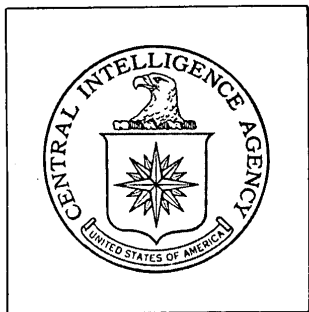


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DIRECTORATE OF
INTELLIGENCE

**Industrial Facilities
(Non-Military)**

Basic Imagery Interpretation Report

Yang-lui-ching Petroleum Refinery

Tientsin, China



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CENTRAL INTELLIGENCE AGENCY
Directorate of Intelligence
Imagery Analysis Service

RCS 13/0001/73

INSTALLATION OR ACTIVITY NAME		COUNTRY
Yang-lui-ching Petroleum Refinery		CH
UTM COORDINATES	GEOGRAPHIC COORDINATES	25X1
NA	39-04-10N 117-00-00E	
MAP REFERENCE		
15th RTS. USATC, Series 200, Sheet M0381-6HL, 4th ed, Mar 70, Scale 1:200,000		
(SECRET)		25X1
LATEST IMAGERY USED	NEGATION DATE (If required)	
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ABSTRACT

Yang-lui-ching Petroleum Refinery processes crude oil produced at the nearby Ta-ku Oil Field. It is small in size, but is comparable in charge capacity to several other larger new refineries in China. The completed refining units include a crude oil distillation unit, a possible blending/treating unit, and a small unidentified processing unit. A fluid catalytic cracking unit appears complete but has not been observed operating. One additional processing unit is under construction. When the fluid catalytic cracking unit begins operating, the refinery will be capable of producing straight-run and cracked gasoline in a wide range of octane ratings, kerosene, diesel and fuel oils, and gaseous hydrocarbons. Associated with the refinery are a storage area, a probable products transfer area, and a possible petrochemical plant under construction.

In November 1965, when the refinery was first observed under construction, only a few support buildings were present. By December 1969 a small shell still was in operation. In November 1970, a crude oil distillation unit was complete and operating and the shell still was partially dismantled. The refinery has been observed operating on all photography from December 1969 through February 1972.

This report includes a location map, a photograph of the refinery and associated facilities, a line drawing of the refinery, a detailed listing of completed buildings and processing equipment, dimensions of storage tanks, and a discussion of the status of the facilities.

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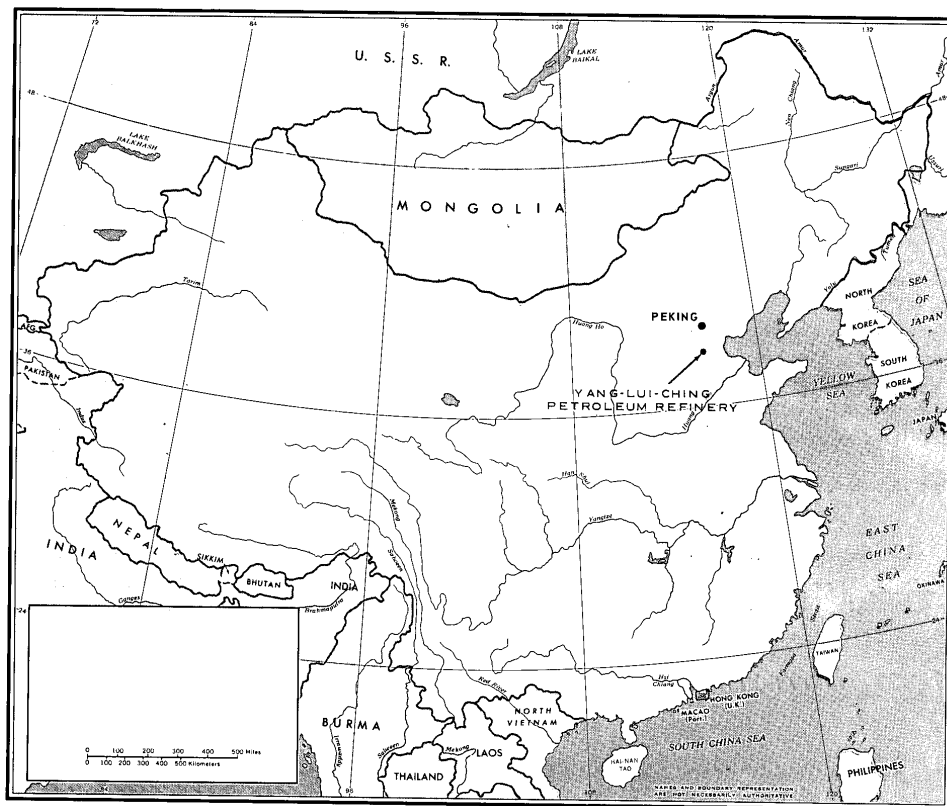


FIGURE 1. LOCATION MAP.

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INTRODUCTION

Yang-lui-ching Petroleum Refinery is located 10 nautical miles (nm) southwest of the center of Tientsin in Hopeh Province (see Figure 1).

The refinery is charged with crude oil brought by pipeline from the Ta-ku Oil Field [redacted] located 30 nm to the southeast. Rail service to the refinery is provided by a spur from the line between Tientsin and Ching-hsien. Steam for the refinery is produced at a collocated steam plant. Electric power is received through a transformer substation on the east side of the refinery.

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BASIC DESCRIPTION

The walled area of the refinery, which also contains storage and support facilities, measures approximately 3,000 by 2,225 feet and occupies about 150 acres. The refining and storage areas occupy 65 acres (see Figures 2 and 3). The large support area probably provides support for the oil field as well as the refinery.

A storage area and a probable products transfer area are located about 3,000 feet east of the refinery, and a possible petrochemical plant is under construction 1.5 nm northeast of the refinery. The storage area contains four earth-covered storage bunkers, a cylindrical storage tank and a pumphouse and is connected to the refinery by pipeline. The probable products transfer area contains several buildings, two buried tanks, and two transloading sheds and is connected by pipeline to the adjacent storage area.

Operational Functions

The refinery is small in size, but is comparable in charge capacity to the much larger Fang-shan Petroleum Refinery [redacted] and several other new refineries in China. The units presently completed at the refinery include a crude oil distillation unit, a possible blending/treating unit, and a small unidentified processing unit. A fluid catalytic cracking unit appears complete but has not been seen in operation. An additional processing unit is under construction.

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When the fluid catalytic cracking unit begins operating, the refinery will be capable of producing straight-run and cracked gasolines in a wide range of octane ratings, kerosene, diesel and fuel oils, and gaseous hydrocarbons.

Construction and Operational Status

The refinery was not present in June 1965. It was first observed under construction on photography of November 1965. By February 1966 the shell still was in the early stages of construction. Also, a few storage tanks, a rail spur into the area, and additional support buildings had been constructed.

In November 1967, the shell still was nearly complete, the crude oil distillation unit was in the midstage of construction, and most of the present support and housing facilities were in place. Between November 1967 and September 1968 construction progressed very little.

By December 1969 the shell still was complete and operating. The crude oil distillation unit was in the late stage of construction, the storage area east of the refinery was in the early stages of construction, and site preparation for the catalytic cracking unit and the probable products transfer area was observed.

In November 1970 the crude oil distillation unit was complete and in operation. The shell still had been partially dismantled. The catalytic cracking unit was in the early-to-mid stage of construction. The possible blending/treating unit appeared complete. The small unidentified processing unit (Area E) was in the early stage of construction. In the storage area east of the refinery, four groups of horizontal tanks had been earth covered and the area was connected to the refinery by pipeline. The probable products transfer area was complete and had been connected by pipeline to the storage area. The possible petrochemical plant was in a very early stage of construction, with only a few support buildings present.

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By February 1971 the catalytic cracking unit was in the late stage of construction. Construction was started on the processing unit in Area L.

On the latest coverage in February 1972, the catalytic cracking unit appeared complete but was not in operation. The small unidentified processing unit in Area E was operating. One cylindrical storage tank had been added to the storage area east of the refinery. Construction was continuing on the processing unit in Area L and the possible petrochemical plant.

Facilities and Equipment

Table 1 lists the functional areas and equipment within the refinery. In the area which is still under construction, the buildings and processing equipment are not included in the table or shown in Figure 3. All measurements are rounded to the nearest 5 feet.

Table 1. Equipment and Facilities at Yang-lui-ching Petroleum Refinery
(Keyed to Figure 3)

<u>Area</u>	<u>Functional Description</u>	<u>Equipment and Facilities</u>
A	Storage and Water Cooling	2 Cooling towers 1 Truck loading rack 14 Miscellaneous buildings (one under construction) 42 Cylindrical storage tanks 4 55-foot-diameter 9 40-foot-diameter 4 35-foot-diameter 8 30-foot-diameter 8 20-foot-diameter 7 15-foot-diameter 2 5-foot-diameter 2 Horizontal storage tanks, 50 feet long
B	Electric Substation	Equipment not listed
C	Housing and Support	38 Miscellaneous buildings
D	Support	35 Support buildings
E	Unidentified Processing	1 Unit with 1 column 1 cluster of processing equipment 2 processing buildings
F	Support	37 Miscellaneous buildings
G	Steam Plant	Equipment not listed
H	Crude Oil Distillation	1 Unit with 1 atmospheric column 1 vacuum column 3 other columns 1 cluster of process- ing equipment 1 bank of heat exchangers/ cooling coils/accumulators 2 furnaces 1 probable crude pre- treatment building with 6 horizontal tanks 1 pump building 1 support building 1 cylindrical storage tank 10 feet in diameter

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<u>Area</u>	<u>Functional Description</u>	<u>Equipment and Facilities</u>
I	Possible Blending/Treating	1 Unit with 2 clusters of processing equipment 3 processing buildings
J	Catalytic Cracking	1 Fluid catalytic cracking unit with 1 cracking section containing 1 fractionating column 1 reactor 1 flash tower 1 regenerator 2 catalyst hoppers 1 bank of heat exchangers/cooling coils/accumulators 1 furnace 1 pump building 1 vapor recovery section containing 2 columns 1 bank of heat exchangers/cooling coils/accumulators 1 processing building serving both sections
K	Storage and Shipping	2 Railcar loading racks 6 Truck loading racks 13 Miscellaneous buildings 4 Cylindrical storage tanks 2 75-foot-diameter 2 55-foot-diameter 20 Horizontal storage tanks, 20 feet long 1 Buried storage tank (not measured) 2 Water storage basins 1 Water tower
L	Processing Unit Under Construction	Equipment not listed
M	Shell Still (in disuse)	Equipment not listed
N	Housing	38 Miscellaneous buildings

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REFERENCES

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Map

15th RTS. US Air Target Chart, Series 200. Sheet M0381-6HL, 4th edition, March 1970, Scale 1:200,000 (SECRET)

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Requirement

COMIREX N06
Support Number 423809

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