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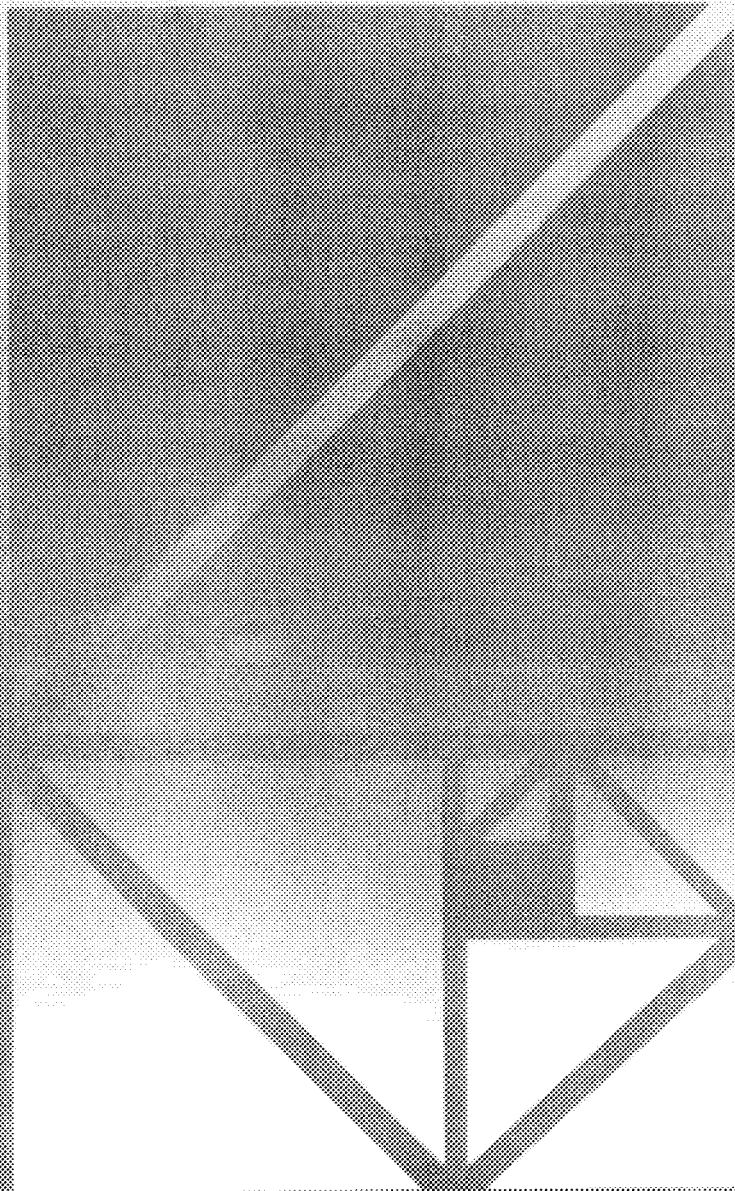
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PROJECT MP/EGY/94/417

PHASING OUT ODS AT REFRIGERATOR PLANT OF IDEAL DELTA

CONTRACT NO. 95/053

FINAL REPORT

**PROJECT MPE/EGY/94/417
PHASING OUT ODS AT REFRIGERATOR PLANT OF IDEAL DELTA
CONTRACT NO. 95/053**

FINAL REPORT

Subject of the present final report is to show all the jobs executed in order to reach the **PHASING OUT ODS AT REFRIGERATOR PLANT OF IDEAL DELTA - CAIRO**.

To better identify the jobs made up to now, we divide the report into groups to better identify the areas and the production processes involved by the project:

**CABINETS PLANT AREA
DOORS PLANT AREA
C-PENTANE STORAGE TANK AREA
COOLING SYSTEM FEEDING LINE
EQUIPMENTS FOR MAINTENANCE SERVICE
LAB TEST
VARIOUS EQUIPMENTS
SERVICES**

CABINETS PLANT AREA (see dwg. H10.36.0.014S)

Group description

The subject area is the one in which twelve (12) fixtures are functioning; respectively a plant with 8 fixtures (which we call Cabinet 1) and another plant with 4 fixtures (which we call Cabinet 2) served by a single loading carrier which draws the cabinets from the preassembling lines. On the platform upon the two plants, previously there was one Cannon foaming machine for each plant.

New Equipments and modifications made on the plant

Cabinet 1

They have been installed:

- Safety box with 4 centrifugal fans with no-spark stirrer, Exxd motors and air flow switches to guarantee an air exchange sufficient to keep the working area within the safety limits
- Installation of one Eokit for the modification of the existing Cannon foaming machine (on the platform)
- Installation of one Ecomix to feed the foaming machines on the Cabinet 1 and Cabinet 2 (on the platform)
- Installation of the Polyol Day Tank 1000 lt to feed the Ecomix (on the platform)
- Installation of the tank 1000 lt control panel (on the platform)
- Installation of one (1) chiller for the regulation of the temperature of the Polyol day tank 1000 lt and the 100 lt tank inside the Ecomix and the Eokit (on the platform)
- Installation of the automatic injection system of nitrogen inside the cabinets to inertize the refrigerator cavity before the foaming

- In order to position these equipments, some modifications have been made to the raw materials piping near the plant
- Complete replacement of the electric wiring of the 8 foaming fixtures (cables, sheaths, limit switch, lifting motors, plugs heating fan motors, earth/grounding cables)
- Installation of the fire-fighting system complete by monitoring system through an infrared fire detectors and the shut-off through water spray nozzles
- Installation of c-pentane monitoring system through gas detectors
- Connection piping among the polyol line and the day tanks and among the Ecomix and the foaming machines
- Complete earth/grounding of the foaming fixtures

Cabinet 2

They have been installed:

- Safety box with 2 centrifugal fans with no-spark stirrer, Exxd motors and air flow switch to guarantee a sufficient air replacement to keep the working area within the safety limits
- Installation of a new platform module to position the Ecomix
- Installation of the Ecomix for the modification of the foaming machine
- Complete replacement of the electric wiring of the 4 foaming fixtures (cables, sheaths, limit switches, lifting motors, plugs heating fan motors, earth/grounding cables)
- In order to position these equipments the general control panel of the plant has been moved
- Installation of the fire-fighting system composed by a monitoring system through an infrared fire detector and shut-off through water spray nozzles
- Installation of the c-pentane monitoring system through gas detectors
- Connecting piping between the polyol line and the foaming machine
- Complete earth/grounding of the fixtures

DOORS PLANT AREA (see dwg. H1036.0.012S)

Group description

The subject area is the one in which 2 Paternoster plants are functioning (Door 1 and Door 2) for the doors foaming.

Near the two plants previously there was installed one Cannon foaming fixture for each plant.

New equipments and modification made on the plants

Door 1

They have been installed::

- Safety box with 1 centrifugal fan with no-spark stirrer, Exxd and air flow switch to guarantee a sufficient air replacement to keep the working area within the safety limits
- Installation of the Ecomix for the modification of the foaming machine
- Installation of the Ecomix which has to feed the foaming machines on the Door 1 and Door 2
- Installation of the 1000 lt Polyol day tank which feeds the Ecomix
- Installation of the control panel of the 1000 lt Polyol day tank
- Installation of the chiller

In order to position these equipments, some modification of the raw materials piping structures near the plant have been made.

- Complete replacement of the electric wiring of the Paternoster plants (cables, sheaths, limit switches etc.)
- Installation of the fire-fighting system composed by monitoring system through infrared gas detectors and shut-off by means of water spray nozzles

- Installation of the C-pentane monitoring system through gas detectors
- Complete earth/grounding of the plant

Door 2

They have been installed:

- Safety box with centrifugal fans
- Position of the Ecomix for the modification of the foaming machine
- Modification of the Paternoster electric wiring
- Installation of the fire-fighting system
- Installation of the C-pentane monitoring system
- Connecting piping between the polyol line and the foaming machine
- Earth/grounding of the fixtures

C-PENTANE STORAGE TANK AREA (see dwg. H10.36.0.013S)

Group description

The subject area is the one in which is foreseen the C-pentane storage system which feeds the Ecomixes placed near the Cabinets and Doors Plants.

New equipments

To allow the installation of the C-pentane storage system have been made, on Perros design, some civil works, precisely has been built an underground concrete room composed by two separated parts, one for the tank positioning and one for the pumping group positioning.

The storage tank has been placed in the room and further it will be covered by sand and by a concrete soil.

The tank accessories have been installed and the connection to the C-pentane piping has been made.

COOLING SYSTEM FEEDING LINE

Part of this group are the 3 new cooling system feeding lines and the no.6 leak detectors for the HFC 134A which have been supplied and are ready to be used.

139 kits have been supplied for the conversion of the vacuum pumps.

MATERIAL FOR THE MAINTENANCE SERVICE

Part of this group are no.13 groups for the maintenance service, 100 bags for the recover of the CFC2, no.2 recovering units for CFC and no.13 leak detectors for HFC 134A.

All these equipments have been supplied and are ready for the use.

REFRIGERATION TEST EQUIPMENT

The realization of this item has been made reading what stated in Annex F of the Terms of Reference: **Preliminary specification of refrigeration test equipment.**

According to these specifications, Perros have realized a sistem which is described hereunder:

- a) Heating/cooling unit equipped with instruments suitable to the thermoregulation within the cold room established values. The unit is equipped with a remote control panel which, through a temperature probe, allows the control of the cold room working parameters.
- b) Monitoring units and elaboration of testing data related to the refrigerators by:

- Computer with Software suitable to made tests according toe ISO 5155.2
- Printer connected to the computer
- Sets of probes connected to the computer by datateker equipped with interface card
- Rack equipped of internal instruments which through the connection to the computer allows the analysis of the refrigerator electrical data
- Set of Tylose test packages sufficient to effect the refrigerator test

EMERGENCY DIESEL ELECTROGENERATOR

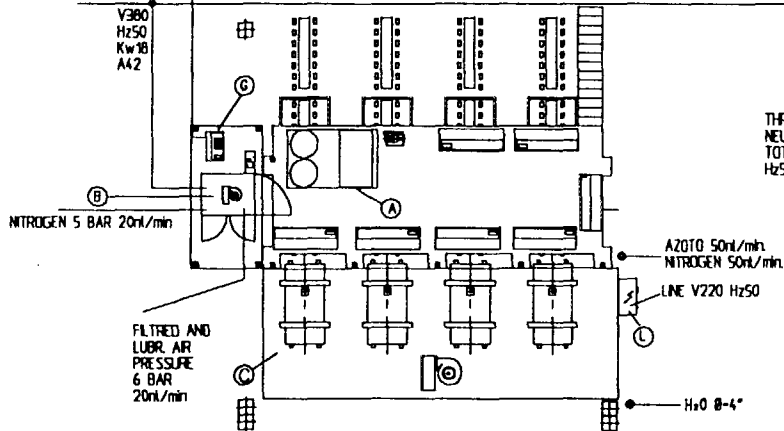
This equipment has been supplied and it is working and connected the safeties stand-by lines.

NEW PUMPING GROUP FOR POLYOL LINE

Part of this group are no.2 gear pumps and a control panel which are installed on the raw polyol piping line.

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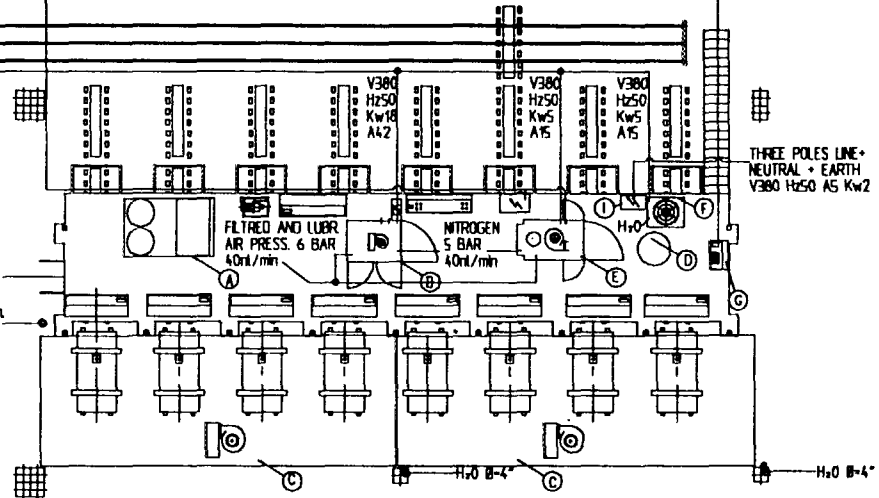
THREE POLES LINE + NEUTRAL + EARTH CONTINUOUS FEEDING
TOTAL POWER V380 Hz50 Kw20 A50



CABINET FOAMING LINE2

THREE POLES LINE + NEUTRAL + EARTH
TOTAL POWER V380
Hz50 Kw50 A120

AZOTO 50nl/min
NITROGEN 50nl/min



CABINET FOAMING LINE1

THREE POLES LINE + NEUTRAL + EARTH
V380 Hz50 AS Kw2

A	EXISTING CABINET FOAMING MACHINES
B	NEW POLYOL TANK FOR EXISTING CABINET FOAMING MACHINES
C	SAFETY EXHAUST SYSTEM FOR CABINET PLANT
D	POLYOL DAY TANK
E	PREMIXING UNIT
F	CHILLER FOR PREMIXING UNIT
G	MONITORING SYSTEM
H	PREMIXING UNIT
I	POLYOL CONTROL PANEL
L	CABINET AND DOOR MASTER CONTROL PANEL FOR FIRE FIGHTING SYSTEM

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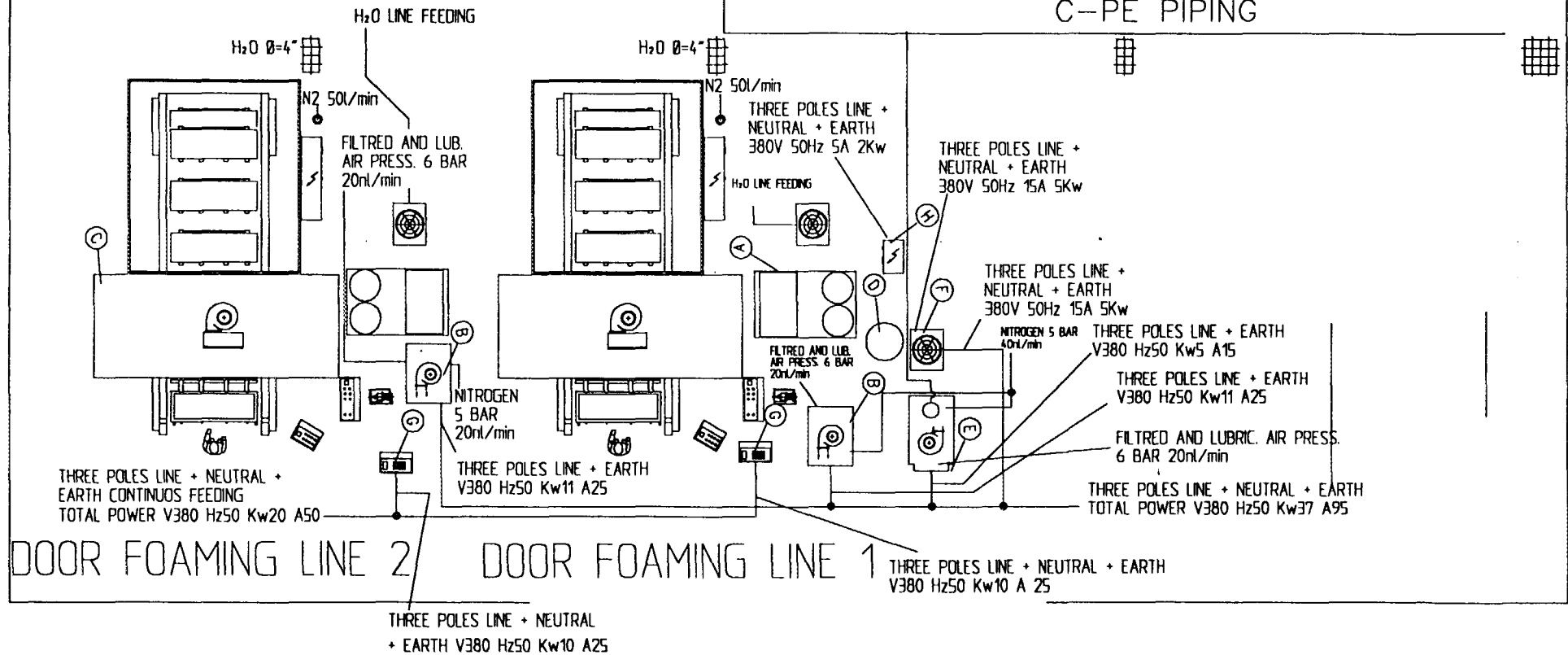
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Utility ZONA IMPIANTO ARMADI
CABINETS PLANT UTILITY

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H10.36.0.014S

A	EXISTING DOOR FOAMING MACHINES
B	NEW POLYOL TANK FOR EXISTING DOOR FOAMING MACHINES
C	SAFETY EXHAUST SYSTEM FOR DOOR PLANT
D	POLYOL DAY TANK
E	PREMIXING UNIT
F	CHILLER FOR PREMIXING UNIT
G	MONITORING SYSTEM
H	POLYOL CONTROL PANEL



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Scale:			
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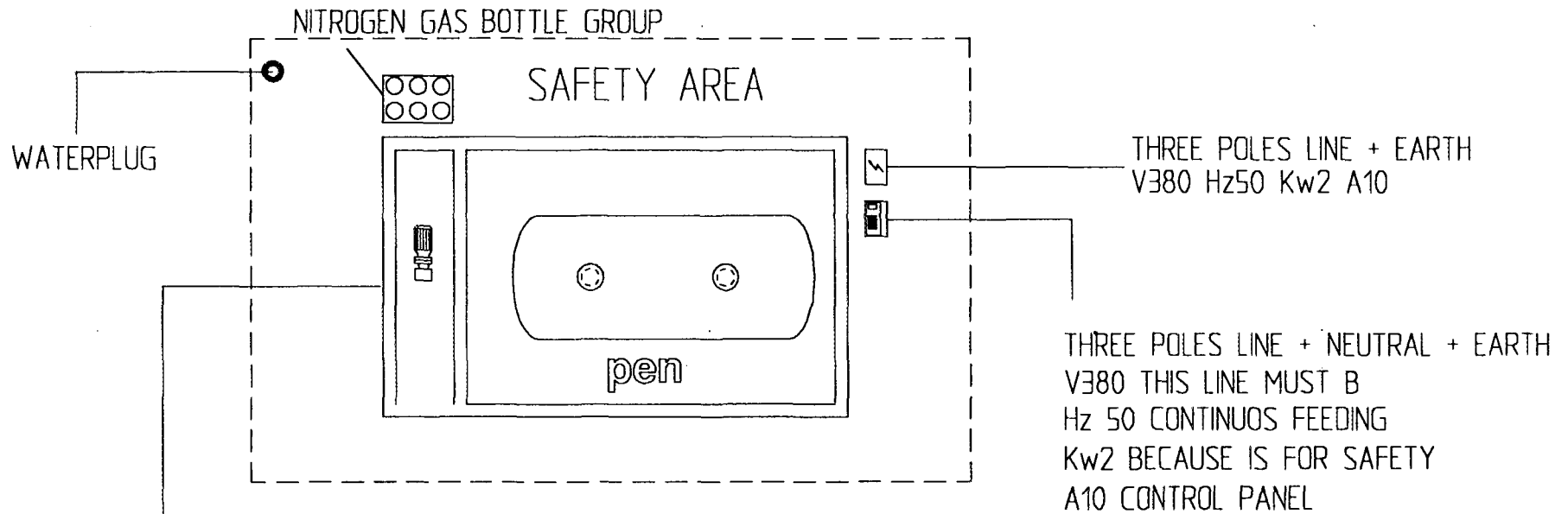
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UTILITY ZONA IMPIANTO PORTE
 DOORS PLANT UTILITY

H10.36.0.012S

UNDERGROUND CYCLOPENTANE TANK



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Titolo
UTILITY ZONA PENTANO
PENTANE ZONE UTILITY

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