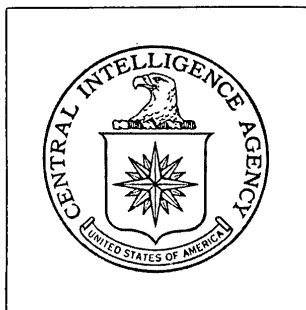


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DIRECTORATE OF
INTELLIGENCE

**Industrial Facilities
(Non-Military)**

Basic Imagery Interpretation Report

Pleven Petroleum Refinery Yasen

Yasen, Bulgaria



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CENTRAL INTELLIGENCE AGENCY
 Directorate of Intelligence
 Imagery Analysis Service

INSTALLATION OR ACTIVITY NAME		COUNTRY
Pleven Petroleum Refinery Yasen		BU
UTM COORDINATES	GEOGRAPHIC COORDINATES	25X1
35TKJ101980	43-24-30N 024-29-10E	
MAP REFERENCE		
ACIC. USATC, Series 200, Sheet 0322-4HL, 3rd ed, Feb 64, Scale 1:200,000 (SECRET)		
LATEST IMAGERY USED		NEGATION DATE (If required)
		25X1

ABSTRACT

Pleven Petroleum Refinery Yasen is a small refinery which is part of the petroleum and petrochemical complex being constructed in the Pleven area. The major production components of the refinery are a crude oil distillation unit and a lubricating oil plant. The primary products are lubricating oils, heavy fuels, and petrochemical feedstocks.

The refinery has not been seen operating on photography. Construction began between February 1967 and March 1968. By June 1970, the crude oil distillation unit was complete and the refinery appeared capable of partial operation, but no indicators of operation were observed. On the latest coverage in June 1971, all of the major processing units appeared complete, tank cars were present, and the flare tower was operating. The refinery appeared capable of full operation, but it probably was not operating at that time based on the absence of smoke or vapors from the processing equipment, cooling towers, and power plant.

This report contains a line drawing, a photograph of the refinery, a chart showing the construction chronology of individual units, mensuration of storage tanks, and a discussion of construction and operational status of facilities.

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FIGURE 1. LOCATION MAP.

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INTRODUCTION

Pleven Petroleum Refinery Yasen is located 1 nautical mile (nm) south of Yasen and 4 nm west of Pleven (see Figure 1). It was designed and equipped by the Soviets. The refinery is part of a complex of petroleum and petrochemical industries under construction which reportedly will be Bulgaria's largest oil refining center when completed. 1/

Crude oil to charge the refinery reportedly comes from the new Dolni Dubnik oil field located west of the refinery. Electric power is supplied by the collocated heat and thermal power plant (no BE number).

BASIC DESCRIPTION

Physical Features

The refinery occupies an irregular shaped area about 5,600 by 4,300 feet containing about 570 acres (see Figures 2 and 3). Rail service is provided by a spur from the rail line between Pleven and Cherven Bryag.

Operational Functions

The primary products of the refinery are lubricating oils, heavy fuels, and petrochemical feedstocks. The major production components are a crude oil distillation unit and a lubricating oil plant. In addition, a small unidentified secondary processing unit (Area U) is present.

The crude oil distillation unit is capable of producing lubricating oil feedstocks, diesel and fuel oils, kerosene, straight-run gasoline, and gaseous hydrocarbons. The lighter fractions (straight-run gasoline and gaseous hydrocarbons) are usually further refined in secondary processing units if they are to be used as fuels. Since these secondary processing units are not present, it is assumed that the lighter fractions are shipped from the refinery as petrochemical feedstocks. The kerosene and diesel and fuel oils from this unit can be used with a minimum of additional processing.

The lubricating oil plant is capable of producing a wide range of lubricating oils as well as waxes and asphaltic materials from the feedstocks produced in the crude oil distillation unit. The plant contains a probable deasphalting unit, a solvent extraction unit, a dewaxing unit, a clay treatment unit, and a possible hydrotreating unit. The solvent extraction unit (Area O) is larger and more complex than standard Soviet units and may have some additional processing capability. The possible hydrotreating unit (Area J) is considered part of the lubricating oil plant due to its location, but it could also treat kerosene or heavy fuels.

Construction and Operational Status

Construction of the refinery began between February 1967 and March 1968. On the March 1968 photography, only ground scarring in the storage and processing areas was observed. By September 1969, an unidentified secondary processing unit, two support areas, and a storage area were complete, and the crude oil distillation unit was very near completion.

The refinery reportedly began production in December 1969. 2/ However, it has not been seen operating on photography. By June 1970, the crude oil distillation unit, a storage area, and the water treatment facility were complete. The refinery appeared capable of partial operation, but no indicators of operation were observed.

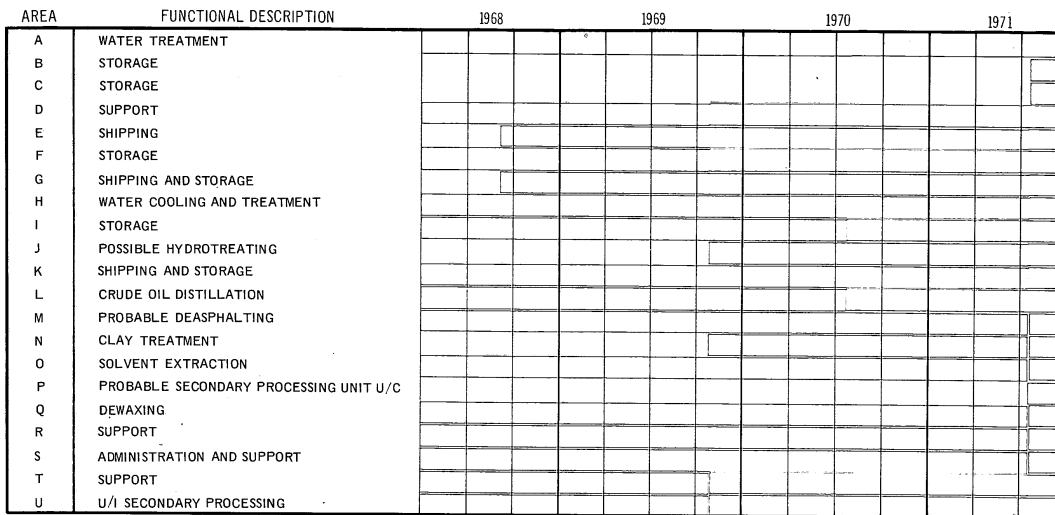
On the latest coverage in June 1971, all of the major processing units appeared complete. Only a probable secondary processing unit and two storage areas remained under construction. The flare tower was burning and rail tank cars were present in Shipping Area E. The refinery appeared capable of full operation, but it probably was not operating based on the absence of smoke or vapors from the processing equipment, cooling towers, and power plant. It may be that the flare tower was burning waste gas from the adjacent oil field and that the rail cars were present for shipping out crude oil. It is also possible that the refinery had been operating prior to the date of photography.

Figure 4 shows the construction chronology of the individual units.

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LEGEND
 UNDER CONSTRUCTION
 COMPLETE

FIGURE 4. CONSTRUCTION CHRONOLOGY AT PLEVEN PETROLEUM REFINERY YASEN.

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Facilities and Equipment

Table 1 lists the functional areas, facilities, and equipment within the refinery. Measurements are given to the nearest half-meter.

Table 1. Equipment and Facilities at the Pleven Petroleum Refinery Yasen
(Keyed to Figure 3)

<u>Area</u>	<u>Functional Description</u>	<u>Equipment and Facilities</u>
A	Water Treatment	1 Treating building 2 Pump buildings 6 Support buildings 2 Cylindrical storage tanks, 12 meters in diameter 3 Water treatment basins 10 Water treatment/storage basins
B	Storage	5 Support buildings 7 Cylindrical storage tanks under construction, each probably 45 meters in diameter
C	Storage	2 Probable tank bases
D	Support	1 Shipping building/warehouse 1 Support building
E	Shipping	2 Loading/unloading racks, each covered by a shed roof
F	Storage	2 Pump buildings 5 Other buildings 57 Cylindrical storage tanks 6 24-meter-diameter 4 [redacted] 25X1 2 [redacted] 12 12-meter-diameter 6 [redacted] 25X1 4 9-meter-diameter 10 [redacted] 25X1 13 6-meter-diameter 4 Spherical storage tanks, [redacted] 25X1 [redacted] r [redacted] 25X1 2 Semiburied tanks (not measured)
G	Shipping and Storage	2 Pump buildings 2 Shipping buildings 3 Other buildings 84 Cylindrical storage tanks 17 [redacted] 25X1 8 9-meter-diameter 4 [redacted] 25X1 15 6-meter-diameter 36 [redacted] 25X1 4 3-meter-diameter

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Area	Functional Description	Equipment and Facilities	
H	Water Cooling and Treatment	2 Pump buildings 1 Water treatment building 4 Cooling towers 3 with 3 cells 1 with 2 cells 2 Semiburied tanks (not measured) 3 Water treatment basins	
I	Storage	3 Pump buildings 4 Other buildings 25 Cylindrical storage tanks 3 [redacted] 4 9-meter-diameter 3 [redacted] 4 6-meter-diameter 11 [redacted] 3 Horizontal storage tanks, 12 meters long 1 Semiburied cylindrical tank (not measured)	25X1 25X1 25X1
J	Possible Hydrotreating	1 Unit with 2 columns 1 bank of processing equipment 1 pipe furnace 1 pump building	
K	Shipping and Storage	1 Bank of processing equipment 2 Pump buildings 3 Shipping buildings 4 Other buildings 49 Cylindrical storage tanks 6 12-meter-diameter 10 [redacted] 3 9-meter-diameter 16 [redacted] 4 6-meter-diameter 10 [redacted] 13 Horizontal storage tanks 7 15-meter-long 6 12-meter-long 1 Cylindrical storage tank under construction	25X1 25X1 25X1
L	Crude Oil Distillation	1 Unit with 1 atmospheric column 1 vacuum column 6 other columns 2 possible desalting drums 1 bank of heat exchangers/ cooling coils/accumulators 2 pipe furnaces 1 processing building 2 pump buildings 1 control house 1 Flare tower	

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<u>Area</u>	<u>Functional Description</u>	<u>Equipment and Facilities</u>
M	Probable Deasphalting	1 Unit with 7 columns 1 pipe furnace 1 processing building 1 pump building 2 Support buildings 5 Horizontal storage tanks 4 18-meter-long 1 12-meter-long
N	Clay Treatment	1 Unit with 1 bank of processing equipment containing probable treating towers 1 bank of batch agitators 1 bank of processing equipment 1 pipe furnace 1 filter building 1 clay receiving building
O	Solvent Extraction	1 Unit with 3 columns 3 banks of processing equipment, each containing columns 2 banks of heat exchangers/cooling coils/accumulators 4 possible solvent storage tanks 6 pipe furnaces 1 pump building 1 semiburied tank 1 Pump building 2 Other buildings 17 Cylindrical storage tanks 3 [redacted] 25X1 10 12-meter-diameter 1 9-meter-diameter 3 [redacted] 25X1 4 Semiburied cylindrical tanks (not measured)
P	Probable Secondary Processing Unit U/C	Facilities not listed.
Q	Dewaxing	1 Unit with 2 solvent regeneration sections, each with 9 columns and 2 banks of processing equipment 2 banks of processing equipment, each with an attached bank of crystallizer drums 1 chiller building 2 filter buildings 1 pump/processing building 1 gasholder, [redacted] 25X1 [redacted] 25X1

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<u>Area</u>	<u>Functional Description</u>	<u>Equipment and Facilities</u>
Q (Cont)		1 Pump building 1 Support building 13 Cylindrical storage tanks, 12 meters in diameter 1 Semiburied cylindrical tank
R	Support	11 Support buildings 2 Storage buildings
S	Administration and Support	2 Administration buildings 1 Possible laboratory 11 Support buildings
T	Support	2 Vehicle sheds 4 Support buildings 2 Horizontal tanks, 15 meters long
U	Unidentified Secondary Processing	1 Unit with 1 column 2 horizontal processing tanks 1 bank of processing equipment 1 pump/processing building 3 Support buildings 3 Cylindrical storage tanks, 15 meters in diameter 1 Horizontal storage tank, 12 meters long

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REFERENCES

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Map

ACIC. US Air Target Chart, Series 200, Sheet 0322-4HL, 3rd edition, February 1964, Scale 1:200,000 (SECRET)

Documents

1. "The Pleven Petrochemical Works," Economic News of Bulgaria, September 1966 (UNCLASSIFIED)
2. CIA. CRS, Firm No. K300233, FBIS 69 L 5613, December 1969 (OFFICIAL USE ONLY)

Requirement

COMIREX N06
Support Number 422992

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