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22219

Cannon Afros polyuretane technology	Object	Phasing out of CFC's at PARS Appliance Manufacturing/IRAN
	Contract	UNIDO N. 95/062

FINAL PROGRESS REPORT

RETROFITTING OF THE REFRIGERATOR CABINET AND DOOR FOAMING PLANTS FOR THE REPLACEMENT OF CFC WITH CYCLOPENTANE AS BLOWING AGENT

Rev.	Date	Description	Prepared	Controll.	Approv.
D					
C					
B					
A	09/07/99	FIRST ISSUE	A. Lovati		

1. INTRODUCTION

With the present document The Contractor wants to describe the works performed for the conversion of the PARS Appliances Manufacturing Company to phase out the use of CFC11 in the production of Domestic Refrigerators.

Here below it is briefly summarised the activities performed under the Contract from step 11 to step 14 according to the Terms of Reference

2. STARTING MASS PRODUCTION (STEP 13 OF THE TERMS OF REFERENCE)

After the Start-up Phase (April 1999 –for more details see 3rd Progress Report) the Counterpart performed the Starting mass production with Contractor supervision of the modified plant in accordance with the contract.

In detail

a) From May 1st 1999 until May 5th 1999

- Plant in full production; last check for software and alarms logical operation; final training for PAMCO engineers

In attachment, machines testing and acceptance certificates signed by Counterpart (Mr. Sayyar, Factory Manager)

3. POST CONTRACT MONITORING (STEP 14 OF THE TERMS OF REFERENCE)

After the start-up phase and during the following months the Contractor speaks with the Counterpart to check the performance/problems of the plant.

Now, after two mounths, no problem is arose.

4. SAFETY CERTIFICATION (STEP 11 OF THE TERMS OF REFERENCE)

The safety inspection has been performed in December 1997 by TUV ULM.

Enclosed please find the Commission List dated June 1998.

Enclosed please find our letter about the pending points by Contractor dated July 1999.

TUV will issue the safety certificate after to have examined technical documentation delivered.

Afros S.p.A. Gruppo Gallmon	**DICHIARAZIONE DI COLLAUDO & ACCETTAZIONE MACCHINARIO**	

Afros S.p.A.
Gallmon
polyurethane technology

Sede Amministrativa e Stabilimento: Via Galileo Ferraris, 65 - Casella Postale 165
21042 Caronno Pertusella (Varese - Italy) - Tel. 02/9653.1 - Telefax 02/9656897
Telex 333063 AFROS - 314417 AFROS
Sede Legale: Via A. Sangiorgio, 12 - 20145 Milano
Iscr. Trib. Milano 180153 - C.C.I.A.A. Milano M978344
partita I.V.A. 00816070122 - Cod. Fisc. 00220520126

Collaudo eseguito da: Pozzi - Guerra in data: 03/05/99
Start-up carried out by: on:
Cliente: PAMCO
Customer:
Sede in: ALBORZ
Address:
Alla presenza di: Mr. SAYYAR
At the presence of:
Contratto N°:
Contract N°:
Conferma d'ordine n.:
Order confirmation n.:
Matricola Macchina n.: Penta easyfoth A1 and B2 N° 550560
Serial n. of the machine:

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.*	*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 functionning leve has been accepted in order to start the guarantee period.*
FIRMA AFROS / AFROS SIGNATURE	FIRMA CLIENTE / CUSTOMER SIGNATURE

Eventuali osservazioni sono qui di seguito riportate:
Eventual remarks are below reported:

N° 1 Manometer 0-25 Bar ϕ 100 Broken

FIRMA AFROS / ~~AFROS~~ SIGNATURE *FIRMA CLIENTE / CUSTOMER SIGNATURE*

Afros S.p.A. Gruppo Cannon	**DICHIARAZIONE DI COLLAUDO & ACCETTAZIONE MACCHINARIO**	

Afros S.p.A.
Cannon
polyurethane technology

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Collaudo eseguito da: Pozzi - Guerra in data: 03/05/99
Start-up carried out by: on:

Cliente: PAMCO
Customer:

Sede in: ALBORZ
Address:

Alla presenza di: Mr. SAYYAR
At the presence of:

Contratto N°:
Contract N°:

Conferma d'ordine n.:
Order confirmation n.:

Matricola Macchina n.: A HS 40 STD Penta N° 270992
Serial n. of the machine:

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.	*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 functionning leve has been accepted in order to start the guarantee period.
FIRMA AFROS / AFROS SIGNATURE	FIRMA CLIENTE / CUSTOMER SIGNATURE

Eventuali osservazioni sono qui di seguito riportate:
Eventual remarks are below reported:

FIRMA AFROS / AFROS SIGNATURE	*FIRMA CLIENTE / CUSTOMER SIGNATURE*

Afros S.p.A. Gruppo Cannon	**DICHIARAZIONE DI COLLAUDO & ACCETTAZIONE MACCHINARIO**	

Afros S.p.A.
Cannon
polyurethane technology

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partita I.V.A. 00816070122 - Cod. Fisc. 00220520126

Collaudo eseguito da: Pozzi - Guerra in data: 03/05/99
Start-up carried out by: on:

Cliente: PAMCO
Customer:

Sede in: ALBORZ
Address:

Alla presenza di: Mr SAYYAR
At the presence of:

Contratto N°:
Contract N°:

Conferma d'ordine n.:
Order confirmation n.:

Matricola Macchina n.: A sys 100 STD Penta N° 290766
Serial n. of the machine:

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.	*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 functionning leve has been accepted in order to start the guarantee period.
FIRMA AFROS / AFROS SIGNATURE	FIRMA CLIENTE / CUSTOMER SIGNATURE

Eventuali osservazioni sono qui di seguito riportate:
Eventual remarks are below reported:

- Ball bearing, gite ~~pomp~~, motor pump side
ISO give ~~pomp~~ noise

FIRMA AFROS / ~~AFROS~~ SIGNATURE	*FIRMA CLIENTE / CUSTOMER SIGNATURE*

Afros S.p.A. Gruppo Cannon	**DICHIARAZIONE DI COLLAUDO & ACCETTAZIONE MACCHINARIO**	

Afros S.p.A.
Cannon
polyurethane technology

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partita I.V.A. 00816070122 - Cod. Fisc. 00220520120

Collaudo eseguito da: Pajani - Dell'Acqua in data: 03/05/99
Start-up carried out by: _____ on: _____

Cliente: PAMCO
Customer: _____

Sede in: ALBORZ
Address: _____

Alla presenza di: Mr. SAYYAR
At the presence of: _____

Contratto N°: _____
Contract N°: _____

Conferma d'ordine n.: _____
Order confirmation n.: _____

Matricola Macchina n.: DRUMP UNIT N° 524
Serial n. of the machine: _____

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.	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 functionning leve has been accepted in order to start the guarantee period.
FIRMA AFROS / AFROS SIGNATURE	FIRMA CLIENTE / CUSTOMER SIGNATURE

Eventuali osservazioni sono qui di seguito riportate:
Eventual remarks are below reported:

FIRMA AFROS / AFROS SIGNATURE	*FIRMA CLIENTE / CUSTOMER SIGNATURE*

Commission-List

on Technical Plant Inspections and Evaluations

PARS, TEHRAN / IRAN

Niederlassung Ulm

Benzstraße 17
89079 Ulm

Telefon (07 31) 49 15-2 28
Telefax (07 31) 49 15-2 60

Plant Location:	PARS APPLIANCE.MFG.CO. 246 Taleghani Ave. Tehran 15 - IRAN
Responsible / Experts:	Dipl. Ing. Richardt, TÜV-AW Dipl. Ing. (FH) Mack, TÜV-BT-E Company group TÜV Süddeutschland
Project No. 2	UNIDO Contract No. 95 / 062 with Cannon Afros Order No.: 97 021 1056
Dateas:	7 th to 22 nd December 1997 - Plant inspections and evaluations on location Febr. / March 1998 - Preparation of commission list - Meeting on Bono Sistemi
Participants on location:	- Mr. Lovati - Cannon Bono Sistemi - Mr. Pozzi - Cannon Afros - Mr. Farahmand - Pars Appliance - Mr. Sayyar - Pars Appliance

		Responsible CANNON AFROS	Pars	Remark
1	**Unloading station / pentane storage tank**			
1.1	**Unloading station**			
	The place where the truck is unloaded must be constructed as follows:			
	a) the place must be designed as a basin with a capacity of about 3 m^3.		X	
	b) The floor must be tight against pentane (concrete), cracks must be less than 0.1 mm wide.		x	
	c) In the drain trays for rain water, a manual valve must be provided which is closed during the unloading process.		x	
1.2	**Pentane storange tanks**			
1.2.1	**RED Jacket pumps**			
	a) The following technical documents are required for a final evaluation of the RED jacket pumps:			
	- Ex certificates of approval			Received
	- Manufacturer's documentation (technical description, installation instructions, design of dry running protection)			
	b) The pumps installed are not marked with approval numbers and serial numbers.	X		
	c) At present, the RED jacket pump can be started manually when V_m is reached (L4 < 4%).			
	d) No proof exists that the seals are suitable for c-pentane.	x		Confirmation of the producer

		Responsible CANNON AFROS	Pars	Remark
1.2.2	**Tank Wells** The manufacturer's specification is required for the material of the dome shaft walls (suitability within Ex zone 1, electrostatic discharge resistance). The following information is available: ASTRO ALS-BG Mormico	-	-	The measured charge is low in Pars and will be accepted. But the kind of wells is not suitable in general.
1.2.3	**Leakage detectors** A final evaluation of the leakage detectors requires submission of the manufacturer's documentation. The lines must still be desaired	-	-	Is accepted instructions for custumer are necessary TÜV get sensor for specialtest
1.2.4	**Earthing** Some of the earthing strip terminals are fixed The terminals must be provided with spring washers.	x		
1.2.5	**Road tanker earthing system** a) An Ex-d screwed gland must be used for the cable entry into the Ex-d housing. b) The terminals of the earthing conductors are loose.			has been done by Cannon
1.2.6	The pipes for the cable path between the pentane storage tanks and the electrical panel within the building must be interrupted before they enter the building (potential path of pentane gas!).		x	
1.2.7	If pentane is to be pumped from tank 1 into tank 2 or vice versa, the high level sensor with the associated switching unit must meet the applicable safety-related requirements (approval as overfill cut-out).	x		description of the system or cut the connection pipe
1.2.8	A mechanical guard must be provided on the outside of the building in the area where the pentane bleed line enters the building.		x	Has been done: (confirmation of Cannon) O.K.

	Responsible CANNON AFROS	Pars	Remark
1.2.9 The following work has not yet been completed:			
a) Connection of the tank level sensors	X		
b) Connection of the automatic valve in the pentane bleed line	x		
c) Filling the tank shafts with sand after the insulation has been repaired.		x	
d) Marking of all production facilities in accordance with the drawings.	x		
e) Some of the Spirometall seals have not yet been installed.	x		
f) The safety valve must still be lead-sealed.	x		
g) The shut-off valve in the pipeline in front of the building must be protected against collision.		x	
1.2.10 The tank has no nameplate			
The following information is required: Identification No.: Producer: Volume: Design working pressure, tank: Design pressure, jacket: The same is valid for the second tank.	x		TÜV got the paper
1.2.11 The material of the pipeline will be specified later.		x	
1.2.12 No proof exists regarding the suitability of flame traps.	X		certificate Ministeria della interna
1.2.13 A report on the pressure test of the pipeline will be submitted later.			TÜV got the paper

		Responsible CANNON AFROS	Pars	Remark
2	**Easyfroth room / pump room**			
2.1	**Safety panel**			
	a) The wiring diagram has not yet been finally reviewed (Connections of relays UA 200 and KA 210? Functional coupling with fire alarm? Settings of the time relays?).	x		
	b) No overvoltage protection has been provided.	x		
	c) The emergency push button circuit is not connected to a safety relay (relay KA 171).	x		
2.2	The cable duct from the Ex-room to the non-Ex-room must be made gastight at the room partition.		X	
2.3	**Room ventilation** A final evaluation of the air flow monitoring system requires submission of the corresponding technical documents (maker: DWYER Instruments, FM, UL).	x		TÜV got the paper
2.4	The cables of the EEx-i circuits must be marked as such.	x		For approximately switch or the special cabelway which is marked e.g. blue
2.5	Junction box at the Easyfroth: In the junction box, the EEX-i wires are not separated from other wires.	x		

		Responsible CANNON AFROS	Pars	Remark
2.6	The following work has not yet been completed:			
	a) Installation of room lighting		x	
	b) Installation of the door for the Easyfroth room		x	
	c) Marking of all production facilities in accordance with the drawings	x		
	d) Final setting of the contact selector switches	x		
	e) The holes in the catch basin of the Easyfroth will be sealed later.			Cannon: has been done
	f) The holes in the fire wall must still be sealed.		x	
	g) All pipelines must still be marked. (Color and flow direction) A List with the colors will be prepared by Cannon	x		reommendation: Pentane - brown Iso - red row Pol. - green Blend - yellow N_2 - green air - hight blue

		Responsible CANNON AFROS	Pars	Remark
3	**Remote safety panel (room near the factory entrance)**			
3.1	The connections have not yet been finally completed.	x		
3.2	A marking in the Iranian language will be added to the English text.		x	
4	**Wetpart cabinets and doors**			
4.1	**The following documents must still be submitted:**			TÜV has got
	a) CESI conformity: AD-82.006x, electric heating of day tank			
	b) EEx-i barrier, „Steel„ PTB No. Ex 92 – 2013 x			special condtions must be checked in Pars
	c) Manufacturer's documentation, declaration of conformity for sensor of super-max level day tank	x		TÜV will get a unit for test additional
4.2	The cables of the EEx-i circuits must still be marked as such.	x		See 2.4
4.3	The pentane emergency push button must still be placed outside the enclosure or connected to an EEx-i circuit	-	-	Cannon: has been done
4.4	**The following work has not yet been completed:**			
	a) Installation of the wetpart enclosures		x	
	b) Filling the leakage detectors with Mesamol	x		
	c) Connection of the flow switches for the ventilation system	x		
	d) Activation of the sprinkler system		x	

		Responsible CANNON AFROS	Pars	Remark
	e) Installation of lighting		x	
	f) Setting and provision of the min-mark on the N_2 pressure gauge (day tank)	X		
	g) Sealing of holes in the liquid catch basin	-	-	Cannon: has been done
	h) The outlets of the pipes must still be provided with blind flanges.	x		
4.5	The safety valve (LESER) has only been tested internally. Could not be verified by the expert in Pars.			Paper from TÜV-Nord but not blombed. Must be tested.
4.6	The safety valve (NRV02) in the supply line to the tank of the door facility downstream of the automatic valve has no effect. Here, a new solution will have to be found (setting not allowed to exceed PN 16).			Cannon: old valve is removed new: safety reliefe valve in mixing room
4.7	Documents for monitoring leakage of the stirrer must still be submitted (will be provided by Mr. Corti).	X		Cannon: solution as in Egypt will be installed
4.8	The thermostat must not be able to be set to temperatures higher than 70°C.	x		The covering will be signed with set point and the screw will be plombed

		Responsible CANNON AFROS	Pars	Remark
5	**Drypart cabinet**			
5.1	**Fixtures 1 to 9**			
5.1.1	*The electric heating systems must be switched off* automatically before the PU-injection and during the *foam rise time.*	x		Cannon: plan and programm are ready. Must be installed.
5.1.2	The electrical equipment at the fixtures must be worked over to bring it into a proper condition (cable entries, cable fasteners, IB54 seals, replacement of defective lines, removal of electrical components not absolutely necessary within the alarm zone from the alarm zone).		x	
5.1.3	The dielectric strength of all electric heating systems will have to be determined by measurements. Heating systems with an insulation resistance < 0.5 meg-ohms must be repaired or replaced.		x	
5.1.4	Opening of the fixtures during the foam rise time as a result of a switch-over from the automatic to the manual mode of operation must be prevented by interlocking.	x		Cannon: prgramm is ready. Software must be loaded.
5.1.5	The ducts and depressions in the floor in the vicinity of the fixtures must be eliminated or integrated into the ventilation system.		X	
5.1.6	**The following work has not yet been completed:**			
	a) Installation of the drypart enclosures		x	
	b) Installation of the inerting systems with			
	- N_2 flow and pressure monitoring	x		
	c) Installation of main switches with undervoltage trip	x		has been installed must be tested
	d) Final installation of the gas sensors	x		
5.1.7	The flexible hose lines between the pipelines for the 8 old and the 4 new fixtures must be replaced.		x	

		Responsible CANNON AFROS	Pars	Remark
6	**Drypart doors**			
6.1	a) The electrical equipment in the area around the PU-metering installation is in a poor overall condition and must be improved or renewed (control panel, fuse box, junction box, cables).		x	
	b) Components which are not absolutely necessary within the alarm zone must be removed from the alarm zone.		x	
	c) The equipment within the alarm zone must meet the requirements of the IEC 204-1 standard.			
	d) Depending on the ventilation quality, an area of at least 20 cm around the door fixture is Ex-zone 1 during the foam rise time.			
6.2	Large quantities of foam and sheet residues were observed in the interior of the oven. For a production of PU-foam with pentane, this is not acceptable from a safety point of view.		X	
6.3	Detailed information on the heating system of the oven must still be provided (steam, hot water, max. temperature).		X	It's steam. Max. temperature?
6.4	**The following work has not yet been completed:**			
	a) Installation of the drypart enclosures		x	
	b) Installation of the main switches with undervoltage trip	x		same like 5.1.6 c
	c) Installation of the gas sensors	x		Before the work with Pentane starts
6.5	The pipeline connections will be placed within the enclosure.	-		Cannon: has done

		Responsible CANNON AFROS	Pars	Remark
7	**Safety panel for wet- and dryparts**			
7.1	No information on the settings of the relays has been provided in the wiring diagram and at the timer relays.	x		Prepare list with set points
8	**Installations not yet completed**			
8.1	**The following installations had not yet been completed at the time of the audit:**			
	a) The emergency generating set for the pentane safety features		x	
	b) The N_2 generator		x	
9	**Documents, organization**			
9.1	**The following documents must still be submitted:**			
	a) Calibration report for the gas sensors	x		new calibration before using pentane
	b) Test and measuring reports for the electrical equipment in accordance with IEC 204-1	x		(Isolation, earthing, function)
	c) Commissioning report for the sprinkler system		x	
	d) Function matrix of all safety-related functions and report showing that all functional tests have been performed	x		
	e) Report on measurements and evaluations of the ventilation system after completion of the enclosures		x	after enclosure ist complete

		Responsible CANNON AFROS	Pars	Remark
9.2	**The following documents must still be finalized:**			after the project has been finished
	a) Flowdiagrams of the facilities	x		
	b) Wiring diagrams	x		
9.3	**Safety-related organization**			
	a) The operators and the personnel responsible for maintenance must be well trained in the plant technology of Cannon Afros, proof of regular training must be provided.	x		
	b) An instruction manual must be provided for the operator and the maintenance personnel; maintenance equipment (e.g. antistatic clothes, tools, personal safety equipment) must be suitable for pentane.	x	X	
	c) All safety-relevant functions must be tested and documented by well and regularly trained personnel (at least once a year) in accordance with the safety function matrix.		x	
	d) A coordination between the company and the official authorities (fire brigade, civil defense) is necessary; the results must be documented.		x	
	e) For emergencies, an alarm plan must exist which has been coordinated with the fire brigade and the civil defense authority.		x	

	Responsible CANNON AFROS	Pars	Remark
10 General			
10.1 Earthing system			
Connections with large metal structures (e.g. gas lines, water lines, building structures) are required for good potential equalisation.		X	
It's recommended to use bars to the connections of these cables.			
10.2 Escape routes			
In the wetpart and drypart areas and the related escape routes, an emergency lighting system must be supplied with power from the generator.		X	has been done by Pars, must be tested
The escape routes must be signed with exit plates.		x	
10.3 Identification of refrigerators			
The refrigerators foamed with pentane must be identified with „Pentane„.		X	
10.4 Fire extinguisher			
Fire extinguisher (powder) must be located in the wetpart and drypart areas.		x	

	Responsible CANNON AFROS	Pars	Remark
10.5 Lexan material			
Lexan material intended for use in conjunction with the installation of the enclosures is available from existing stocks of the PARS company. Measurements on this material were carried out by the TÜV experts in order to evaluate the electrostatic charging hazard.			
The result of these measurements was as follows:			
– Electric field strength > 300 kV/m			
– If this material is used within alarms zones or Ex-zones (1, 2), the surface area at all must not exceed 1 m^2.	X		
– If the surface area exceeds 1 m^2, appropriate measures (such as placing earthed metal grids on the Lexan material) inside will have to be taken to present electrostatic charging.	x		

Responsible CANNON AFROS	Pars	Remark

11 Conclusion

The facilities for pentane operation had not yet been completed at the time of the TÜV audits.
Overall, the safety concept agrees with the TÜV safety strategy.
A complete audit of all safety-related aspects (such as inerting, ventilation after completion of the enclosures) was not yet possible.
In the opinion of the TÜV experts, it would be safe to start trial operation with pentane after completion of the various measures stipulated in this Commission List and all work still to be completed on the facilities.
Pentane trial operation means that in the 1st phase the plant may only be operated under the supervision of experts from Cannon Afros and that in the 2nd phase operation must be constantly monitored by specially trained personnel of PARS.

The TÜV experts

K.-J. Richardt

E. Mack

BONO
ENVIRONMENTAL TECHNOLOGIES AND SYSTEM ENGINEERING Energy & Ecology
SISTEMI
a Cannon company

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Tlx 340471 BONO I
e-mail: bono.sis@bono.inet.it

To **TUV ULM**
MR. J. RICHARDT

From **A. LOVATI**

SUBJECT: PAMCO PLANT
Check point on Commissioning List after Start-up

Dear Mr. Richard,
in April 1999 we have started the PAMCO plant (see enclosed sheets).

With reference at Commissioning List (pending points), we specify:

1.2.1 b) OK
1.2.1 c) See Electrical Diagram C5 Premix Zone n° 556656-6 "as built"
1.2.1 d) Declaration is into "Inspection Book for Accessories"

1.2.4 OK

1.2.7 We have sent you the engineering report for siphon system in date 02.06.1998
Anyway, we have stopped the pipe

1.2.9 a) OK
1.2.9 b) OK
1.2.9 d) OK
1.2.9 e) OK
1.2.9 f) The safety valve is calibrated (4 barg) and sealed

1.2.10 The name plates are installed

2.1 a) See Alarms Control Panel Premix n°556657-6 "as built"
2.1 b) See Alarms Control Panel Premix n°556657-6 "as built"
2.1 c) See Alarms Control Panel Premix n°556657-6 "as built"

2.4 OK

2.5 Into the Easyfroth J.B. all cables are for Eexi installation; now, they are marked as such

2.6 c) OK
2.6 d) See enclosure
2.6 g) See enclosure; pipelines will marked in the next visit

3.1 OK

4.2 OK

4.4 b) OK
4.4 c) OK
4.4 f) OK; switch is set at 2 barg
4.4 h) OK

4.7 OK

4.8 OK

5.1.1 Now, all fixtures are heated with hot water

5.1.4 OK

5.1.6 b) OK
5.1.6 c) OK
5.1.6 d) OK

6.4 b) OK
6.4 c) OK

7.1 See enclosure

9.2 a) See documents sent to you in date 1999-07-13
9.2 b) See documents sent to you in date 1999-07-13

9.3 a) Made during start-up (see start-up report enclosed)
9.3 b) See documents sent to you in date 1999-07-13 (Safety Plant, C5 Storage)

10.5 OK

NOTE 1

About the works under counterpart responsability, we are waiting a declaration from PAMCO.
Anyway we know, because we have seen, that

1.2.6 OK
1.2.8 OK

1.2.9 c) OK
1.2.9 g) OK

2.2 OK

2.6 a) OK
2.6 b) OK
2.6 f) OK

3.2 OK

4.4 a) OK
4.4 d) OK
4.4 e) OK

5.1.2 OK

5.1.3 Not applicable now because all fixtures are heated with hot water

5.1.5 OK

5.1.6 a) OK

5.1.7 OK; now we have 3 carrier heads (one old and two new) and all flexible pipes are new

6.1 Dry part doors is new; now we have a drum instead of "paternoster" and all electrical devices are new

6.2 Not applicable

6.3 Now, heating system is with hot water

6.4 a) OK

8.1 a) OK
8.1 b) OK

NOTE 2

9.1 We declare what all gas sensors and related control cards have been calibrated and checked before start-up
9.2 We declare what tests and measurements, as for CEI EN 60204-1 (IEC 204-1), have been performed
9.3 We declare what all functional tests and measurements, as for Safety Matrix (see enclosed), have been performed

NOTE 3

Enclosed, test declaration and acceptance certificate signed by Mr. Sayyor, PAMCO Factory Manager

BONO SISTEMI S.p.A.