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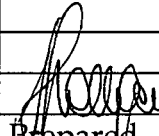
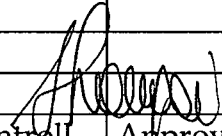
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  SISTEMI	PLANT	PHASING OUT OF ODS AT REFRIGERATOR PLANT OF MOVALLED HOME APPLIANCES CO. IRAN
	CUSTOMER CONTRACT N. JOB N.	UNIDO FOR MOVALLED UNIDO CONTRACT 96/116 PROJECT MP/IRA/96/041 2296220060

**PHASING OUT OF ODS AT
REFRIGERATOR PLANT OF
MOVALLED HOME APPLIANCES
CO.
IRAN**

FINAL REPORT




D					
C					
B					
A	21/02/02	FINAL ISSUE			
Rev.	Dat	Description	Prepared	Controll.	Approv.

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1. INTRODUCTION

With this document Contractor is going to describe the works performed at the plant site for the conversion of Movalled Home Appliances Co. to phase out ODS in the production of Domestic Refrigerators and Freezers.

Hereafter we briefly summarise the activities performed under the Contract according to the Term of Reference

  	PLANT	PHASING OUT OF ODS AT REFRIGERATOR PLANT OF MOVALLED HOME APPLIANCES CO. IRAN
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2- VISIT TO THE PROJECT SITE AND LAY OUT OF THE PLANT (STEP 5.1.1 OF THE TERMS OF REFERENCE)

After the award of the order, the Contractor visited the Counterpart on March 2nd 1997 in order to verify the conditions of the site and to identify the best engineering solutions for the conversion of the existing foaming lines.

During the visit, the Contractor discussed and checked with the Counterpart the following main subjects:




A - Technical details regarding the supply of the equipment; in particular the Contractor emphasised the premix units, the polyol and isocyanate modules, safeties of the plant (as i.e.: gas sensors, exhaust system with fan groups), cyclopentane storage tanks and relevant accessories.

B - The suitable sites where the new equipment had to be installed .

Regarding the C5 storage tanks, the Contractor inspected and defined the areas where they had to be placed.

After the visit the Contractor prepared the Preliminary Report (28 March 1997) including the preliminary layout and the basic requirements and specifications for the site preparation.

The a.m. Report covered all the subjects listed during the discussion.

  	PLANT	PHASING OUT OF ODS AT REFRIGERATOR PLANT OF MOVALLED HOME APPLIANCES CO. IRAN
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3 TECHNICAL SPECIFICATION AND ENGINEERING DESIGN FOR THE PLANT ERECTION (STEPS 5.1.2÷5.1.8 OF THE TERMS OF REFERENCE)

On 13 June 1997 the Contractor provided the First Progress Report including the final technical documentation for the conversion of the plant and (25 June 1997) a detailed list of all the works and materials to be provided by them.

The above mentioned documentation included the following kind of detailed drawings and specifications:

- civil works for the storage tanks and foaming lines
- grounding of the equipment
- piping arrangements and support details
- piping sketches
- box buildings construction
- ventilation construction
- cable run lay-out
- gas sensor positioning
- electrical drawings
- safety requirements

All the documentation was discussed with the Counterpart and some modifications have been agreed in a later stage .

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4. DELIVERY OF EQUIPMENT, INSTALLATION, COMMISSIONING, TEST RUN OF PRODUCTION(STEPS 5.1.9-5.1.11-5.2 OF THE TERMS OF REFERENCE)

In November 1997 all the new equipment have been shipped.

Installation and local works started in early 1998, after the customs clearance of all the equipment.

On 21 June 1998 Contractor Project Manager visited plant site for case opening and installation progress check.

The Contractor engineers followed the installation phase including the supervision of the job at Counterpart charge.

The Contractor actions basically concerned the following zone of the modified plant:




- Cyclopentane storage tanks areas
- Wet areas
- Process fluid connection piping between wet and dry area
- Cabinets /doors foaming areas
- Safeties of the plants (ventilation system, fire fighting system et cetera)

The installation phase was completed by November 1998.

After the installation, the Contractor performed the Commissioning and start-up phase of the modified plant in accordance with the contract.

The commissioning, trial production and test run phases mainly concerned the following operations:

- Pneumatic and Electric circuit check
- Grounding check
- Flushing of the tanks and the piping with nitrogen
- Pressure test
- Check of the operating sequences
- Operating test
- Service simulation test
- Setting start-up parameters
- Foaming quality check
- Performance test

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The training on the job activities has been carried out at the beginning of commissioning phase.

In December 1998 the commissioning phase was completed .

Being cyclopentane not available in due quantity after the commissioning completion, the plant start-up had been postponed waiting for blowing agent availability.

Plant start-up and test run of production was completed by December 2001 as per attached TESTING AND ACCEPTANCE REPORT duly signed by both Project Counterpart Representative, Mr. Abbas Kazema and Cannon start-up engineer.

5. TRAINING ON THE JOB, POST CONTRACT MONITORING ACTIVITIES (STEPS 5.10-5.12 OF THE TERMS OF REFERENCE)

The training on the job activities has been carried out at the beginning of commissioning phase.

The Contractor engineers visited several times Project Counterpart in the elapsed time between commissioning and Start-up .

<p>Afros S.p.A. Gruppo Cannon</p>	<p>DICHIARAZIONE DI COLLAUDO & ACCETTAZIONE MACCHINARIO</p>	<p>cc. <i>Ady/H. Ross. Bionda</i></p>
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partita I.V.A. 00816070122 - Cod. Fisc. 00220520126

Collaudo eseguito da: _____ in data: _____
 Start-up carried out by: ENRICO POZZI on: 14-12-2001
 Cliente: _____
 Customer: MOVALLÉ
 Sede in: _____
 Address: SAURH
 Alla presenza di: _____
 At the presence of: Mr. ABBAS KAZEM
 Contratto N°: _____
 Contract N°: _____
 Conferma d'ordine n.: _____
 Order confirmation n.: _____
 Matricola Macchina n.: _____
 Serial n. of the machine: A 545 100 PB TWIN N° 290 883

<p>In data odierna è stato completato il collaudo del macchinario sopra menzionato. Il macchinario è stato trovato conforme al contratto e se ne accetta il livello funzionale ai fini dell'inizio del periodo di garanzia.</p>	<p>Under today's date, the commissioning of the a.m. machinery has been completed. The machinery has been found in compliance with the above mentioned contract and the functioning level has been accepted in order to start the guarantee period.</p>
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<p>FIRMA AFROS / AFROS SIGNATURE <i>[Signature]</i></p>	<p>FIRMA CLIENTE / CUSTOMER SIGNATURE <i>[Signature]</i></p>
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Eventuali osservazioni sono qui di seguito riportate:
Eventual remarks are below reported:

- Level 10 Tank not working

<p>FIRMA AFROS / AFROS SIGNATURE <i>[Signature]</i></p>	<p>FIRMA CLIENTE / CUSTOMER SIGNATURE <i>[Signature]</i></p>
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