each 93" x 31'8" x 9/16". On 1/25/39, U.O.P. quoted $4800.00 delivered. There is some back-and-forth correspondence in the files re--price shipped, assembled, and knocked down, and as to the economy of placing the order in Japan. The latter course is apparently what happened.

D. Specifications and Drawings--There are some five or six file boxes containing detailed specifications and drawings of all items of equipment and materials furnished for this plant. They were executed by the individual suppliers, under consultation with U.O.P. and with the final approval of Mitsui and Nippon Oil Co. These documents are readily available if desired.

E. General--These Mitsui files contain exhaustive and detailed communications and tabulations re--requisitions, invoices, bills of lading, lists of weights of individual items, partial payments, routine accounting, test reports, and inspection reports.

IV. Comment

An early communication, cable dated July 12, 1938, from Mitsui, Japan to New York, indicates the urgency of Japan's demand for this plant:

> Navy and Military authorities are in a hurry for installation of the plant so that they are intending to buy all necessary machinery (gross amount to about Y 900,000) from America, for which they said exchange permit is probably obtainable.

Another cable about the same date states:

> Think Mitsubishi intending to buy American make by themselves but majority of equipment to be made in America.

(OVER)

One of the adjustments to the original estimate was the elimination of Items 36 and 37, covering engineering supervision, living expenses, and transportation expenses of the engineer. This amount totalled about $6,200.00. There is no inference as to the reason for eliminating these items--a cable of 1/3/39 merely states:

> Customer does not wish to avail themselves of our engineering supervision for the erection of above installation.

V. EXHIBITS

Exhibit 1
UNIVERSAL OIL PRODUCTS COMPANY
Chicago, Illinois.

Construction and Operation Agreement
(Supplemental to License Agreement)

In consideration of Non-selective Polymerization License Agreement, dated between Universal Oil Products Company, hereinafter referred to as "Universal" and hereinafter referred to as "Licensee", the parties agree that:

1. DESIGNS, PRINTS SPECIFICATIONS, REQUISITIONS, AND PURCHASE OF MATERIALS.	UNIVERSAL will furnish for LICENSEE's use designs prints, specifications and purchase requisitions, all of which shall remain the property of UNIVERSAL and shall be used only for the construction or alterations of the licensed process and not for any other purpose. LICENSEE will pay UNIVERSAL the actual cost of designs, specifications, purchase requisitions, purchase of materials and equipment, accounting therefor and expediting and tracing shipments. LICENSEE will also pay UNIVERSAL the actual cost of all blue prints, photostats, etc. LICENSEE will advise which items UNIVERSAL is to purchase for LICENSEE's account. All purchases made by UNIVERSAL will be charged at cost and all cash discounts received will be accounted for to LICENSEE.
2. INSPECTION OF MATERIAL AND EQUIPMENT.	UNIVERSAL will furnish inspectors to supervise inspection at sources of supply in the U.S.A. of such materials and equipment as UNIVERSAL may deem necessary to inspect. For this inspection service LICENSEE will pay UNIVERSAL $20.00 per day per man, plus all traveling and living expenses from Chicago until return.
3. SUPERVISION OF CONSTRUCTION WORK.	UNIVERSAL will furnish an erection-engineer to supervise construction of the unit. For such engineer LICENSEE will pay UNIVERSAL $20.00 per day, plus all traveling and living expenses from Chicago or London until return, and will furnish him suitable transportation facilities to and from work.
4. CONSTRUCTION EQUIPMENT, TOOLS, LABOR, ETC.	LICENSEE will furnish all construction equipment, tools, surveying instruments, etc.; sufficient and competent labor; and will take care of and make direct payment of all construction payrolls and workmen's compensation and liability insurance.

(OVER)

5.
CONTRACTING OF CONSTRUCTION WORK.

LICENSEE may contract with others for all or part of the construction work.

6.
STARTING UNITS IN OPERATION.

UNIVERSAL will furnish operators to supervise the initial operation of the unit and to instruct LICENSEE's operators. For such operating service LICENSEE will pay UNIVERSAL $20.00 per day per man, plus all traveling and living expenses from Chicago or London until return, and will furnish them suitable transportation facilities to and from work. Supervision of operation will be under the control of UNIVERSAL until such time as UNIVERSAL is satisfied that LICENSEE is qualified to take over the safe and efficient operation of the unit.

7.
FUNDS FOR PURCHASE OF MATERIALS, EQUIPMENT, AND U.O.P. CHARGES.

LICENSEE will establish, in Chicago or New York, an irrevocable letter of credit in favor of UNIVERSAL for the estimated amount of UNIVERSAL's expenditures for LICENSEE. From these funds UNIVERSAL will make payments for materials and equipment purchased by UNIVERSAL and for all other charges specified in this agreement. UNIVERSAL will furnish LICENSEE with full accounting for all items drawn against the letter of credit.

The letter of credit will be issued in accordance with instructions furnished to LICENSEE by UNIVERSAL. Should the amount of the letter of credit be insufficient to cover these expenditures, LICENSEE will, upon request from UNIVERSAL, increase the letter of credit by the necessary amount. If it is impossible for UNIVERSAL to present all invoices before the expiration date of the letter of credit, LICENSEE will, upon request from UNIVERSAL, arrange such extension as necessary.

8.
RESPONSIBILITY AND LIABILITY.

In the performance of any services hereunder or such other services as may be rendered by UNIVERSAL during the construction or operation of the unit, UNIVERSAL will act only as an agent of LICENSEE and not as a contractor. In such performance, LICENSEE assumes any and all responsibility, obligation and liability for injuries to workmen, employees or others, public liability, property or other damage, defective material and equipment, delays, errors, fire, explosion, strikes, lock-outs, acts of God or public enemies, etc.

This agreement shall be deemed executed and delivered at Chicago, Illinois, U.S.A.

Dated

UNIVERSAL OIL PRODUCTS COMPANY

By: _____
President

Attest: _____
Secretary

(SEAL)

Section 200-1, Exhibit 2.

UNIVERSAL OIL PRODUCTS COMPANY
ENGINEERING DEPARTMENT
CHICAGO, ILLINOIS

PRELIMINARY ESTIMATE OF EXPENDITURES FOR U.O.P. ISO-OCTANE PLANT WITH GAS CONCENTRATION AND PRETREATMENT EQUIPMENT FOR NIPPON OIL COMPANY JAPAN

Estimate No. 1474-AE, Revision #1 — November 16, 1938

This estimate covers distribution of expenditures for the equipment covered by Estimate No. 1474-A. Distribution between U.S.A. and Japan is given in a letter from Mitsui and Co. Ltd. dated November 15, 1938. Any variations will, of course, change this estimate accordingly. All prices are estimated figures, not to be considered as quotations and are subject to change without notice. Prices are based upon materials delivered F.A.S. New York.

DESCRIPTION	PURCHASE IN U.S.A.	PURCHASE IN JAPAN
GAS CONCENTRATION AND PRETREATMENT EQUIPMENT		
ABSORBER COLUMN		
One 2'-6" x 27' x 3/8" electric welded vessel including internal equipment, steel platform and ladder.	$2,100.00	-
Scaffolding and paint	-	$25.00
DEPROPANIZER COLUMN		
One 2'-6" x 56'-4" x 5/8" electric welded vessel including internal equipment insulation, steel platform and ladder.	4,125.00	-
Scaffolding and paint.	-	50.00
DEBUTANIZER COLUMN		
One 3' x 53' -3" x 3/8" electric welded vessel including internal equipment, insulation, steel platform and ladder	4,225.00	-
Scaffolding and paint.	-	50.00

(OVER)

DESCRIPTION	PURCHASE IN U.S.A.	PURCHASE IN JAPAN
RECEIVER TANKS		
One 2'-6" x 8' x 5/8" depropanizer receiver. One 2'-6" x 8' x 5/16" debutanizer receiver.		
Cost of above including gauge glasses.	$1,100.00	-
SETTLING TANKS		
One 4' x 6" x 12' x 7/16" electric welded debutanizer caustic settling tank, including internal packing. (No. 1)		
One 6" x 12' water wash settling tank.		
One 6" x 12' polymerization caustic wash settling tank. (No. 2)		
Water and caustic mixing nozzles.		
Cost of above.	1,800.00	-
(It is assumed that caustic can be supplied by the refinery in the proper solution.)		
HEAT EXCHANGE EQUIPMENT		
Compressor after-cooler.		
Depropanizer reboiler, condenser, exchanger and bottoms cooler.		
Lean oil cooler.		
Debutanizer feed exchanger, side cut cooler, reboiler and condenser.		
Cost of above exchangers including insulation, gauge glasses, hoists and steelwork.	19,600.00	-
Scaffolding and paint.		50.00
MOTOR DRIVEN GAS COMPRESSOR AND STEAM DRIVEN PUMPS	16,800.00	-
MECHANICAL EQUIPMENT	4,800.00	-
PIPING		
All materials to be purchased in U.S.A.	12,000.00	-

DESCRIPTION	PURCHASE IN U.S.A.	PURCHASE IN JAPAN
ELECTRICAL		
Pyrometers, thermocouples, and pyrometer wire.	330.00	-
Lighting, conduit, wire switches, etc.	770.00	-
CONCRETE WORK		
All concrete aggregate will be supplied in Japan. Steel parts in concrete work will be purchased in U.S.A.	400.00	600.00
POLYMERIZATION SECTION		
REACTORS		
Two shell and tube type exchanger sections including insulation, steel support, platforms and stairs.	3,200.00	-
Scaffolding and paint	-	100.00
DEBUTANIZER COLUMN		
One 18" x 18'-0" vessel including internal packing, insulation, steel platform and ladder.	875.00	-
Scaffolding and paint.	-	25.00
RECEIVER TANKS		
One 2' x 7'-6" debutanizer receiver.		
One 2' x 5'-0" steam disengaging drum. (Insulated)		
Cost of above including gauge glasses.	395.00	-
HEAT EXCHANGE EQUIPMENT		
One B-B preheater.		
Dubutanizer reboiler, condenser and bottoms cooler.		
Cost of above including insulation and steelwork.	2,700.00	-
Scaffolding and paint.	-	50.00

(OVER)

DESCRIPTION	PURCHASE IN U.S.A.	PURCHASE IN JAPAN
PUMPS	3,125.00	-
MECHANICAL EQUIPMENT	3,400.00	-
PIPING All material to be purchased in U.S.A.	10,500.00	-
ELECTRICAL Pyrometers, thermocouples, and pyrometer wire.	1,425.00	-
Lighting, conduit, switches, wire, etc.	525.00	-
CONCRETE WORK	250.00	400.00
HYDROGENATION SECTION		
REACTORS Three shell and tube type exchanger sections including insulation, steel support, and platforms.	5,400.00	-
Scaffolding and paint.	-	50.00
ISO-OCTANE COLUMN One 18" x 32'-0" vessel including internal packing, insulation, steel platform and ladder.	1,225.00	-
Scaffolding and paint.	-	25.00
RECEIVER TANKS Three 2' x 5' reactor receiver tanks. One 2' x 5' steam disengaging drum. (Insulated)		
One 2' x 7'-6" iso-octane column receiver tank.		
Cost of above including gauge glasses.	2,245.00	-
HEAT EXCHANGE EQUIPMENT Iso-octane column preheater, reboiler, condenser and bottoms cooler.		
Three each, hydrogenation reactor exchanger, preheater and condenser.		
One steam condenser.		

DESCRIPTION	PURCHASE IN U.S.A.	PURCHASE IN JAPAN
Cost of above including insulation and steelwork.	4,250.00	-
Paint and scaffolding.	-	50.00
PUMPS	1,900.00	-
MECHANICAL EQUIPMENT	3,800.00	-
PIPING	8,000.00	-
ELECTRICAL		
Pyrometers, etc.	1,600.00	-
Lighting, etc.	725.00	-
CONCRETE WORK FOR ABOVE	250.00	400.00
PUMP AND CONTROL HOUSE ABOVE AND BELOW GRADE	3,600.00	1,085.00
ERECTION LABOR FOR ABOVE	-	24,800.00
BOILER		
Boiler and steel support.		
Brickwork and casing.		
Oil and gas burners with piping.		
Insulation.		
Pumps and regulators.		
Breeching and stack.		
Cost of above.	20,500.00	-
Building and foundations for above.	2,300.00	700.00
Erection labor.	-	5,000.00
Spare parts and operating tools.	5,500.00	-
Construction tools and rigging equipment: Assumed to be available.		
Design, plans, specifications, furnishing requisitions, ordering materials, accounting connected therewith, and expediting and tracing shipments to be billed to the Nippon Oil Company at actual cost - Estimated at	17,500.00	-

(OVER)

DESCRIPTION	PURCHASE IN U.S.A.	PURCHASE IN JAPAN
Blue prints, at cost--Estimated at	770.00	-
Testing and inspecting materials manufactured in the United States: $20.00 per day plus expenses of inspector - Estimated at	1,300.00	-
Charges for patented features owned by others.	1,030.00	-
Engineering supervision: 220 days at $20.00	4,400.00	-
Transportation and living expenses of engineer - Estimated at	1,800.00	-
U.O.P. CO. OPERATOR DURING TEST RUNS		
One man for an estimated period of five months at $600.00 per month.	3,000.00	-
Traveling and living expenses of operator.	1,400.00	-
CATALYST		
Approximate quantity for one year's operation:		
Polymerization 7500 lbs. net weight (8600 lbs. gr.)	2,050.00	-
Hydrogenation 1200 lbs. net weight (4600 lbs. gr.)	2,050.00	-
RUNDOWN TANKS		
One 175 barrel capacity polymer storage tank.		
One 175 barrel capacity polymer bottoms storage tank.		
One 25 barrel capacity iso-octane storage tank.		
Interconnecting pipings.		
Cost of above	2,500.00	-
TOTAL	$200,040.00	$33,460.00
Contingencies	19,960.00	
GRAND TOTAL	$220,000.00	

The following items have not been included in the foregoing estimate:

Ocean freight.
Unloading and port charges.
Customs or import duties.
Freight to refinery.
Cartage to plant site.
Hydrogen generating equipment.
Hydrogen compressor or storage tanks.
Contractor's profit and overheads.
Work outside process area of the plant.
Sump and blow-down lines outside of process area.

Incidental items which should be considered if not already available for use:

Local transportation for engineer to and from work.
Clerical expense, timekeeping, material records, etc.
Field office and material storage sheds, etc.
Liability insurance on workmen.

(OVER)

Section 200-1, Exhibit 3

U.O.P. ISO-OCTANE PLANT - NIPPON OIL CO.

LIST OF SUPPLIERS

Purchases made through U.O.P. Co.

Bauner Iron Works
Barrett, Christie Co.
Belfield Co.
Belmont Iron Works
Black, Sivallo & Bryson

Chapman Valve Co.
Chicago Metal Hose Corp.
Cleveland Metal Specialties
Crane Co.
Crosby Steam Gauge Co.

Dupont, E. O.
Durabla Manufacturing Co.
Duriron Co.

Egleston Bros. & Co.

Boxboro Co.

General Ceramics Co.
General Electric Co.
General Refractories Co.
Goetze Garket Co.
Griscom Russell Co.

Haskell, Wm. H.
Hills - Mc Canna

Imperial Brass Manufacturing Co.
Ingersoll Rand Co.
International General Electric Co.

Johns-Manville Co.
Johnston & Jennings

Kedsley, O. C. Co.
Key Company

Leeds & Northrup

Manning, Maxwell & Moore Co.
Marsh, Jas. P. Corp.
Mason-Neilan Regulator Co.
Mason-Prenix
Moeller Instrument Co.

National Airoil Burner Co.
National Transit Pump Co.

Parr Electric Co.
Peterson, Chas. J. Co.

Ryerson, J. T. Steel Co.

Schulte-Koerting Co.
Strutter Wells

Taylor Forge & Pipe Co.
Taylor Instrument Co.
Trumbull Electric Co.
Tube Turns, Inc.

Union Steam Pump Co.
U. S. Steel Products Co.
Universal Oil Products Co.

Vogt, Henry Machine Co.

Westinghouse Air Brake Co.
Williams, J. G. Co.
Worthington Pump & Machine Co.

Yale & Towne Manufacturing Co.

Section 200-2

MITSUBISHI OIL COMPANY

(Inquiry through Mitsubishi)

(Nippon Kihatsuyu Kaisha)

2175 T 557 June 30, 1939

Subject: Iso-Octane Plant
(capacity of plant not indicated)

Supplier: Universal Oil Products Co.

Inquiry: No correspondence in file describing requirements or soliciting information. Evidently, this order was the outcome of a previous inquiry, or it was handled entirely through the Japanese Gasoline Company.

Disposition: Verification of the order is supported by the following excerpts of correspondence in the file:

"Reply to our telegram of the 30th ult. pay $400,000 to U.O.P. tomorrow without fail as request by Nippon Kihatsuyu Kaisha. Army decided to make purchase of U. O. P. plant for their fuel works through Mitsubishi."

6/6/39, Mitsubishi to Universal Oil Products Co.
"Enclosed is our check in the sum of $400,000. This payment is being made to you on behalf of Nippon Kihatsuyu Kaisha in accordance with arrangements already made with you by the Japan Gasoline Company."

Conclusion: All that the file indicates is that the plant was apparently purchased. Information as to price, size, description, shipping dates, etc., are entirely lacking.

(OVER)

Section 200-3

MITSUBISHI OIL CO., LTD.

(Inquiry through Mitsubishi)

(Mitsubishi Sekiyu)

NY 1464 T 529 TR 8274 May 12, 1938

Subject: Oil Refining Equipment (Cracking Plant)

Supplier: Alco Products, Division of American Locomotive Co. (Tide Water Associated Oil Co. financially interested in transaction from a contractual standpoint)

Introduction:

The correspondence covering this order is entirely lacking in details such as estimated production, detail drawings, and specifications, flow diagrams and plot plans.

General List of Equipment:

Drawings, towers, and tanks, heat interchangers, furnaces, pumps, instruments, piping, miscellaneous materials. This list is somewhat broken down on shipping memoranda into tubes, alloy furnace castings, burners, fans, turbines, accumulators, primary crude towers, secondary crude towers, absorption towers, and reaction towers, but no detail specifications of the individual items are shown.

Price:

Original contract $478,500.00, subject to minor adjustments.

Destination:

Kawasaki and/or Ogimachi.

Services Rendered by Supplier:

Mr. H. H. Newcombe, Engineer of Alco, sailed from San Francisco to Japan on November 24, 1938, to supervise erection of equipment. First shipments July 1, 1938.

Conclusion:

The equipment details covering this installation were evidently discussed in person, or are located in other files. Reference is made in correspondence to drawings and flow diagrams, but none is in the file. This file is indicative only of the fact that the equipment was purchased and erected. Mr. D. D. MacGregor, V.P.--Mitsubishi Oil Co. spent some time in this country going over the preliminary estimates and designs of this equipment.

Section 200-4

UBEY COAL OIL MANUFACTURING CO.,

(Ubey Uka Kogyo)

(Inquiry through Mitsubishi)

NY 2543 T 758 TR 9410 & TR 9440 November 1, 1939

Subject: Forged Steel High Pressure Cylinders

Supplier: Mesta Machine Company

Inquiry:

1. Catalytic cylinder, size 850 mm x 14,000 mm (3 sets)
2. Condensing column, size 600 mm x 6,260 mm (3 sets)
3. Bolts

To be used under a working pressure of 300 atmospheres.
Inquiry for additional vessels--total of 26.
Customers' drawings attached (in file). Detail specifications follow:

Specifications

1. Catalytic Cylinder (3 sets)

Inside Diameter	Thickness	Length
850 m/m	160 m/m	14,000 m/m

Material: Ni-Cr-Steel
Tensile Strength: 55-60 Kgs/mm^2
Elongation: 20% and up (13.8 diameter x 50 gauge)
Yield point (ordinary temperature): 30 kgs/mm^2 and up
" " (300° C) : 20 "
Hydrostatic test: 600 atm.

2. Condensing Column (3 sets)

Inside Diameter	Thickness	Length
600 m/m	120 m/m	6,260 m/m

Material: 1% Ni Steel
Tensile Strength: 55-65 Kgs/mm^2
Elongation: 20% and up (13.8 diameter x 50 gauge)
Yield point (ordinary temperature): 30 kgs/mm^2 and up
Hydrostatic test: 600 atm.

3. As the material of bolts, Ni-Cr-Steel of the following quality should be used.
Tensile Strength: 70-80 kgs/mm^2
Elongation: 18-20%
Yield point: 50 kgs/mm^2 and up

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Disposition:

Requirements were subsequently adjusted downward by customer so that final considered order was 11 pieces as follows:
Quotes as of 2/23/40:

Drawing Symbol	No. of Pieces	Inside Diameter	Length	Price Each	Total Price
A	6	900 mm	16,000 mm	$86,500.00	$519,000.00
C	4	900 mm	7,000 mm	52,250.00	209,000.00
E	1	900 mm	8,000 mm	54,960.00	54,960.00
				Total	$782,960.00

Original estimate was $1,458,500.00
Delivery to start in two years, to be completed in 30 months

Cable 2/29/40 Tokyo to New York:
"Eng. 758 Referring to our telegram 27th instant the Government is intending to give permission in March and it is necessary to make application immediately, so please telegraph subject to receive reply here by tomorrow."

Cable 3/1/40 Tokyo to New York:
"Eng. No. 758 Refer to your telegram of 29th ult. telegraph F.O.B. price, ocean freight and insurance premium separately. Considering present situation don't let them know the customer's name, viz. Ube Oil. Instead of doing this please buy these materials as amonia synthetic towers for Ube Nitrogen Industry K.K."

Conclusion:

The latest correspondence in the file is dated March 6, 1940, which constitutes a confirmation by Mesta as to shipping dates.

There is no indication that all or any of these vessels were actually shipped, despite the inference that there was an apparent great need for them.

Cross-Reference: 2899 T249 August 21, 1940
Very similar inquiry for Japanese Army
See, also, TR 9338 Mark "A"
TR 9338 Mark "B"

Section 200-5

NIPPON YUKA KOGYO

successor to

HAYAMA OIL CO.

(Inquiry through Okura & Co.)

Tokyo Inq. 4570 NY Inq. 22752 NY Order 11704 August 5, 1938

Subject:

(3) Reaction Vessels

Supplier:

Bethlehem Steel Export Corp.

Inquiry:

From Okura & Co.
Original inquiry for 8 vessels of chrome molybdenum as follows:
(4) 500 m/m I.D. x 5 meters long ($12,700.00 each)
(4) 300 " " x 3 meters long ($ 5,300.00 each)

Inquiry started 8/20/37 with Hayama Oil Co. as customer, which company was subsequently succeeded by Nippon Yuka Kogyo.

Disposition:

Order finally reduced to (3) 500 m/m I.D. x 560 m/m long, at $12,400 each. Total $37,200.00.

Order placed 8/5/38.

Conclusion:

Correspondence states, "Reaction vessels for hydrogenation purpose (though we have mentioned in our inquiry for the purpose of ammonia synthesis)". There was considerable trouble and delay in securing export license from Japanese Government --possibly the evasion of the real purpose of the equipment had something to do with securing the license.

The exact location of the plant is not stated. The file is replete with blueprints of the reaction vessels, as well as detail specifications.

INQUIRIES

Section 200-A

JAPANESE MILITARY FUEL DEPARTMENT

(Inquiry through Mitsubishi)

T 543 2518 June 22, 1939

Subject:

Iso-Octane Plant
For production of 100 bbls. per day--octane number above 95.

Supplier:

Universal Oip Products Co.

Inquiry:

Information for Manshu Jidosha party visiting the United States. Applied to War Department to inspect oil fields and refineries in this country.

Complete set of iso-octane producing plant, consisting of: (a) Butane-butene obtaining equipment from liquid fraction of cracked gasoline, (b) desulphurization equipment of the butane-butene fraction, (c) butenes polymerization equipment, (d) fractionating equipment for polymerization and, (e) hydrogenation equipment for iso-octane. Description of individual equipments set forth in inquiry.

Flow sheet and general layout of plant.
Cost for erection and trial running.
Utilities required.
Durability of equipment.
Rough estimate of total weight.

Disposition:

File included photostat of "Flow Diagram Iso-Octane Process" submitted by Chemical Construction Corp.; also, blueprint of process submitted by U.O.P. The file is entirely devoid of correspondence.

Conclusion:

Apparently a "fishing trip" for information. No indications of any follow-up. Perhaps information secured through personal contacts. No inference as to where proposed plant was to be located.

(OVER)

Section 200-B

CHOSEN OIL CO.--GENZAN WORKS

(Inquiry through Mitsui)

TE 7308 July 17, 1939

Subject:

Iso Octane Plant
Capacity 30 bbls.

Supplier:

Universal Oil Products Co.

Inquiry:

Detail drawings, specifications, and license fee for:
1. Polymerization Plant
2. Stabilizer
3. Hydrogenation Plant
4. Miscellaneous allied equipment and necessary parts.

Disposition:

Inquiry referred to Japan Gasoline Company, the owner of U.O.P.'s rights in Japan.

Japan Gasoline Company (Nippon Kihatsu) advised that Asano Bussan will Handle their business exclusively.

Conclusion:

No available information in the file to indicate whether their business ever got beyond the inquiry stages. No inference as to where proposed plant was to be located, other than the inquiry assumes the Genzan Works.

Section 200-C

NAKAMOTO & COMPANY

(Inquiry through Mitsui)

TE 7284 March 6, 1939

Subject:

Synthetic Lube Oil Plant

Supplier:

M. W. Kellogg Company
and others.

Inquiry:

Design and specifications, in case customer should desire to manufacture equipment in Japan.

Capacity 2,400 tons of finished material per year; to be manufactured from ordinary wax slop obtained during the course of refining such crudes as the Kettleman Hills or Elmwood and/or wax slop from shale oil.

Disposition:

Kellogg refers inquiry to Bataafsche Petroleum Co. through Rising Sun Petroleum Co. Japan

Standard Oil of Indiana has sold their patent on process (Japanese Patent No. 112,265) to above company.

Letter 6/13/39 Kellogg to Mitsui states in part as follows:
"Referring to your inquiry of April 4 for synthetic lube oil plant for Makanoto & Co. of Japan, we have been in touch with the Bataafsche Petroleum Maatschappy, owners of this process. As I advised you by telephone, it was necessary to direct this correspondence to them at the Hague, which accounts for our delay in replying to your inquiry."

"Bataafsche advise us on the date of June 5 that they cannot comply with our request for technical data information for the design of a commercial synthetic lube plant in Japan. They also advise that this point was discussed through their representatives in Japan with Mr. Makamoto who understood clearly their position in this matter."

Conclusion:

There is no correspondence in the file of a later date than the above quoted letter. Therefore, there is no indication as to what, if any, final disposition was made of this inquiry. No inference as to where proposed plant was to be located.

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Section 200-D

JAPAN MILITARY FUEL DEPARTMENT

(Inquiry through Mitsui)

TE 7335 May 1, 1940

Subject:

Juik Process Lubricating Oil Plant
To produce 1000 bbls. per day.

Supplier:

M. W. Kellogg Co.

Inquiry:

1. Drawings showing arrangement in this case of continuous working of Propane Deasphalting, Propane Dewaxing and Double Solvent Extraction.
2. Data of treatment of crude oil in accordance with the above continuous working, assuming crude oil of Texas and middle Oklahoma districts is to be used
3. Actual operation cost such as electric power, water, personal charges, etc.
4. Approximate installation cost of the above Juik Process of 1000 bbls. capacity.
5. Approximate quantity of materials to build the above plant.
6. Royalty for the above.
7. Required space for the plant.

Disposition:

M. W. Kellogg advised (6/27/40), "We have in the past been requested by the Department of State at Washington to consult with them on matters of this kind before taking any action, and therefore, have consulted with them in connection with this particular matter. As yet we have received no reply from Washington, but we wish to advise that as soon as it is received, we will communicate with you further."

Conclusion:

The above communication closes the file. The initial correspondence states that this is a preliminary inquiry. There is nothing to indicate any further follow-up in this matter. No inference as to where proposed plant was to be located.

Section 200-E

JAPANESE ARMY

(Inquiry through Mitsubishi)

(Yanagi Mission)

2286 637 & 638 September 11, 1939

Subject:

Equipment for Producing Aviation Gasoline.

Suppliers:

Universal Oil Products Co. (United States)
I. G. Farbenindustrie A. G. (Germany)

Inquiry:

This inquiry 1] revolves around a visit to the United States and to Germany by the Yanagi Mission, for the purpose of inspecting plants, and to study the fuel problem, re--producing aviation gasoline. The ultimate objective apparently was to purchase certain equipment, as a result of this investigation. This mission, designated as an Army Mission, comprised the following members:

Col. N. Yanagi
Lt. Col. S. Sawamoto
Maj. M. Yoshida
Eng. T. Ishimaru
Eng. S. Koba

Mr. Nakahora (Toa Nenryo), although apparently not a part of the Mission, travelled with it most of the time, and was here on a similar purpose for other interests.

The party left Japan 9/6/39 and, through pre-arrangement, visited numerous refineries in California, including Richfield and Wiltshire. It was the original plan of the Mission to visit Germany after completion of the American tour. These plans eventually did not materialize, due to export prohibition of this type of equipment, both in the United States and Germany.

A cable of 9/9/39 (Tokyo to New York) states that the Army wants to buy U.O.P. equipment for producing aviation gasoline,

1] Practically 95% of the correspondence in this file folder is in Japanese. It was translated by S. S. Kim, New York office of Office of Censorship. The translation is not literal, and has been abbreviated.

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and an I. G. Farben coal hydrogenation plant. Advises to go ahead and order drawings and to secure preliminary estimates. The above information is the extent of information in the files to indicate the size and design of the proposed equipment.

Disposition:

9/13/39 Tokyo to New York (Mitsubishi) Alco Products Co., New York attempting to sell its design to Japanese Army, in competition with U.O.P., as per the following letter:

"We had chance to talk with Mr. J.W. Charlton of Alco Products, New York, who is working at the Kawasaki Works of Mitsubishi Sekiyu on September 19th on the prospect of business of Alco oil refining plant.

"Mr. Charlton heard that Captain Yanagi and his party, Mr. Nakahara, Managing Director of Toa Nenryo Kogyo, and Mr. Nakano, President of Nihon Soda, and his party, left Yokohama by "Tatsuta Maru" on September 6th in order to purchase the oil refinery plant and asked us if Mitsubishi might take trouble to recommend Alco plant to these parties as some business might be effected.

"According to his explanations Alco Products, New York, seems to have well experienced in designing and procuring of the oil refinery plant and so we beg to advise you that you would arrange with Mr. R. B. Mc Coll, Vice President of the Alco Products and recommend Alco plant to the said parties in order to get inquiry from them.

"We have cabled yesterday to San Francisco Branch to get in touch with Mr. Danforth of San Francisco Branch of Alco Products and that some arrangement with U.O.P. might be necessary before recommending Alco plant to the Army party as Captain Yanagi will adopt the design of U.O.P. of which kindly take note."

While, eventually, no order was placed with any supplier for this equipment, it seems evident from the file that little consideration was being given to any but U.O.P. equipment.

9/24/39 I.G. Farben cables Chemnyco, New York, from Germany, to make arrangements for several Japanese visitors in this country to see coal hydrogenation plants in this country. Understand you are now making necessary permission from Standard Oil Co.

9/26/39 Chemnyco replies, "We would like to point out that the hydrogenation of coal is not carried out on a commercial scale in this country, the plant which Standard operates being an oil hydrogenation plant."

While the entire Yanagi-Mission never did get to Germany on this objective, one member did. The entire party met in Rome for the return trip to Japan via the Near and Far East.

12/21/39 New York to Tokyo. Regardless of contract or no contract export from United States will be prohibited by Department of State.

12/28/39 Tokyo to New York. Embargo on equipment protested to the Japanese Ambassador to the United States. Yanagi intends to leave U. S. for Europe in January, 1940.

12/22/39 Berlin to New York. German Government will permit shipment of this equipment. Controversy about price and terms, in view of the fact that value of Yen has fallen. Shipments promised in from eighteen months to two years.

1/4/40 Berlin to New York. Export of high grade gasoline equipment prohibited by Germany. Party leaving Germany for Japan.

5/24/40 Rome to Japan and New York. Entire party leaving Rome for Japan. Submits itinerary and requests advance note be sent to Japanese authorities in principal cities en route.

Conclusion:

After spending some three months trying to arrange purchases of the subject equipment, both in the United States and Germany, apparently no purchases were made.

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Section 200-F

TOA NENRYO KOGYO K.K.

(Inquiry through Mitsubishi)

N.Y. 2368 T 641 T (new)8 September 22, 1939

Subject: Houdry Process Catalytic Cracking Plant

Suppliers: Process: Houdry Process Corporation
Equipment: E. B. Badger & Sons Company

Location of Plant: It was reported 1) about this time that two plants were under construction by the Toa Nenryo for production of aviation gasoline, one in the Osaka district and the other at Shimizu, on Suruga Bay in Shidzuoka Prefecture. The correspondence in the file does not indicate whether the plant was desired for either of the two above, or another, location. The plant was to have been designed for a plant capacity of 12,000 bbls. per day.

Inquiry: No technical information on design, specifications, and costs is available. This is because negotiations were terminated before final disposition was made on the license agreement.

This inquiry, from its inception to its termination, was handled by conferences. Such communications as are included in the files are confirmations of conferences, drafts of agreements, and requests and answers on concessions in prices and terms. The one exception to this rule are letters and cables which discuss the "moral embargo" on technical information and equipment from the United States to Japan--the reason that the order was never executed. A large portion of the correspondence is in Japanese.

Two documents are attached to this report: Exhibit 1, which is a memorandum of a meeting between the principals, and Exhibit 2, which is a memorandum confirming certain points of the above meeting, and which sets forth the main guarantees for a Houdry unit.

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1) Bibliography reports.

These two Exhibits are descriptive of the performance of the plant, and they outline the terms of the License Agreement, which was subsequently drawn up and agreed upon tentatively. There is a copy of the final draft of the License Agreement in the file, but it is not being reproduced in this report because (1) it is a very lengthy legal document, with much space devoted to definitions and the rights of the contracting parties, and (2) it contains no informative data not included in Exhibits 1 and 2.

Disposition:

This inquiry was handled personally to a large extent by Mr. Nakahara Koga of the Toa Nenryo, who headed a Japanese Mission to the United States for this particular objective. His interviews were chiefly with officials of the Houdry Process Corporation and of the E. B. Badger and Sons Company. A description of the two above corporations is set forth in Exhibit 3, at the end of the report.

There follows a digest of back-and-forth cablegrams and letters, all written in Japanese[1] on the chronology of the transactions on this inquiry. The translations are abbreviated and are not verbatim.

10/26/39. Difficulty in establishing satisfactory credit even before preliminary estimates were discussed. American banks would not accept guarantee after commercial treaty expires. Without a guarantee from Y.S.B. no chance to go through with deal.

11/24/39. New York to Tokyo. Advise American sentiment against Japan getting very bad. Better decide to go ahead with deal without delay, otherwise it might not go through.

12/12/39. Tokyo to New York. Tokyo wants to know if it is true that United States is going to prohibit sale of synthetic fuel equipment to Japan. Very anxious to secure, at least, preliminary study and estimate before prohibition.

12/12/39. Answer from New York to Tokyo. Strong probability that embargo will be placed on equipment for aviation gasoline. Although Government not decided yet, situation looks bad. Inference that U.O.P. and Kellogg trying to discourage this embargo. Suggests that Nakahara come to New York for discussions.

12/14/39. Tokyo to New York. Advising Japanese Government has granted permit. Will send money for preliminary work at once. Try to get better price.

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1) Translated by S. S. Kim (Korean) of New York office of Office of Censorship.

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12/15/39 New York to Tokyo. Expect U. S. Department of State to decide on restrictions tomorrow.

12/18/39 New York to Tokyo. Delay in furnishing preliminary estimate because U. S. not yet decided on restrictions.

12/20/39 New York to Tokyo. Published notice on "Moral Embargo". U. S. Department of State makes statement prohibiting manufacture and engineering services furnishing equipment and information re--aviation gasoline to any country bombing civilians. Aviation gasoline itself not included in restrictions.

12/27/39 New York to Tokyo. Advises Nakahara Mission that situation between Japan and United States does not seem to be too bright, suggests situation will get worse if too many delegates from Japan remain in U. S. to seek information on equipment for aviation gasoline. Even suggests that these delegates be recalled to Japan, and if it is necessary for them to return later to secure this equipment, Japanese Government will pay expenses for such a trip.

2/15/40 Nakahara and party leave San Francisco for Japan.

3/11/40 New York to Tokyo. (Summation letter of incidents in the transaction--12 pages) Describes License Agreement: controversies about terms of agreement, amount of royalties and terms of payment, and extent of territory. Indicates that before deal really got under way, United States Government called Houdry and wanted to know everything about the deal. Infers that Houdry wanted to make the preliminary contract early in the conversations--so that they could use that as a stepping stone with U. S. Government to get this particular deal through. Advises that the situation is getting worse and Houdry said they would have to watch developments with U. S. Government, as they would not even make preliminary contract without Government's approval. Sends clipping from New York Times re--"Moral Embargo".

Conclusion:

Due to the embargo placed by the United States on the shipment of aviation gasoline equipment to Japan, the whole deal fell through. In view of the fact that negotiations never got passed the License Agreement stage, there are no details of design in the file, nor any preliminary estimate of the cost of the proposed plant.

Section 200-F, Exhibit 1.

MEMORANDUM OF MEETING

Held in the Offices of E. B. Badger & Sons Company
New York City, Thursday, October 12, 1939

Present: Messrs. Nakahara Koga of the Toa Nenryo Kogyo K.K.
Buffum of the Tatsumi Engineering Company
Hargrove of E. B. Badger & Sons Company
A. E. Pew, Jr.

Mr. Hargrove explained that the purpose of the meeting was to discuss in general terms the possibility of issuing a license to Mr. Nakahara's company for the use of the Houdry processes in Japan. Mr. Hargrove stated that he and others of the Badger organization had held various conferences with the Japanese Company during the past several weeks and had explained in some detail the economics, yields and operating results that might be expected from the Houdry Process.

Summarized - the Japanese Company desires to obtain a license under which they can process approximately 6,000 barrels of gas oil per day, gas oil to be from Kettlemen Hills Crude, of about 36 gravity, and from Santa Fe Springs crude. The unit is to be capable of handling napthas from these crudes or naphthas from other crudes suitable for the purposes. The plant was to be arranged so that at a later date additions could be made which would enable the processing of residual stocks. Mr Pew stated that Houdry Process Corporation would be willing to try to develop a mutually satisfactory basis with the company represented by Mr. Nakahara and offered for consideration the possibility of arranging a license on the following basis:

1. The Japanese Company to take out a license for 12,000 barrels per day at a cost of $2,850,000 and agree that for any additional capacity built by it that additional payments would be made on the regular royalty scale, i.e., $175.00 per barrel for 10,000 to 20,000 barrels per day, $125.00 per barrel for the next 10,000 barrels per day, $75.00 for the next 10,000 barrels per day and $50.00 per day for all beyond 40,000 barrels.

2. The Japanese Company to agree in the event that a second unit or additional units should be built beyond the unit of 6,000 barrels that it would pay in advance for the capacity of such additional unit, such payment to be calculated in accordance with the royalty scale set forth above.

3. It was proposed that should the Japanese Company not desire to utilize the capacity paid for, it would be permitted to sub-license other companies for such unused capacity providing such sub-license was made on the basis approved by Houdry Process Corporation and at the established royalty rates. For example, if the Japanese Company purchased 12,000 barrel capacity and only used 6,000 it would be allowed to sub-license 6,000 barrels to Company "X" but at the time of making such sub-license agreement it would have to pay for an additional 6,000 barrels at the royalty scale for the block 10,000 to 20,000 barrels. In sub-licensing to Company "X", Company "X" would have to pay for the 6,000 barrels

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on the royalty scale block zero to 10,000 barrels. The Japanese Company would then pay to the Houdry Process Corporation the difference between the royalty rate charged Company "X" and the royalty rate for that particular 6,000 barrels paid for by the Japanese Company.

4. Mr. Pew stated that Houdry Process Corporation would not negotiate a license for less than 12,000 barrels and would require that 6,000 barrels would be the minimum sized plant to be built. Payment of the royalty should be on the basis of 10% on signing the contract and the balance to be placed in escrow with the New York bank and paid by the time that final drawings of the plant are completed. The escrow agreement is to provide that the money in escrow should be paid to the Houdry Process Corporation or its agent in equal monthly installments equivalent to the percentage of the drawings completed at the end of each month.

5. (Not indicated in copy)

6. The Japanese Company is to undertake government approval, if possible, of the obligation to pay the royalty rates set forth in the agreement for any additional units built by them and, further, to agree not to divulge or make available to any others in Japan drawings or technical information which might enable other than the Japanese Company to build and operate plants covered by Houdry patents.

7. The definition of Japan was to include the Japanese Islands, Formosa, Korea, and Manchuria. The question of the status of China was not discussed in any detail but Mr. Pew suggested that if the license agreement was to apply to China we would have to consider a separate agreement.

As an alternate to the above proposal, Mr. Pew suggested that the Japanese Company consider a proposal based on the following:

1. That the Japanese Company consider purchasing an "exclusive" type of license to the extent of 40,000 barrels per day at $6,250,000 or 30,000 barrels per day at $5,500,000.

2. That if this were done the Japanese Company would have the exclusive right to Houdry in Japan (as defined above) to install the first 30,000 or 40,000 barrels and the right to license others to the extent that they themselves did not use capacities indicated, such sub-licensing rights to be as described in the first proposition. In the event that licenses should amount to more than 30,000 or 40,000 barrels, the Japanese Company would be entitled to 30% of the license fee obtained on the escrow.

3. In the event a company other than the Japanese Company should request a Houdry license, the Japanese Company must elect whether to grant such license or build the capacity itself; in the event it is decided not to build the capacity itself and not to license, then Houdry Process Corporation would have the right to issue such license. In other words, if there should be a demand in Japan for increased quantities of Houdry gasoline or other products beyond

those supplied by the Japanese Company, the Japanese Company would have an option of either paying H.P.C. the additional royalty for this increased demand or, failing to do so, H.P.C. would have the right to license others to meet such demand.

4. In the event this so-called exclusive type of agreement should be selected, terms of payment would be:

(a) 10% at time of signing contract
(b) A requirement that the Japanese Company build a unit of not less than 6,000 barrels per day
(c) The escrow provision as contained in the first proposition should be effective to the extent of 12,000 barrels. The balance of the sum, i.e., $6,250,000 or $5,400,000 less the royalty for the 12,000 barrels is to be placed in escorw with the New York bank upon the completion of the first unit and is to be payable to Houdry or its agent by the escrow agent in three equal installments at intervals of 60 days
(d) The entire amount called for in (c) is to be payable on demand in the event of a 30 day delay due to causes beyond the control of H.P.C. in the construction of the first mail.
(e) The provision in the first proposal applying to China and territories, should likewise apply in the second proposal.

It is understood that the gasoline should be 92 C.F.R. Octane with not more than 3.8 cc's of lead per gallon and is to meet the Japanese specifications.

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Section 200-F, Exhibit 2

E.B. BADGER & SONS CO.

MEMORANDUM

Philadelphia, Pa.

October 16, 1939.

Mr. A. C. Buffum

In accordance with our conversation with Mr. Pew today, we are giving you herewith the outline of main guarantees for a Houdry Unit operating on East Texas Gas Oil. If Mr. Nakahara is interested in a test run upon East Texas Gas Oil, we will make him the same guarantees as the attached and which we have used for one other client. It is, of course, understood that if Mr. Nakahara wishes to proceed on the basis of East Texas Gas Oil that we will make all the necessary tests upon the California stocks, and as soon as data is available, we will substitute a new guarantee based on the California Stocks instead of the East Texas Gas Oil charge.

You will note under the heading "Failure to Meet Guarantees" that we have left blank the amount of money that Badger is to expend. This amount of money usually amounts to the royalty plus Badger's profits and is given on the theory that the refiner buys the plant to produce results rather than to exact a financial penalty.

You will also note in the definition of "Aviation Gasoline" that with 3cc of tetraethyl lead per gallon a 90 minimum octane is specified. In your client's case with 3.8 cc of lead, we would make this guarantee 92 octane.

GEORGE C. HARGROVE

GCH:MB
Encl.

E.B. BADGER & SONS CO.

10-16-39

EXHIBIT "C"

GUARANTEES AND UTILITIES

DEFINITIONS

Charge and Product Tests

Laboratory tests to determine the physical characteristics of the charging stock and products produced therefrom, shall be made in accordance with the following standard methods:

	Authority	Test No.
Gravity, °A.P.I.	Amer. Society for Testing Mat'ls.	D237-37
Boiling Range	" " " " "	D 86-38
Flash, Open Cup	" " " " "	D 92-33
Fire	" " " " "	D 92-33
Pour Point	" " " " "	D 97-34
Viscosity, Saybolt	" " " " "	D 88-38
Gum, U.S. Army	U.S. Army Specifications	2-95-A-E-5
Gum, ASTM	Amer. Society for Testing Mat'ls.	D381-36
Gum, Cu Dish	U.S. Federal Specifications	F 6cc
Freezing Point	U.S. Army Specifications	2-95-A-E-9
Water Tolerance	" " "	2-95-A-E-10
Heating Value	" " "	2-95-A-E-11
Oxygen Bomb	U.S. Navy Aeronautical Spec.	M222-a(4-1-38)
Reid Vapor Pressure	Amer. Society for Testing Mat'ls.	D323-38T
Sulphur (Gasoline)	" " " " "	D 90-34T
Sulphur (Hvy. Oils)	" " " " "	D129-34
Octane	" " " " "	D357-36T
Copper Strip Corr.	" " " " "	D130-30
Neutrality	French Air Ministry	Stand. 1086

Gas Oil

The term "gas oil" as used hereinafter, shall be defined to mean a distillate produced by a non-cracking atmospheric distillation of East Texas Crude Oil, or its agreed upon equivalent, and having characteristics substantially as set forth below:

Gravity		35.7° A.P.I.
Boiling Range		
I.B.P.	(237°C)	440°F.
10%	(240°C)	464°F.
50%	(279°C)	534°F.

(OVER)

90%	(341°C)	646°F.	(685°F. Max.)
End Point	(384°C)	724°F.	
% Recovery		97	
Residue		1.2	
Flash O.C.	(107°C)	225°F.	
Fire	(121°C)	250°F.	
Pour		+30°F.	
S.U. Visc. at 100°F.		39"	
Sulphur		9.18	

Aviation Gasoline

The term "aviation gasoline" as used hereinafter, shall be defined to mean a gasoline produced from the herein aforementioned Houdry Catalytic Cracking Unit, properly stabilized and treated with not more than 1-1/2# of 93% sulphuric acid by a method approved by the Houdry Process Corporation, properly rerun and having physical characteristics better than, or equal to, the following specifications:

Boiling Range		
at 60°C.	(140°F.)	10%* Maximum
at 75°C.	(167°F.)	30%* "
at 100°C.	(212°F.)	50%* Minimum
at 145°C.	(293°F.)	90%* "
End Point	(356°F.)	(180°C) Maximum
Residue		2% Maximum
Recovery		97%
Gum, Cu Dish		5 Mg. Maximum
Sulphur		0.10% Maximum
Freezing Point		-60°C. "
Water Tolerance		2 ml. ± "
Heating Value/Lb.		18,500 Btu. Minimum
Reid Vapor Pressure**		7.25# Maximum
Octane - Clear		77 Minimum
+0.8/1000 TEL (3cc/Gal)		90 Minimum
+1.6/1000 TEL (6cc/Gal		96 Minimum

* - Losses included

** - Vapor pressure to be not more than 50 piezes - 7.25#/ sq. in. 1 hpz - 760 mm. mercury. Gasoline to have following relationship between Vapor pressure and boiling range:

T - Vapor pressure in piezes at 38°C.

D - % Distilled below 75°C. (167°F) plus losses

$T + \frac{D}{2}$ - 61 Maximum.

GUARANTEES

When properly operated and controlled, and in accordance with the provisions of this contract, Badger guarantees to the Refiner as follows:

(1-A) Capacity
That the Unit specified herein can charge not less than barrels per stream day of gas oil, and

(1-B) Yield
That when operating in accordance with guarantee (1-A), the volumetric yield of aviation gasoline after stabilization, acid treating with not more than 1-1/2# of 93% sulphuric acid per barrel by a method approved by Houdry Process Corporation, and rerunning with proper equipment and conditions, will be not less than 30% (by volume) of the gas oil charged and

(1-C) Liquid Recovery
That when operating in accordance with guarantees (1-A) and (1-B), the Unit will produce, as liquid products, untreated aviation gasoline, motor naptha and catalytic gas oil, in such quantities that the total volume of liquid products recovered will be not less than 84% of the volume of the gas oil charged to the Unit, and

(1-D) Utilities
When fulfilling guarantees (1-A), (1-B) and (1-C), the net utility requirements for the Houdry Unit alone excluding gas plant, treating, rerun equipment and stabilizer requirements, will not exceed 110% of the net quantities given below:

Steam produced
Net Steam Used
Steam Credit

Power Used KWH/Day
Power Produced
Net Power Used

Net Cooling Water (35°F, Rise)
Net Treated Water
Net Fuel Oil*

* Based upon firing pipe heater of Unit exclusively with clean liquid fuel having a heating value of not less than Btu/gallon.

FAILURE TO MEET GUARANTEES

In the event that guarantees are not met on the first test run or on the subsequent test runs provided, Badger will remedy all defects and make all necessary changes that, in its judgment, are necessary to make the Unit meet the guarantees given herein, and will continue to bear the expense of any further remedial measures required to make the plant fulfill all the guarantees given herein until Badger has expended the sum of $ upon such remedial measures, after which Badger's obligation under guarantees will have been discharged.

(OVER)

Section 200-F, Exhibit 3.

Houdry Process Corporation

Authorized capital $3,300,000, outstanding $3,293,147. The company, which is a successor to Companie Internationale pour La Fabrication des Essences et Petroles of Paris, France, controls Gerwerk Schaft Kohlenbensziu, Berlin, Germany; Societe Anoyne Franciąse Pour La Fabrication des Essences et Petrolls, Paris, France; and Catalytic Development Company, Marcus Hook, Pa., the latter concern, which is wholly owned, doing the active research work in this country.

The control of the concern indirectly lies in the hands of Eugene Houdry, and his French Associates; Socony Vacuum Oil Co., New York City, and Sun Oil Company, this city (Wilmington, Del.) through which this company enjoys strong financial backing.

Active as a holding company only, this concern through its domestic underlier, namely, the Catalytic Development Co., does solely research work in connection with the refining of crude petroleum, licensing patented processes through itself to those interests which dominate its affairs.

In the early part of 1939, the company sold a license under its catalytic rights to Standard Oil Co. of California. Under the terms of the agreement, the latter obtains rights to operate under the subject's various catalytic patent rights, present and future. The Standard Oil Co. of California is starting work immediately on the application of the processes to its crudes.

The processes of this corporation were brought to commercial status within this country in cooperation with the Sun Oil Co. and the Socony-Vacuum Oil Co. and both of these concerns are substantial stockholders herein. Currently, the Sun Oil Co. is spending $12,000,000 in construction of refining units to utilize the Houdry Process, while the Socony-Vacuum Oil Co. is spending $24,000,000 on similar construction work.

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E. B. Badger & Sons Co.

Incorporated in 1900 with an original capitalization of $60,000, the company has since been quite profitable, and the capital investment in the concern has grown to $946,600. Until 1917, the entire capital stock was controlled by the Badger family, but with the development of the business and the increasing scope of its operations, additional money was invested from time to time, and the stock ownership became spread among others in the active management..... The concern has made its most rapid progress during the past decade, specializing in distilling equipment used in the oil refining industry. It has been collaborating with the Houdry Process Corporation in the handling of commercial phases of their new process for catalytic cracking of petroleum, and has constructed many plants for the leading oil companies here and abroad.

This is both a holding and an operating company. As a holding company, it owns two-thirds of the outstanding capital stock of the Underground Steam Construction Co., and all the capital stock of E. B. Badger & Sons (Great Britain) Ltd. and Badger Purchasing Agency, Ltd.

As an operating company, it is primarily an engineering organization. The company carries on its activities in all parts of the world as well as in the United States and is considered one of the leading concerns of its kind. The company designs, installs, and operates petroleum refining and chemical process equipment. In addition, the company manufactures expansion joints and similar patented devices for use in steam engineering. Most of the equipment for petroleum engineering work is purchased by the company from outside sources.

In recent years, the company has been constructing a number of Houdry Process Plants, as well as negotiating the sale of licenses to refiners for rights under this process.

(OVER)

Section 200-G

SOUTHERN MANCHURIAN R.R. CO.--FUSHUN

(Inquiry through Mitsui)

TE 7323 MF 7596 January 26, 1940

Subject:

Complete Plant of Delayed Coking Process.
Suitable for treating 530 K tons/day of residual oil (temperature 360° C) produced from shale crude oil by topping 65%.

Supplier:

M. W. Kellogg Co.

Inquiry:

Erection cost.
Annual expense of maintenance.
Miscellaneous operating information.

Disposition:

M. W. Kellogg advised they would conduct laboratory research to arrive at a quotation, for $10,000.00. This figure evidently caused cancellation of inquiry.

Conclusion:

Correspondence indicates that nothing further was done with this inquiry. It is stated that "This equipment was to be installed in the Southern Manchurian R.R. Co's new oil refinery to be built at Fushun in the near future."

Section 200-H

MITSUI MINING CO.

(Subsidiary)

(Toyo Koatsu Kogyo K.K.)

(Inquiry through Mitsui)

TE 7252 March 28, 1938

Subject:

Methane Gas Cracking Plant
To crack CH_4 from Coke Oven gas and Rest gas.

Supplier:

Standard Oil Development Co., New Jersey

Inquiry:

Detail drawings, specifications, license fees.
Approximate installation cost.
Detail information for working scale and process.

Disposition:

Standard Oil Development Co. advised it was not in a position to quote. Referred inquiry to Chemnyco, New York City.

Chemnyco advised that I. G. Farbenindustrie, Germany, owns patent rights covering the methane gas cracking process, and inquiry forwarded to them.

I. G. Farben advised Mitsui they had representative in Japan, and inquiry had been forwarded for direct contact.

Conclusion:

There is no indication that the project ever got beyond the inquiry stage. There is nothing in the available correspondence to indicate where it was intended to locate such a plant, if it were subsequently purchased.

(OVER)

Section 200-I

NIPPON KASEI KOGYO K.K.

(Inquiry through Mitsubishi)

(Marunouchi, Tokyo, Japan).

N.Y. 1416 2/11/38

Subjects:

(a) Ethylene Glycol Plant
(b) Amonium Sulfate Plant
(c) Iso-Octane Process
(d) Sodium Phenate Process

Introduction:

This inquiry covers information and preliminary estimates on Plants to manufacture the subject materials. The information was solicited for Mr. Y. Nakamura, prior to his visit to the United States.

(a) Ethylene Glycol Plant

Production capacity required, 2000 kilos per 24-hour day. Estimate and information furnished by Chemical Construction Corporation. Plant cost $120,000.00; Engineering fee and license $42,000.00.

(b) Amonium Sulfate Plant

Production capacity required, 15,000 tons per year. Process utilizes a by-product gypsum obtained from the treatment of a glauber salt by-product from [your] rayon plant and DS waste from [your] amonia soda plant. Estimate and information furnished by the Dorr Co., Ind. Plant cost $225,000; Engineering fee and license $51,000.00. Flow sheet attached. Dorr later advises they have no control over the Gypsum Process, which is analogous to the Solvay Process--process protected by a French patent, of the French Societe Industrielle de Products Chimiques.

(c) Iso-Octane Process

Information furnished by Chemical Construction Corp. re--the company's process for iso-octane, no estimate solicited or furnished. Flow diagram of process attached.

(d) Sodium Phenate Process

Report on process furnished by Charles O. Brown, Chemical Engineer for fee of $70.00. Information inferentially solicited for Ashi Glass Company.

Conclusion:

There is no indication from this file material that any purchases were made for equipment for any of the subject-inquiries. There is no inference as to where any of the proposed plants were to be located, or where the proposed processes were to be utilized.

Section 200-J

ASAHI KAGUKU HIRYO KAISHA

(Inquiry through Mitsubishi)

2696 (9545) T-111 April 2, 1940

Subject:

Reaction Vessels

Supplier:

Mesta Machine Co.

Inquiry:

4-cylinders--same as covered by order No. 9410 for Ube Coal Oil Manufacturing Co.

Disposition:

4/5/40 Mesta quotes same prices as on previous order

(2)	600 mm I.D. x 6260 mm Length	$261,800.00
(2)	850 " " x 14000 " "	150,000.00
	Total	$211,800.00

Material to be forged nickel and forged nickel chrome steel. Shipments to begin in 27 months and completed in 30 months.

8/17/40 Prices increased by Mesta to $74,200.00 and $181,200.00 respectively. (Total $255,400.00)

Export permit had been secured at original price, but evidently could not be secured at price increase.

Conclusion:

While the file contains nothing to so indicate, it may be assumed that the deal fell through on account of the price increase. No inference as to exact location of proposed equipment.

(OVER)

Section 200-K

JAPANESE ARMY

(Mr. Yanagi) Chief of Iwakuni Refinery

(Inquiry through Mitsubishi)

2899 T 249 August 19, 1940

Subject:

High Pressure Reaction Vessels

Supplier:

Mesta Machine Co.

Inquiry:

Detail specifications and customer's drawings furnished.

Disposition:

Item No.	No. Pieces	Inside Dimensions	Length	Price Each	Price Total
1	2	900 mm	16,000 mm	$103,200.00	$206,400.00
2	5	900 mm	8,000 mm	65,500.00	327,500.00
3	4	900 mm	7,000 mm	60,660.00	242,640.00
					$776,540.00

Reverse hydrogenation -

Drawings specified are the same as those covered by your Order No. TR 9338. The material is to be nickel chrome molybdenun forged steel, heat treated. Delivery to be from 20 to 30 months.

The above quotations were made September 3, 1940.

Mitsui is handling same inquiry through Bethlehem Export Corporation. No later correspondence in file to indicate final disposition of inquiry.

Conclusion:

None to be drawn.
Cross-reference: NY 2534 T 758 TR 9410 TR9440
November 1, 1939, for customer Ubey Coal Oil Manufacturing Co.
No inference as to location of proposed equipment.

Section 200-L

MITSUBISHI MINING LABORATORIES

(Mitsubishi Kogyo Keukyu-Sho)

(Inquiry through Mitsubishi)

NY 2936 T 250 September 18, 1940

Subject:

Reaction Vessels and auxilliary items of equipment.

Supplier:

Mesta Machine Co.

Inquiry:

(3) Reaction vessels of heat resisting steel--Drawing KEN-A-11
(3) Covers and pipes--Drawing KEN-A-12
(3) Sets piping--Drawing KEN-A-13

Dispposition:

9/21/40 Mesta advises that material is entirely out of their line, and ask to be excused in bidding.

10/3/40 A. O. Smith Co. not equipped to accept order.

11/11/40 Kropp Forge Co. unable to quote--out of their line.

Conclusion:

The file does not indicate that any company was interested or equipped to furnish an estimate. No clue as to final disposition of inquiry. There is no inference as to the specific use that the proposed equipment was to be put, nor its location.

(OVER)

Section 200-M

MITSUBISHI LABORATORY

(Inquiry through Mitsubishi)

NY 2979 T-290 September 20, 1940

Subject:

Podbielniak High-Temperature Fractionating Unit (2 sets)

Supplier:

Podbielniak Centrifugal Super-Contactor Co.

Inquiry:

Apparatus suitable for fracionation of compounds of boiling point ranging from 0° C to 500° C and at distillation pressure ranging from 1000 mm down to 1 mm.

Disposition:

Export quotation--performa invoice $3200.00 (11/9/40)
11/20/40 maker applied to Department of State, Washington, D. C. for export license to ship.
5/29/41 Department of State rejected application.
Order cancelled.

Conclusion:

See 2979 T-289 for similar inquiry on Low-Temperature apparatus (same date) to same supplier. Quote $5375.00

5/29/40 Department of State rejected application for above shipment.

It appears evident that the Japanese were anxious to secure the above two items, which probably would have been used in oil refineries.

Section 200-N

NISSAN KOGAKU KOGYO K.

(Inquiry through Mitsubishi)

NY 2386 September 27, 1939

Subject:

Tubing and valves for oil refinery.

Supplier:

Watson-Stillman Co.
Inquiry sent to many other prospective suppliers who did not quote, because they could not meet specifications.

Inquiry:

1. High pressure control valves. Material will be petroleum tar, hydrogen gas, middle oil or a mixture of two of these.
2. Reducing valves, to reduce hydrogen gas from 450 ATM to 1 ATM. Valves to be single-stage reduction type.
3. Safety valves for operation at 450 ATM and temperatures up to 450° C.
4. High pressure pipe for operation at above specifications.
5. Heat interchanges pipe for operation under external temperature of 1000° C and internal pressure of 450 ATM raising the temperature of the gas from 300 to 400° C.
6. Check valves for operation at 450 ATM and 450° C.

"customer suggests that the above equipment be made of chrome molybdenum steel, or if you recommend nickel chrome molybdenum steel, they state that the nickel content should not be more than 1% because chemical action will result."

Watson-Stillman Co's Quotations

Item 1.	$165,000.00	(100 pieces each of diameter 25 mm, 30 mm, 35 mm, 40 mm, 45 mm.)
Item 3.	26,300.00	(20 " " " " " " " " " " " " " ")
Item 6.	65,750.00	(50 " " " " " " " " " " " " " ")
	$257,050.00	

Disposition:

Watson-Stillman Co. only supplier to quote. Quotation covers only Items 1, 3, 6--Watson-Stillman Co. does not manufacture Items 2, 4, 5.

Conclusion:

No action taken on bid, which was submitted October 27, 1939.

(OVER)

Section 200-O

MITSUBISHI - BUENOS AIRES, ARGENTINA OFFICE

(Inquiry through Mitsubishi)

3071 June 4, 1941

Subject:

Complete Oil Well Drilling Unit

Supplier:

Wilson Manufacturing Co., Witchita Falls, Texas

Inquiry:

Catalog, specifications, and approximate price of super-model single drum winch type, suitable for a depth of 700 meters.

Disposition:

Letter 6/16/41 from Wilson Manufacturing Co. to Mitsubishi, Buenos Aires which states substantially:

Decline to quote because company has representative in Argentine, to whom inquiry has been referred. However, Wilson prefers not to quote, because of evident final destination of this equipment--(the Dutch East Indies). An order had recently been taken by Wilson from Asano Bussan for 20 sets of this identical equipment--10 of which were shipped, but the other 10 units were being held in this country because no export license could be obtained from the U. S. Government. Wilson believes there would be no possibility of obtaining an export license for similar equipment, even though it is being shipped to the Argentine, because the Government officials here already have similar specifications from Asano Bussan in their application for an export license. Wilson believes, therefore, that the Government would feel that in shipping this equipment to the Argentine, the intention would be to reship it to the Far East.

Another reason why Wilson prefers not to quote is that the specifications mentioned cover equipment which is not suitable for any drilling operations in the Argentine. As a matter of fact, even though Asano Bussan ordered similar equipment for shipment to Japan, Wilson states that this type of equipment is not suitable for the Japanese oil fields and that the only place in the world using this type of equipment is the Dutch East Indies. Furthermore, Wilson states that the petroleum industry in the Argentine is completely nationalized and they feel that the General Electric Co., who are their (Wilson's) agents, undoubtedly would receive from the Argentine Government all inquiries for equipment of this kind.

Conclusion:

It appears evident that Japan was in dire need of this apparatus and was prepared to go to any means to secure this end.

Section 200-P

JAPANESE ARMY

(Inquiry through Mitsubishi)

2823 T-199 June 21, 1940

Subject:

Rotary Boring Machine

Supplier:

Oil Well Supply Co.

Inquiry:

Information and prices on oil well drilling machines of the rotary type. Machines to be used for drilling from 300 to 1000 meters. Inquiry is preliminary, but it is expected that a very large quantity of these drilling or boring machines will be purchased in the near future.

Disposition:

Oil Well Supply Co. quotes 7/6/40, total of $21,623.88, with description of various items.

No evidence that order was placed.

Conclusion:

Pencil memo indicates that Japanese Army placed this inquiry with three firms, namely, Mitsubishi, Mitsui, and Showa Tsusho. Possibly, other correspondence will reveal more definite disposition of the inquiry. Correspondence does not infer probable location of the apparatus.

(OVER)

Section 200-Q

NIPPON YUKA KOGYO

(Inquiry through Okura & Co.)

Tokyo Inq. 4929 NY Inq. 23463 December 26, 1938

Subject:

(10) High Pressure Vessels

Supplier:

A. O. Smith Corp.
Bethlehem Steel Export Corp.

Inquiry:

Specifications: 500 m/m I. D.
5 m Length
300 Atm. working pressure
500°C. working temperature

Disposition:

Bethlehem quotes $19,025.00 each net. Total $190,000,000. Shipment to begin in 11/12 months. Completed in 16/17 months. Preliminary drawing P-1299 (Forged Vessels)

8/1/40 Bethlehem advises their capacity has been entirely taken up by the Government and consequently their mill will not accept any order from outside the country.

A. O. Smith quotes (8/22/40) on riveted vessels at preliminary estimate of $14,000.00 each. However, this estimate is qualified by receipt of additional information, and some revisions in the specifications for maximum temperatures.

Conclusion:

The file indicates that this inquiry just died a natural death. Purpose of equipment not stated--nor customer's intended location.

Section 200-R

HAYAMA OIL CO.

(Inquiry through Okura & Co.)

Tokyo Inquiry 4384 NY Inq. 22386 November 13, 1936

Subject:

Methane Gas Cracking Plant

Supplier:

Alcorn Combustion Co.
(Through J. P. Devine Manufacturing Co., Inc.)

Inquiry:

From Okura & Co.
Plant capacity 60,000 cu. meters per 24-hour day, from residum refinery gas composition as follows:

50-60% of methane
50-40% of hydrogen
trace CO_2 + CO + NH_3

Preliminary estimate only!

Disposition:

Supplier furnished a very complete proposal (in file) with general description and flow sheet. Estimated cost $263,900.00.

Conclusion:

The file does not indicate that this matter ever got further than the preliminary-estimate stage. The ultimate location of the proposed equipment is not stated--other than the name of the customer.

(OVER)

Section 200-S

OGURA OIL CO.

(Inquiry through Okura & Co.)

Tokyo Inquiry 4397 NY Inquiry 22399 November 27, 1936

Subject:

Methane Gas Cracking Plant

Supplier:

Alcorn Combustion Co.
(Through J. P. Devine Manufacturing Co., Inc.)

Inquiry:

From Okura & Co.
For plant to process 15,000 cu. meters of sulphur-free refinery vapors per 24-hour day, of the following composition:

Hydrogen	5.7% by volume
Methane	38.1
Ethylene	12.0
Ethene	15.0
Propylene	10.2
Propane	8.0
Butane and Butylene	4.8
Other heavy hydrocarbons	6.2

Preliminary estimate only.

Disposition:

Supplier furnished a very complete proposal (in file), with general description and flow sheet. Estimated cost $160,400.00.

Conclusion:

The file does not indicate that the matter ever got further than the preliminary-estimate stage. The ultimate location of the proposed equipment is not stated--other than the name of the customer.

Section 200-T

NIIDZU OIL COMPANY

(Inquiry through Okura & Co.)

Osaka Inquiry 3041 NY Inquiry 22346 October 5, 1936

Subject:

Oil Distillation Plant

Supplier:

Foster-Wheeler Corp.
M. W. Kellogg Co.

Inquiry:

From Okura & Co. (Osaka Office)

Rough specifications, flow sheet, technical information and preliminary estimate re--complete oil distillation plant employing pipe stills vs vacuum distillation. No capacity stated except, "a minimum economical unit."

Disposition:

Inquiry too vague to secure any definite information. Kellogg furnished flow sheet and general description. Foster-Wheeler furnished rough estimate of $72,000.00 for unit with a capacity of from 900 to 1300 bbls. a day.

Other Japanese oil companies allegedly interested in one of these units are: Toyo, Toyo Shoku, Manshu, Chosen, Maruzen, Aikoku, and Asahi.

Additional inquiry for plant using Furfural Solvent Process, capacity 100 to 200 bbls. per day.

Conclusion:

Nothing in the file indicates that these inquiries ever materialized--they appear to be of a long-range informative character.

(OVER)

Section 200-U

UBE YUKA KOGYO KAISHA

(Coal Liquefaction Co.)

(Inquiry through Okura & Co.)

Tokyo Inquiry 4912 NY Inquiry 23,333 October 2, 1939

Subject:

(16) Reaction Vessels for Hydrogenation
Catalytic Cylinder)
Condension Columns) ------- synthetic ammonia

Suppliers:

Midvale Co. (Operating conditions do not permit quote)
Bethlehem Steel Export Co. (will quote)
Mesta Machine Co. (not in position to quote)

Inquiry:

Specifications:

750 m/m	I.D.
8 meters	Length
300 Atm	working pressure
500	working temperature

according to drawing No. P-1314

Disposition:

Lost the order to Mitsubishi.

Bethlehem quoted $768,000.00 on reaction vessels.
Files did not indicate ultimate location of proposed equipment.
No blueprints in file.