Top Secret

[redacted]

DIRECTORATE OF
INTELLIGENCE

Industrial Facilities
(Non-Military)

Basic Imagery Interpretation Report

Sa-erh-tu Petroleum Refinery and Storage

Sa-erh-tu, China

[redacted] 25X1

Top Secret

25X1

[redacted] 25X1

RCS [redacted] 13/0196/69

DATE JUNE 1969

COPY 101

PAGES 10

[redacted] 25X1

TOP SECRET RUFF

RCS - 13/0196/69

[redacted] 25X1

CENTRAL INTELLIGENCE AGENCY
Directorate of Intelligence
Imagery Analysis Service

INSTALLATION OR ACTIVITY NAME			COUNTRY
Sa-erh-tu Petroleum Refinery and Storage			CH
UTM COORDINATES	GEOGRAPHIC COORDINATES	[redacted]	WAC-PIC No 25X1
51TXM614532	46-32-00N 125-06-00E		0283-118

MAP REFERENCE
2nd RTS. USATC Series 200, Sheet M0283-7HL, 2nd edition, April 1968. Scale 1:200,000 (SECRET [redacted] 25X1 25X1

LATEST IMAGERY USED	NEGATION DATE (If required)
[redacted]	Not Required

25X1

ABSTRACT

This report provides a detailed imagery-derived analysis of Sa-erh-tu Petroleum Refinery and Storage based on small-scale photography from November 1961 through November 1968.

Surveying of the Sa-erh-tu site was completed by December 1962. Construction of the refinery occurred in three phases, each requiring approximately two years. The facilities added during each phase went into operation upon completion. The refinery was in partial operation by November 1964 and was observed complete and in full operation on photography of November 1968.

The refinery is capable of producing straight-run, cracked, and blended gasolines, diesel and fuel oils, coke and gaseous hydrocarbons.

The report includes a detailed line drawing and photograph of the refinery, mensuration of tanks, a chronology of construction and operational status, and reference data.

TOP SECRET RUFF

[redacted] 25X1

25X1

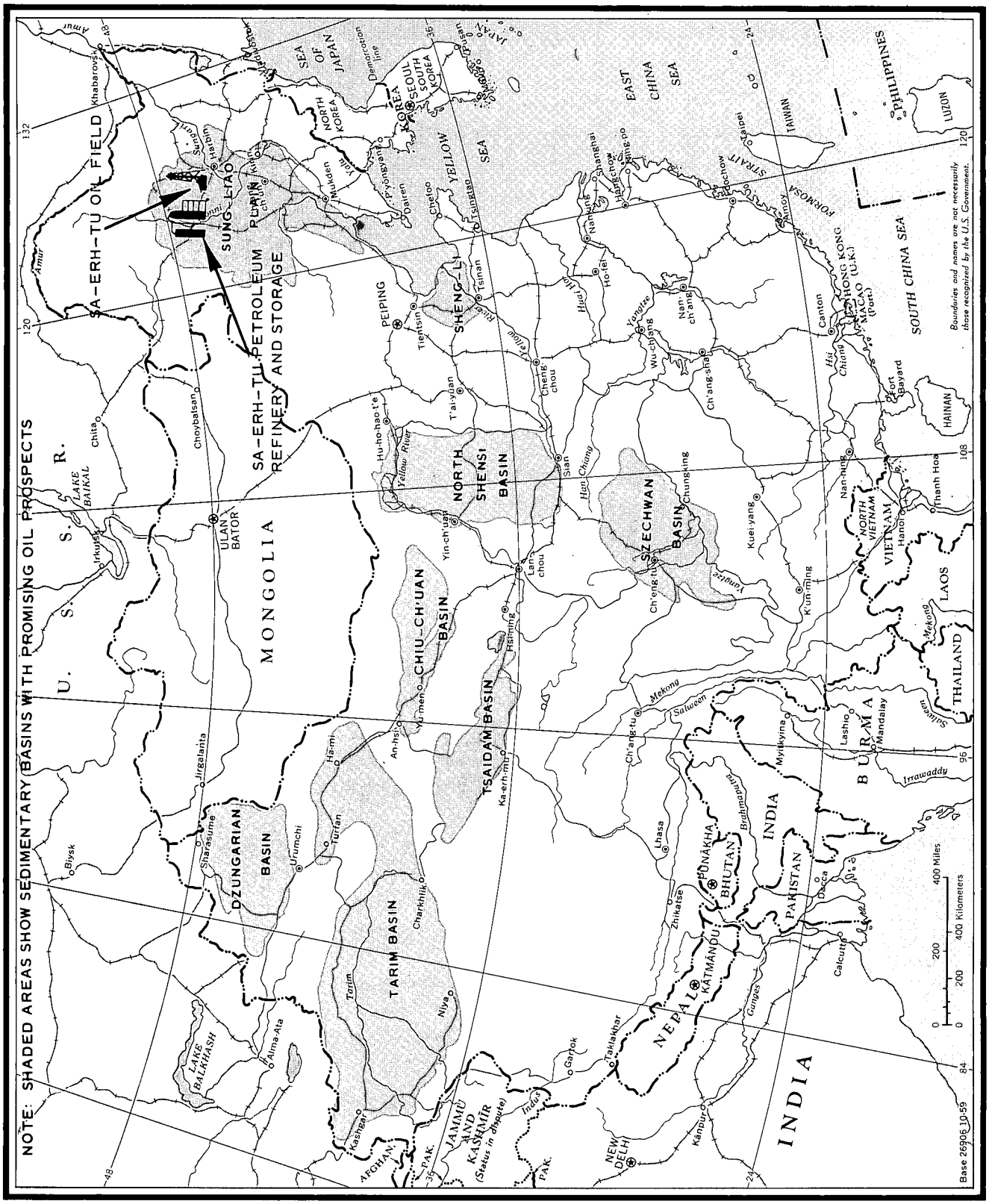


FIGURE 1. LOCATION MAP.

25X1

25X1

25X1

INTRODUCTION

Sa-erh-tu Petroleum Refinery and Storage is located in the southeastern section of Heilungkiang Province in the center marsh area of the Sung-liao Plain. The refinery is about 5 nautical miles (nm) southeast of the town of Sa-erh-tu which was developed to support the exploration work and the subsequent drilling and development program in the surrounding oil fields.

Crude oil for charging the refinery is brought in from the adjacent fields by pipeline. Products and crude in excess of that used locally are transported from Sa-erh-tu by truck and rail tank cars. This excess is probably shipped to refining facilities in eastern China. The principal rail line serving this area is between La-ma-tien and Har-erh-pin. A network of primary roads also serves the plant.

Plants and facilities which are associated with the refinery include a heat and thermal power plant, a field storage and loading facility, a possible oil processing plant, and a possible petrochemical plant.

BASIC DESCRIPTION

Physical Features

The refinery is large, occupying a rectangular area which measures approximately 5,845 by 3,190 feet and encompasses 455 acres. The refinery and the storage areas are wall secured.

Operational Functions

Based upon the identification of the equipment now complete and in operation, the products of this refinery are straight-run, cracked, and blended gasolines, diesel and fuel oils, coke, and gaseous hydrocarbons.

Construction Status and Activity

Construction of the Sa-erh-tu Petroleum Refinery began about November 1961, and the refinery was first seen in production in November 1964. The refinery was constructed in three phases following completion of surveying. The facilities added during each phase went into operation upon completion. The refinery was observed in limited operation on all photography from November 1964 until November 1968 when it was first observed in full operation.

The following is a generalized history of the refinery, covering the planning stage and three phases of development which followed. No detailed

25X1

chronological accounting of the construction of the various items of equipment or facilities is presented in this report; however, specific items are noted to illustrate significant points of development in the complex.

November 1961 - December 1962 -- Construction support facilities were built and the survey of the refinery site appeared to be completed.

December 1962 - November 1964 (1st Phase) -- The first phase of development was completed with the installation of the crude distillation unit, the probable thermal cracking unit, and the processing equipment in the unidentified area. These were in operation in November 1964 as evidenced by emissions from the thermal cracking unit and the cooling towers. Smoke was observed coming from the flare tower for the first time on imagery of November 1964. Also present were most of the crude, intermediate, and product storage tanks and the water treatment area.

November 1964 - March 1966 (2nd Phase) -- The second phase of development was completed with the construction of the delayed coking unit and two possible multistage distillation units (crude distillation area). The two loading facilities were completed and rail cars were observed for the first time on photography of November 1965. The water treatment area was expanded with the addition of five semiburied tanks. The support area and remaining storage tanks were completed. The facilities added during this phase of development appeared to be in operation on photography of January 1966, as indicated by emissions from the delayed coking area, the crude distillation area, and the cooling towers.

March 1966 - November 1968 (3rd Phase) -- The third phase was completed, and the newly installed possible reforming units were in operation on coverage of November 1968, as evidenced by emissions from the associated cooling towers. Two additional basins were under construction in the water treatment area, and the six semiburied tanks had been completed. Three trains were observed within the refinery's loading facility on photography of November 1968.

Facilities and Equipment

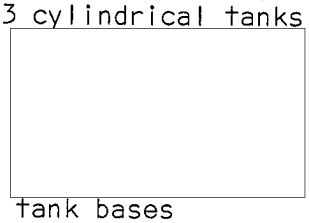
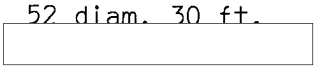
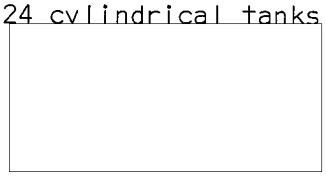
The following table lists the functional areas and equipment within the refinery. All items are keyed to Figure 3.

SUMMARY OF EQUIPMENT AND FACILITIES AT THE
SA-ERH-TU PETROLEUM REFINERY AND STORAGE

Area	Description	Equipment
A	Loading Facility	3 rail served loading racks (not shown on graphic) 18 storage/support buildings

25X1

25X1

Area	Description	Equipment
B	Crude Oil Storage	8 support buildings 43 cylindrical tanks  25X1 2 tank bases
C	Support/Storage	46 support/storage buildings Undetermined number of storage tanks (not measurable)
D	Products and Intermediates Handling and Storage	6 support buildings 54 cylindrical tanks 52 diam. 30 ft.  25X1 1 settling basin
E	Products and Intermediates Handling and Storage	6 buildings 24 cylindrical tanks  25X1
F	Possible Reforming	1 possible reforming unit bank of 3 reactors/columns bank of processing equipment 3 pipe furnaces 1 possible reforming unit bank of reactors/columns 3 pipe furnaces 7 support buildings
G	Crude Distillation	1 possible multistage distillation unit 5 columns 3 pipe furnaces 1 possible multistage distillation unit 3 columns 2 pipe furnaces 1 control building 6 support buildings 2 cylindrical tanks diam. 30 ft.
H	Products and Intermediates Storage	2 support buildings 18 cylindrical tanks

25X1

25X1

25X1

Area	Description	Equipment
		25X1 8 diam. 30 ft.
I	Crude Distillation	2 fractionators 2 pipe furnaces 1 building
J	Probable Thermal Cracking	3 columns (probable reactor, flash tower, and fractionator) 2 pipe furnaces 2 support buildings
K	U/I Processing	2 fractionators 1 large petrochemical or DeFlorez type furnace 1 compressor building 2 support buildings
L	Support	4 banks of cooling towers 10 buildings 1 spray pond 3 cylindrical tanks diam. 30 ft.
M	Delayed Coking	1 delayed coker with 2 drums 2 banks of cooling towers 1 shipping building 5 support buildings 7 cylindical tanks 25X1 3 diam. 30 ft. 1 settling basin
N	Water Treatment	1 basin U/C 1 basin 1 bank of cooling towers 13 support buildings 6 semiburied tanks 1 cylindrical tank 25X1
O	Area of Expansion	1 flare tower 5 support buildings

25X1

25X1

25X1

Area	Description	Equipment
P	Loading Facility	2 loading racks (not shown on graphic) 12 support buildings 20 cylindrical tanks [redacted] 25X1 8 diam. 30 ft. 2 semi buried tanks 13 tank bases

25X1

25X1

FIGURE 2. SA-ERH-TU PETROLEUM REFINERY AND STORAGE, CHINA.

25X1

25X1

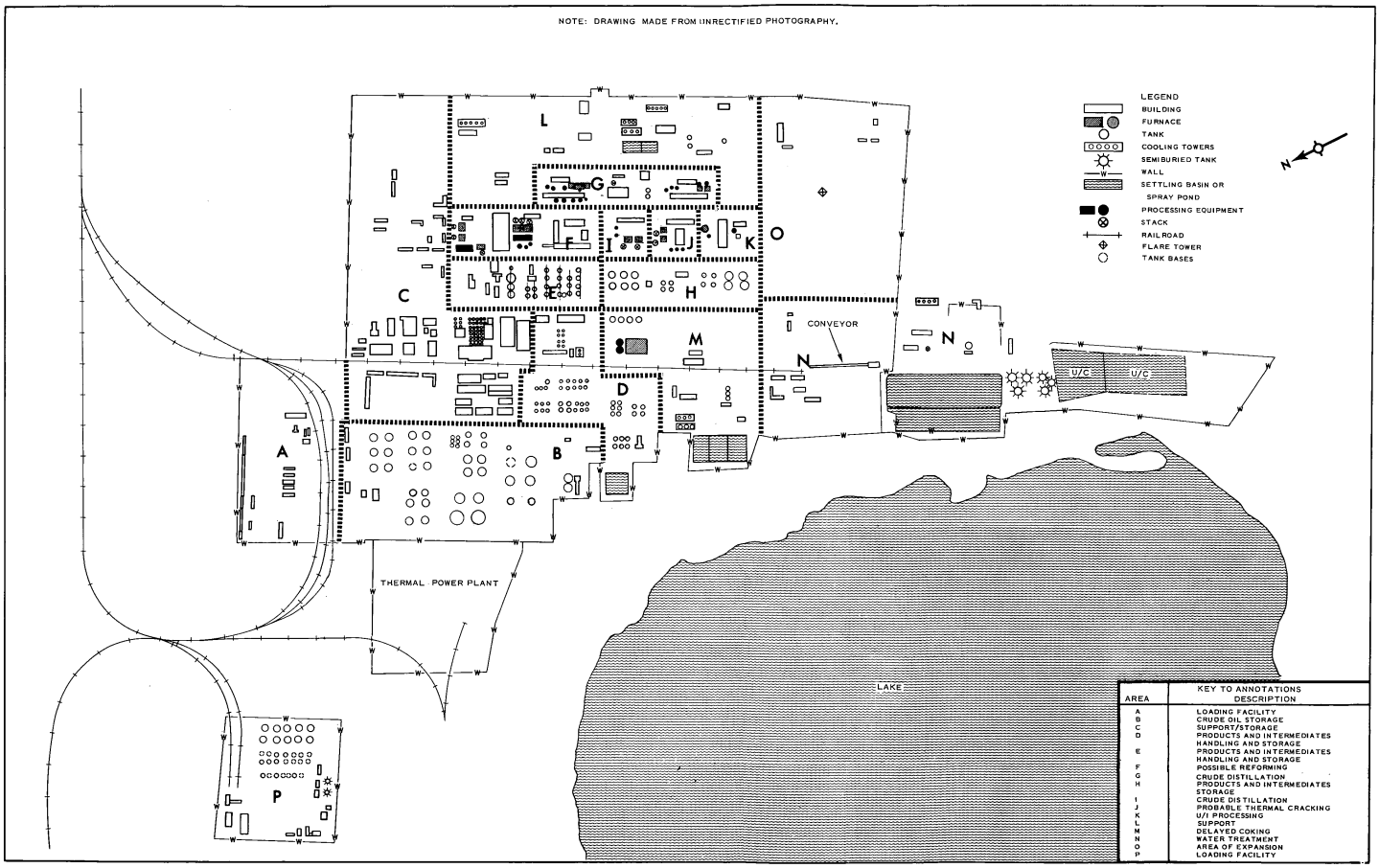


FIGURE 3.—SA-ERH-TU PETROLEUM REFINERY AND STORAGE, CHINA.

25X1
25X1

REFERENCES

25X1

Maps and Charts

2nd RTS. US Air Target Chart Series 200, Sheet M0283-7HL, 2nd edition, April 1968, Sclae 1:200,000 (SECRET

25X1
25X1

Documents

1. CIA. PIR 75011, Oil Field and Refinery Complex, Sa-erh-tu, China, July 1966 (TOP SECRET RUFF)

2. New Oilfield in North East (Map), 27 May 1963 (SECRET)

25X1

3. State. A-742. China's Taching Oilfield: Elcipse of an Industrial Model, 27 August 1968 (SECRET)

4. Sa-erh-tu (46° 35'N, 125° 00'E) An-ta-chan (46° 24'N, 125° 19'E) Chi-chi-ha-erh (47° 22'N, 123° 57'E), China, 6 November 1963. (SECRET

25X1
25X1
25X1

Requirement

EXSUBCOM - BR-N/002-69

25X1

Top Secret

[redacted]

Top Secret