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OIL (1968?)

NEW LUBE OIL PLANT DAURA REFINERY - IRAQ

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SNAM PROGETTI



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NEW LUBE OIL PLANT - DAURA REFINERY, IRAQ

REPUBLIC OF IRAQ

MINISTRY OF OIL AND MINERALS - OIL PLANNING AND CONSTRUCTION ADMINISTRATION

The new Daura lube oil plant was designed and built by SNAM PROGETTI with the cooperation of Foster Wheeler Italiana as sub-contractor for the design of certain units.

Foster Wheeler provided the know-how and process licence for the propane deasphalting unit, Texaco for the furfural extraction and MEK dewaxing units and SNAM PROGETTI for the oil and wax hydro-finishing units.

Technical information

The plant has been incorporated into the existing Daura refinery and covers a surface area of about 1,400,000 sq. ft. It was designed to produce a complete range of lubricating oils totalling 36,000 tons/year and consists of the following units:

Vacuum distillation unit, designed to treat 5,500 BPSD of Kirkuk crude atmospheric residue, obtained from the atmospheric distillation unit located in the existing refinery. The vacuum products are used as charge stocks for the PDA and furfural units.

Propane deasphalting unit, designed to process 1,895 BPSD of Kirkuk vacuum residue. The products are deasphalted oils, which are used as charge stocks for furfural unit, and asphalt which is sent to the asphalt blending system.

The unit employs a rotating disc contactor tower for the extraction of deasphalted oil from charge stock.

Furfural extraction unit, designed to process 1,332 BPCD of three distillate lube oil stocks from vacuum side cuts and two deasphalted lube oil stocks from the propane deasphalting unit.

The treating tower is a rotating disc contactor in which cooled dry solvent, entering at the top, extracts the aromatic and other undesirable components from the charge oil.

The unit is composed of four sections: extraction section, solvent recovery section from extract, solvent recovery section from raffinate and furfural distillation section.

MEK dewaxing and deoiling unit, designed to process 1,122 BPCD of seven waxy raffinates, including four distillate oils and three deasphalted oils from the furfural extraction unit.

The products are dewaxed oils and waxes.

The unit is composed of the following seven sections: chilling and filtering; wax free oil recovery; wax recovery; soft wax recovery; slop solvent recovery; flue gas system; refrigeration system.

Lube oil hydrofinishing unit, designed to process 745 BPCD of the seven dewaxed oils from the MEK dewaxing unit.

The purpose of this treatment is to improve the colour of oils and to increase the oxidation stability.

Wax hydrofinishing unit, designed to process 179 BPCD of waxes of different grades produced by the MEK unit.

The purpose of this treatment is to improve the colour of waxes.

Compounding, blending and filling of lube oils and waxes. The plant comprises blending, additive storage, mixing, drumming and canning equipment for lube oils and blending and packaging equipment for waxes.

Asphalt blending and filling unit. This section covers facilities for storage of the asphalt grades, storage and blending of the cut asphalt grades, truck loading, cleaning of asphalt coated drums and drum filling and weighing.

Storage tanks. This section is composed of 64 tanks required for storage of atmospheric and vacuum residue, storage of intermediate and main components and storage of finished products.

Utilities. The utilities consist of the following units: water cooling system, designed to cool 13,290 IGPM water; compressed air system, capacity 670 SCFM; fuel oil system; electrical distribution system; steam distribution and condensate recovery system; blow down and relief system; sewer system; fire fighting system.

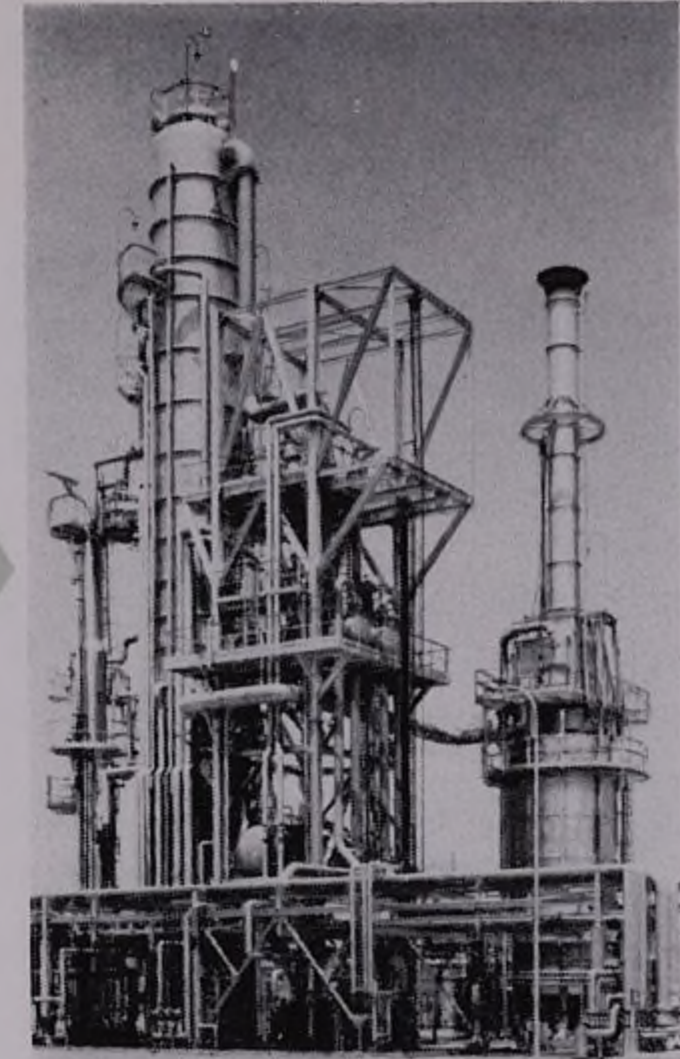
Steam, water and electrical power for the new lube oil plant are supplied by the existing refinery, with interconnections designed and made by SNAM PROGETTI.

All civil engineering work and the entire refinery erection (mechanical, electrical and instrumentation) were carried out under the technical supervision of SNAM PROGETTI - Project Engineering Division, which coordinated the operations of the firms working in the various sectors. In particular all the mechanical assembly work was carried out by the SNAM PROGETTI - SAIPEM Division; major equipment, machinery and instrumentation were supplied by the ENI Group companies NUOVO PIGNONE and PIGNONE SUD.

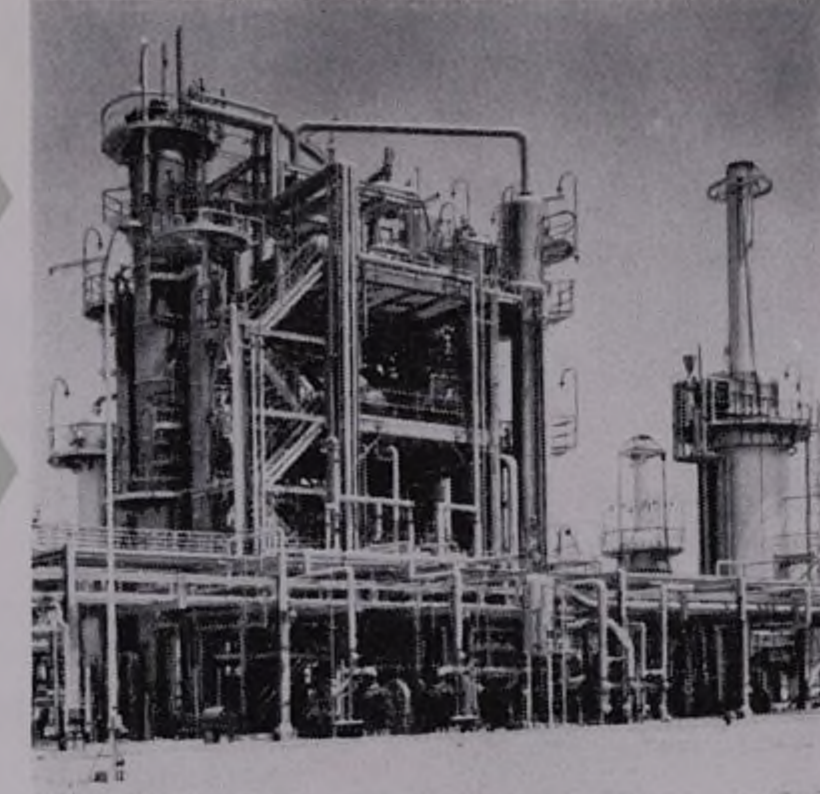
The total weight of materials used in building the new lube plant amounts to approximately 10,000 metric tons.

The number of working hours for erection was about 1,300,000.

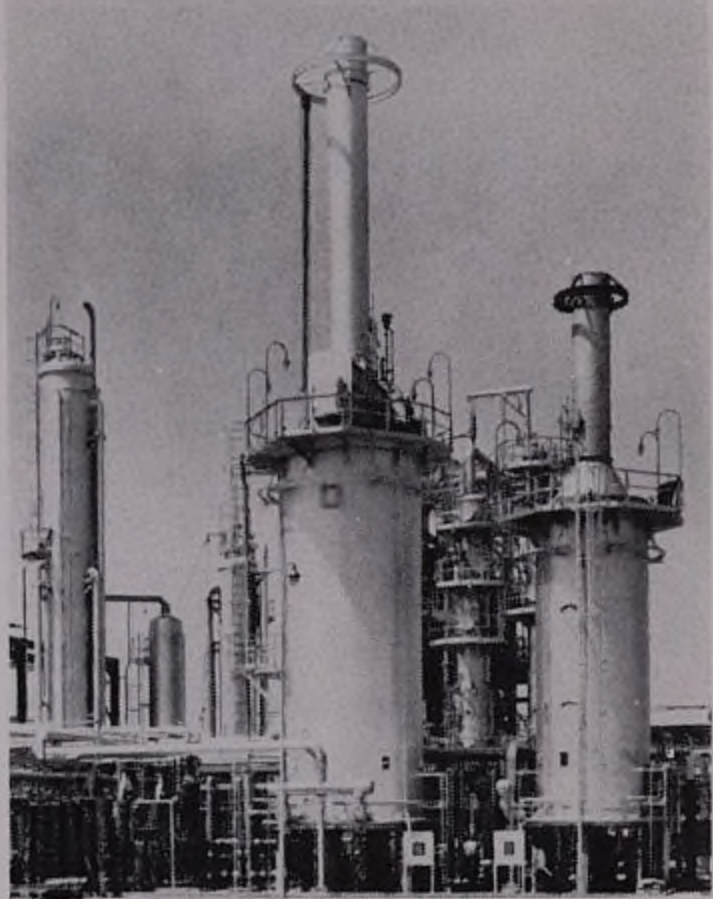
KIRKUK REDUCED
CRUDE - 5,500 BPSD



HIGH VACUUM DISTILLATION
UNIT (5,500 BPSD)



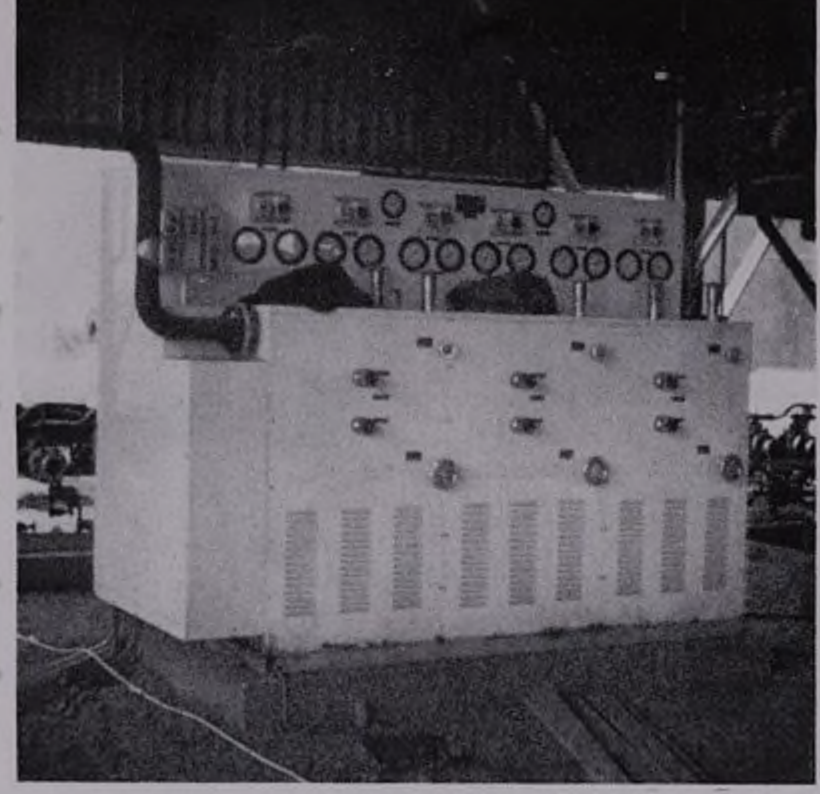
FURFURAL EXTRACTION
UNIT (1,332 BPCD)



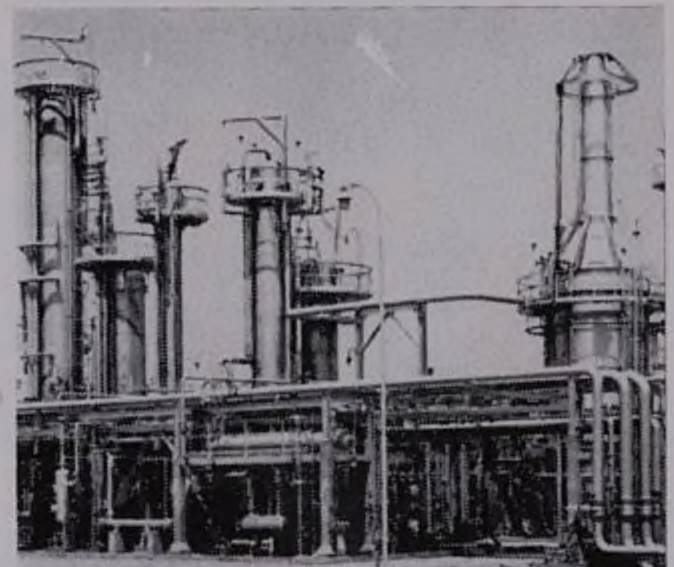
MEK DEWAXING AND
DEOILING UNIT (1,122 BPCD)



LUBE OIL HYDROFINISHING
UNIT (745 BPCD)



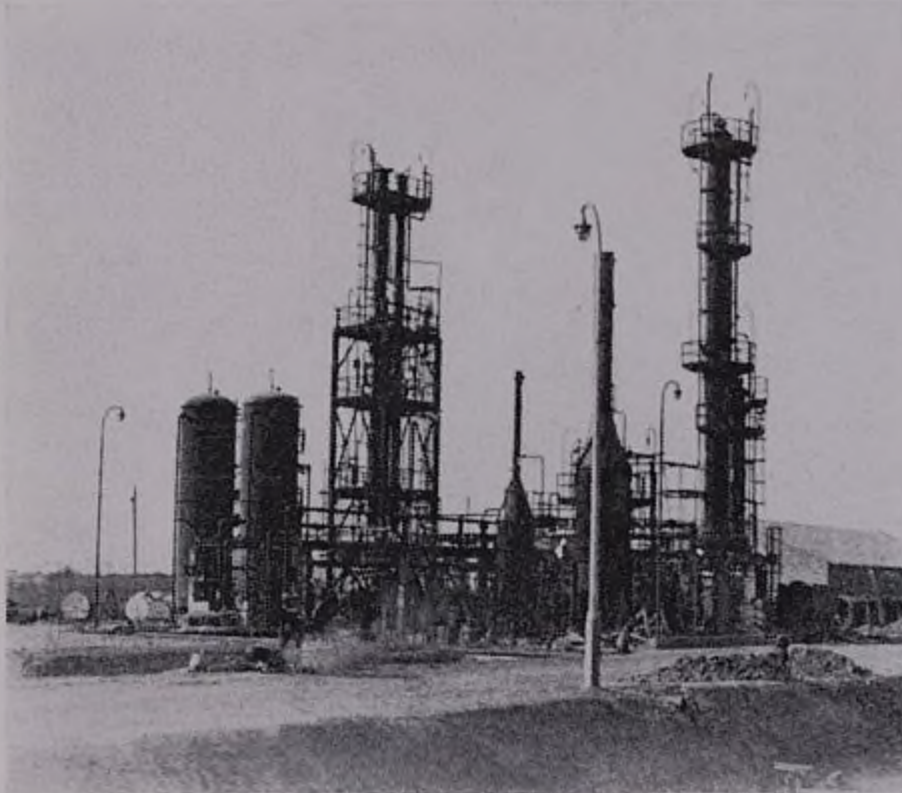
OIL BLENDING AND
FILLING UNIT



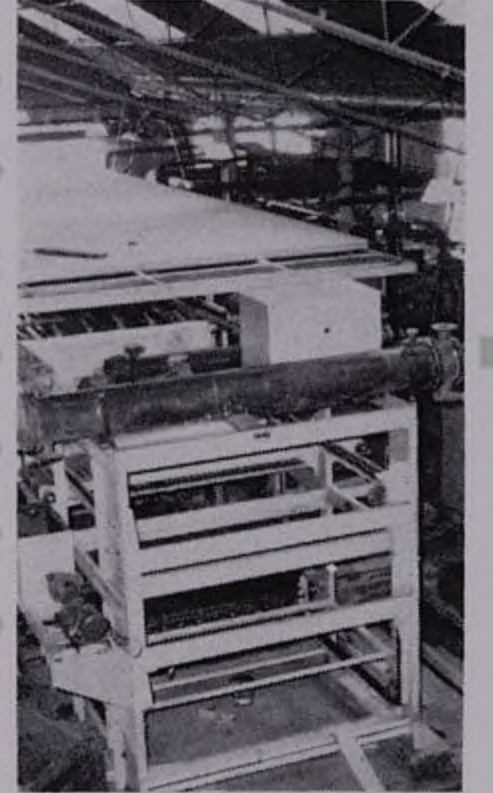
PROPANE DEASPHALTING
UNIT (1,895 BPSD)



ASPHALT BLENDING
AND FILLING UNIT



WAX HYDROFINISHING
UNIT (179 BPCD)



WAX PACKAGING UNIT

LV GASOIL

INTERMEDIATE STOCK

HVI OILS

LVI OILS

FINISHED WAXES

ASPHALT PRODUCTS

VACUUM RESIDUE



General view

Pipe-way and process units





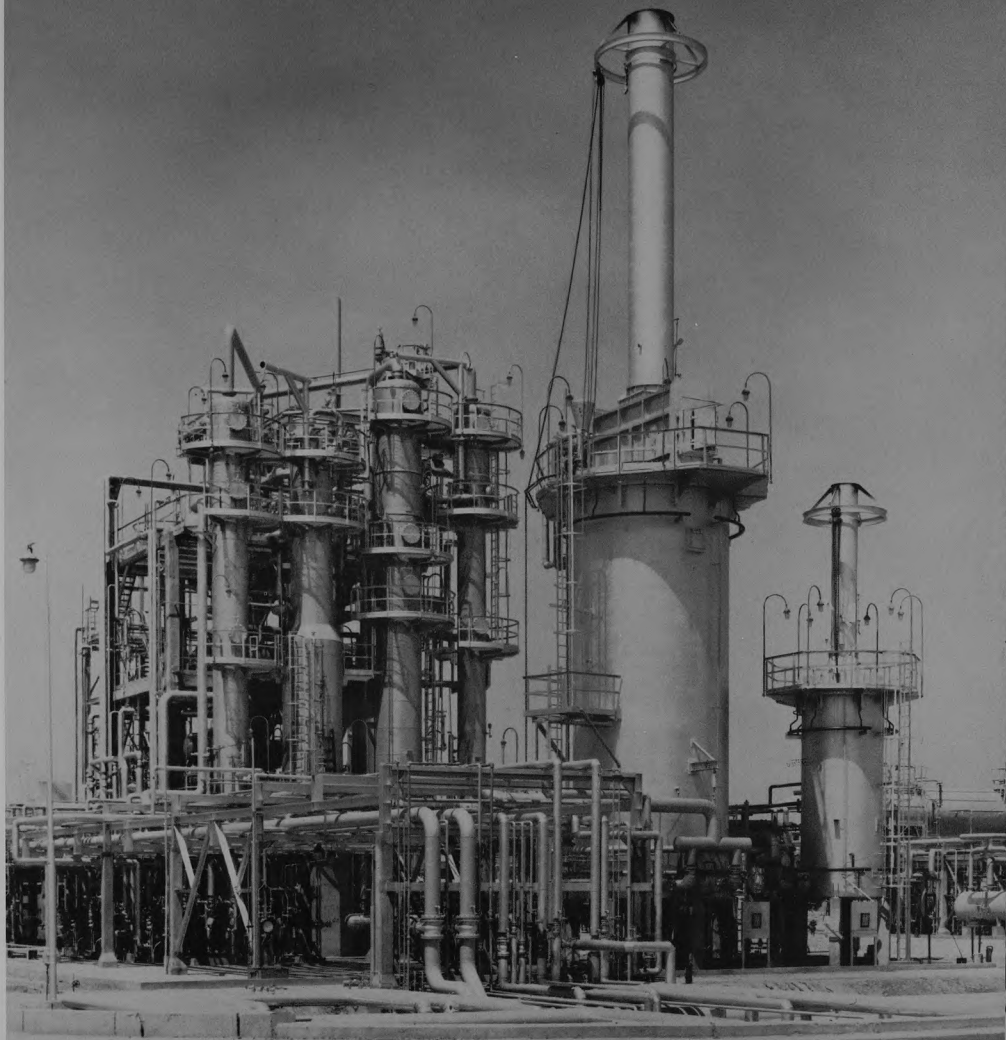
Propane deasphalting and vacuum unit

Vacuum unit

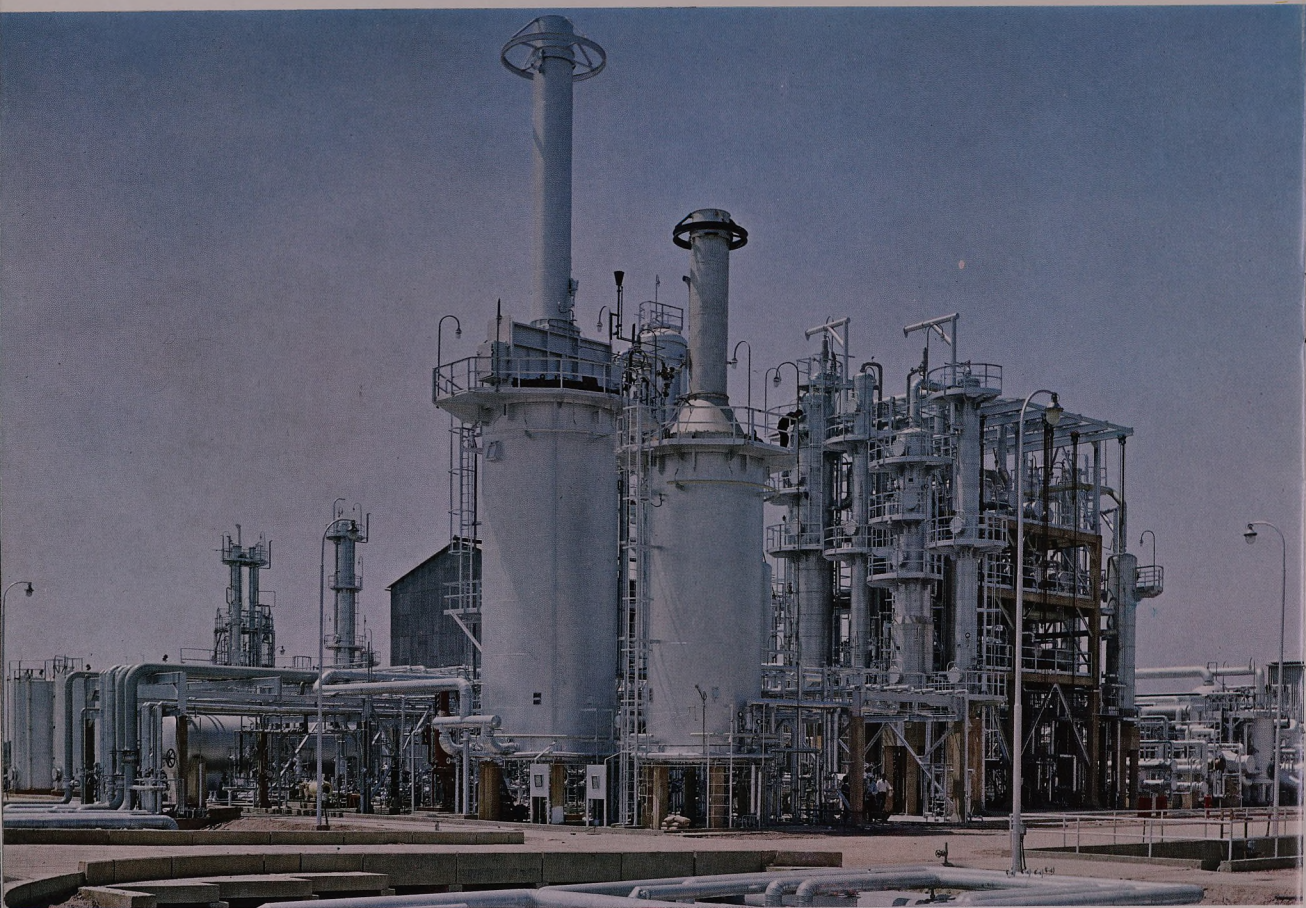




Propane deasphalting unit



Furfural extraction unit



MEK dewaxing and deoiling unit

MEK dewaxing and deoiling unit - partial view





Partial view of the units



Partial view of the tank farms



Lube oil and wax hydrofinishing units



Control room

■ PROCESS UNITS
● TANKS

- 1 - VACUUM DISTILLATION
- 2 - PROPANE DEASPHALTING
- 3 - FURFURAL EXTRACTION
- 4 - MEK DEWAXING AND DEOILING
- 5 - LUBE OIL AND WAX HYDROFINISHING

- 6 - OIL BLENDING AND FILLING AND WAX PACKAGING
- 7 - ASPHALT BLENDING AND FILLING
- 8 - COMPRESSED AIR SYSTEM AND CONDENSATE RECOVERY SYSTEM
- 9 - CONTROL ROOM AND ELECTRIC CABIN
- 10 - PUMP HOUSES
- 11 - BLOW-DOWN



SNAM PROGETTI

a member of the ENI Group

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The ENI Group is engaged in the field of oil and energy through three main companies:

- A G I P oil and natural gas exploration and production, marketing of petroleum products;
- S N A M oil and gas transport by pipeline, tanker, etc.;
- A N I C oil refining and production of petrochemicals.

Each of the above companies operates directly and through subsidiaries in Italy and abroad.

The project engineering and construction section consists of:

SNAM PROGETTI

DIVISIONE PROGETTI
PROJECT ENGINEERING DIVISION

consulting, engineering and main contractor for:

refineries
petrochemical plants
thermo-electric power plants
oil and gas pipelines and related auxiliary units
marine terminals and related auxiliary units
cathodic protection
LPG plants
instrumentation
telemetering and remote control systems
civil engineering
nuclear plants

SNAM PROGETTI

DIVISIONE PERFORAZIONE E MONTAGGI - SAIPEM
DRILLING AND ERECTION DIVISION - SAIPEM

erection of refineries, petrochemical and nuclear plants
construction of oil and gas pipelines, sealines and marine terminals
drilling

SNAM PROGETTI

LABORATORI RIUNITI STUDI E RICERCHE
RESEARCH LABORATORIES

study of problems connected with oil and petrochemical processing cycles
scientific and technical research





San Donato Milanese - SNAM PROGETTI pilot plants.

SNAM PROGETTI

Consulting, Engineering and Main Contractor, Erection and Drilling Contractor for:

Oil refineries - Petrochemical plants - Power plants - Oil and gas pipelines and related auxiliary units - Marine terminals and related auxiliary units - Offshore and onshore drilling - Cathodic protection - L.P.G. plants - Instrumentation - Telemetering and remote control systems - Civil engineering - Nuclear plants

Scientific and Technical Research