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OCCASION

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22496

FINAL REPORT

UNIDO PROJECT: MP/SYR/97/172

UNIDO CONTRACT: 98/075/VK

KP AEROFILL REF: 51685E

DINA COSMETICS

CFC REPLACEMENT PROJECT.

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1.0 RESUME OF PROJECT KEY DATES

Event	Date
1.1 Contract award to KP Aerofill.	7 August 1998
1.2 Contract signed by KP Aerofill and returned to UNIDO.	24 September 1998
1.3 Joint visit to site by Mrs M Sanchez-Osuna of UNIDO and R.L.Russell of KP Aerofill. Basic guidelines established.	15 October 1998
1.4 Technical Guidelines and proposed layouts for project completed and sent to UNIDO for approval.	19 January 1999
1.5 Equipment despatched to Latakia Syria.	End March 1999
1.6 Notification of equipment arrival at site.	Early June 1999
1.7 First visit to site by Project Leader to inspect equipment and review general progress in site preparation.	23/24 June 1999
1.8 Installation of equipment.	29 September/October 99
1.9 Visit to site of Project Manager. UNIDO representative and Syrian Government Ozone Officer for start up and continuation of training and acceptance trials.	13-15 October 1999
1.10 Completion of outstanding matters arising from site visit by Project Manager.	September/October 1998
1.11 Acceptance trial witnessed by Mr Klaly Syrian Government Ozone Officer and Mr N Arafeh of DINA.	9 November 2000

2.0 REPORTS ON THE INSTALLATION, COMMISSIONING AND ACCEPTANCE PHASES

2.1 Installation Visit

- 2.1.1 The installation phase was completed during one visit lasting from 29 October until 8 November, except for the replacement of a faulty pump-set (see below).
- 2.1.2 The installation team consisted of the following:-
- Mr R Sidhu of KP Aerofill, mechanical engineer.
 - Mr P Mitchell of KP Aerofill, electrical engineer.
 - Mr D Birkhead of Old Park Engineering, specialist LPG engineer.
 - Mr Naji Arafeh of Dina Cosmetics, senior manager.
 - Local welders and sub-contractors.
- 2.1.3 The following actions were completed during the visit:-
- Civil engineering work except the LPG storage area fencing.
 - Unpack and inspect equipment.
 - Position all equipment including 5m³ vessel and propellant filling room (Gas House).
 - Install all electrical cabling including gas house and tank farm gas detection system.
 - Install LPG pipework and pressure test system.
 - Training in machines and safety systems.
- 2.1.4 Outstanding actions:
- During the pressure testing of the LPG system, leaks were observed at the inlet and outlet parts of the tanker off-load pump. The adjacent pipework was removed and on examination it was found that the screw threads of the pump parts were faulty. The decision was taken to send a replacement pump.
 - The project counterpart has not yet implemented a spray system to protect the vessels and pipework against overheating.
 - Commissioning of the plant was not possible because of the non-availability of LPG.
- ### **2.2 Commissioning and Acceptance Trials**
- 2.2.1 The final installation and commissioning activities were carried out by Mr Arafeh and his team over period September/October 2000. The acceptance trials took place on 9 November and were witnessed by Mr Khalid Klaly representing the Syrian Ministry of Environment and acting also as the proxy observer for UNIDO and Mr N Arafeh of DINA COSMETICS Company.
- 2.2.2 The following tasks were completed :
- Fitting of the replacement off load pump and local pressure testing of the pipework affected.
 - Commissioning of the LPG system.
 - Commissioning of the safety systems.
 - Commissioning of the propellant filler and can handling systems.

3.0 APPENDICES

3.1 PRESSURE TEST CERTIFICATES LPG INSTALLATION



7624

Old Park Engineering Services Limited

Oak House
Royal Oakway North
Daventry NN11 5PQ
Tel: +44 (0) 1327 706677
Fax: +44 (0) 1327 300112

KP AEROFILL.
33-35 Clayton Road
Hayes
Middlesex
England
UB3 1RU

For the attention of: Mr R Russell
Date: 28.11.1999...

Dear Sir,

Re: Dina L.P.G Plant

Our Engineer arrived on site the items had all ready been positioned in the compound The 5 cubic meter vessel was then fitted out with the valves and equipment and tested with air to 90psig the joints were tested with a soapy water solution to prove there soundness all the joints were found to be sound. The air test was left on for 5 hours and witnessed by the customer. The air was released but not purged. The above procedure was repeated on the 2 cubic meter vessel but this vessel was purged with one volume of nitrogen ready to accept L.P.G.

The pipework was installed and connected to vessel, pumps, and column using a local welder for the final make up pieces. On completion the system was tested to 12.5 bar all the joints were soapy solution tested and were found to be sound. The test was left on for five hours there was no pressure drop. The nitrogen pressure in the column was reduced to 90psig ready to be commissioned on arrival of L.P.G.

Our engineer while testing the delivery pump manifold found it to be leaking, the local fitters and welder to rectify the leaks by carrying out repairs but in doing so the pump case was damaged. It was agreed by all parties a new pump would be supplied free issue. Our engineer left site and returned to the UK.

Yours faithfully
Old Park Engineering Services Ltd


David Birkhead.

Company Reg. 3636597
Member of the Liquified Petroleum Gas Association

Old Park Engineering Services Limited

Oak House – Royal Oakway North – Daventry – NN115PQ

Tel:- 01327 706677 Fax:-01327 300112

Pressure Test Certificate

Site Location: Dina - Syria

Certificate No: P2331

Customer Ref: 51156E

Customer: BWI KP AEROFILL

33-35 Clayton Road

Hayes

Middlesex

England

UB3 IRU

Vessel Details: 1 – off 5 cubic meter & 1 – off 2 cubic meter

☒ Details: Propane

New or Existing: New

Installation Size: 5 cubic meter

Permitted Leak Rate: None

Pressure Gauge Type: 0- 300 psi Nova fima

Pressure Test Medium: Compressed Air

Test Pressure: 90 psi

Stabilization Period: 15mins

Soundness Test Period: 5 hours

☒ Existing Potential Hazards ? NO

Maximum Pressure Drop Allowed: None

RESULTS

Actual Pressure Drop (If Any) None

Calculated Leakage Rate (If any) N/A

PASS: YES

SIGNED:



POSITION: Engineer

COMPANY: Old Park Engineering Services Limited

DATE: 9 – 10 - 1999

Old Park Engineering Services Limited

Oak House – Royal Oakway North – Daventry – NN115PQ

Tel:- 01327 706677 Fax:-01327 300112

Pressure Test Certificate

Site Location: Dina - Syria

Certificate No: P2331

Customer Ref: 51156E

Customer: BWI KP AEROFILL

33-35 Clayton Road

Hayes

Middlesex

England

UB3 1RU

Vessel Details: Destenching Column & Pipework

Gas Details: Nitrogen

New or Existing: Existing

Installation Size: 5 Cubic meter

Permitted Leak Rate: None

Pressure Gauge Type: 0-300psi

Pressure Test Medium: Nitrogen

Test Pressure: 12.5 Bar

Stabilization Period: 15mins

Soundness Test Period: 5 Hours

Any Existing Potential Hazards: NO

Maximum Pressure Drop Allowed: None

RESULTS

Actual Pressure Drop (If Any) None

Calculated Leakage Rate (If any) None

PASS: YES

SIGNED:  POSITION: Engineer

COMPANY: Old Park Engineering Services Ltd

DATE: 9- 10- 1999

3.2 CERTIFICATE OF ACCEPTANCE (COPY)

CERTIFICATE OF ACCEPTANCE

UNIDO CONTRACT: MP/SYR/97/172

KP Aerofill Reference: 51685E

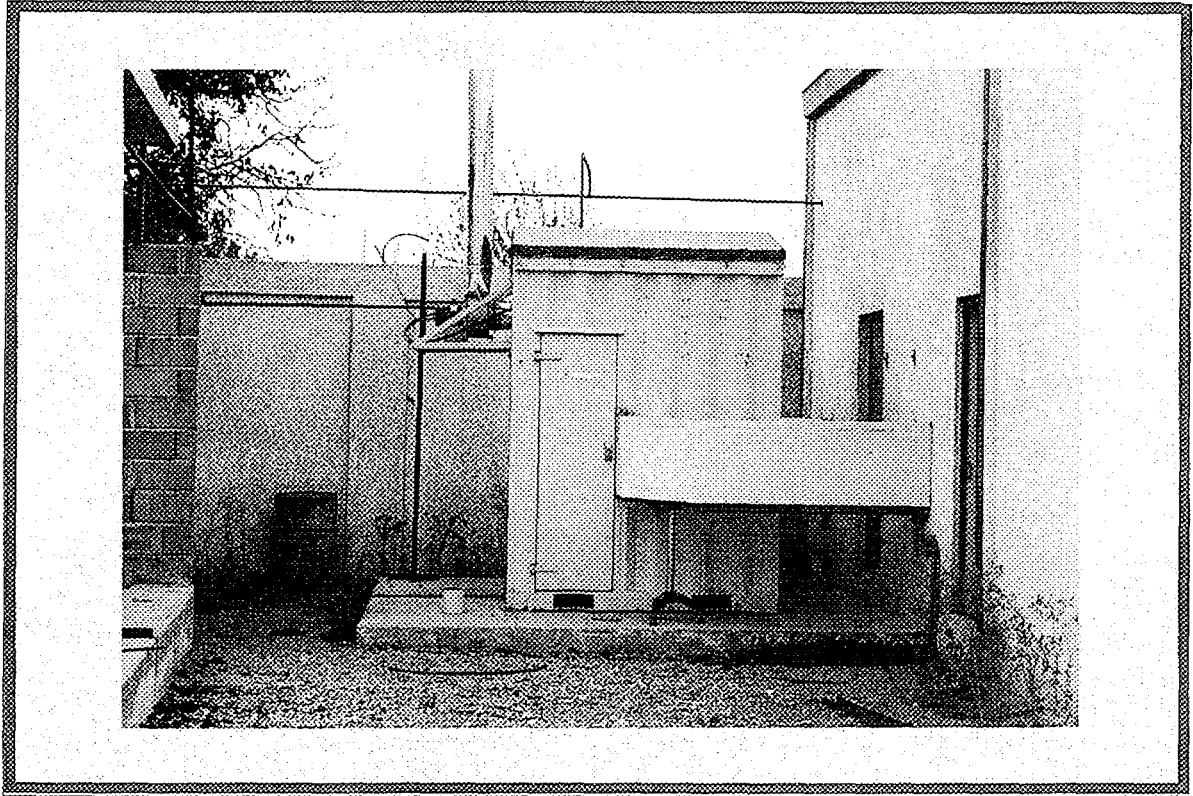
DINA COSMETICS

We, the undersigned, certify herewith that the Equipment and Services detailed in the above Contract and the Appendices have been supplied, installed and tested in accordance with the UNIDO Terms of Reference.

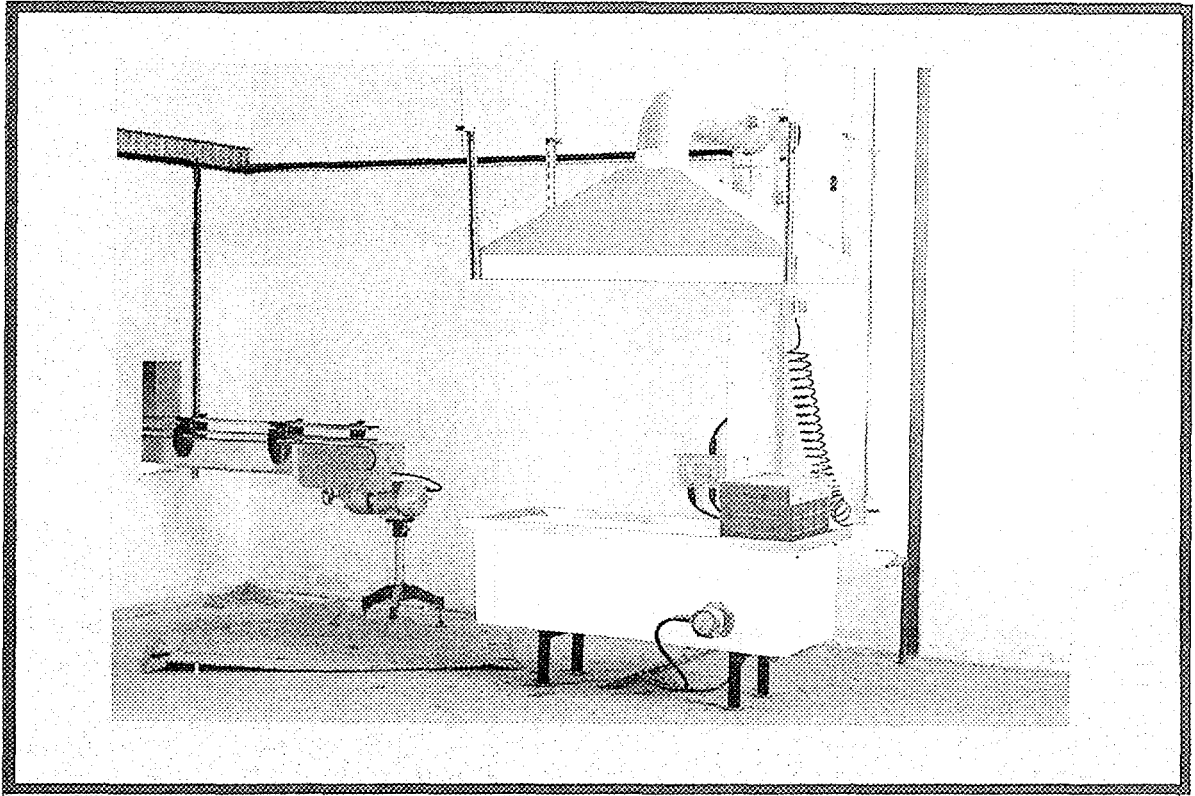
**FOR/
DINA COSMETICS**Name: *Naji Arafah*Signature: *[Signature]*Date: *26/9/00***FOR/
KP AEROFILL**Name: *R. CHANDLER*Signature: *[Signature]*Date: *26/9/00*

KP AEROFILL
(A division of B.W.I. plc)
33-35 Clayton Road
Hayes, Middlesex
England UB3 1RU

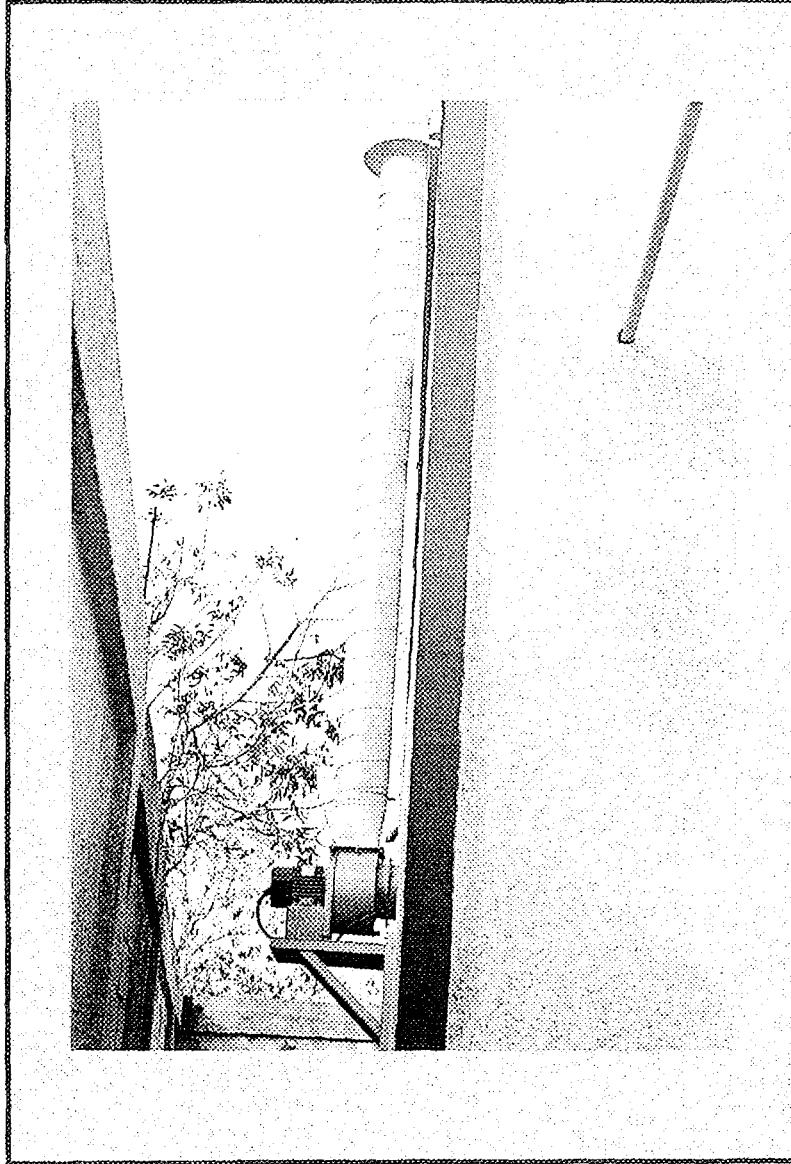
3.3 GENERAL VIEWS OF THE INSTALLATION



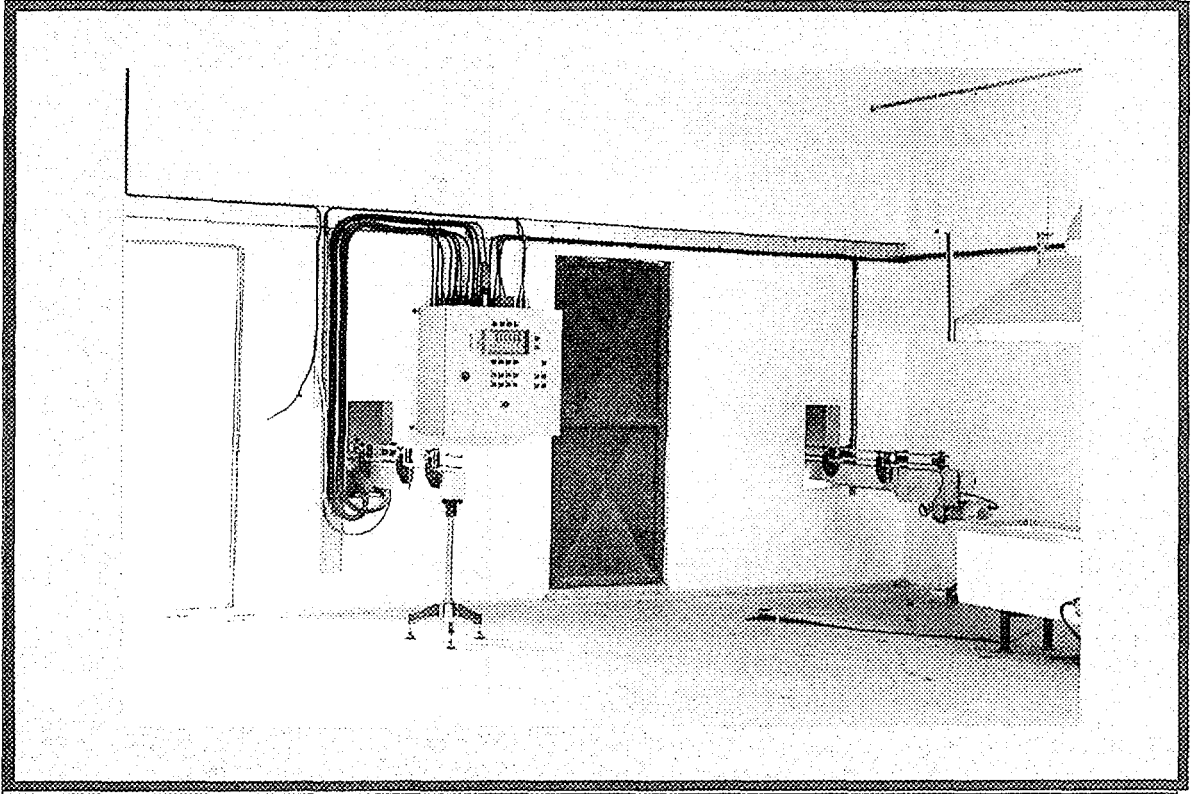
**GENERAL VIEW OF NEW FILLING BLOCK AND EXTERNAL
PROPELLENT FILLING ROOM**



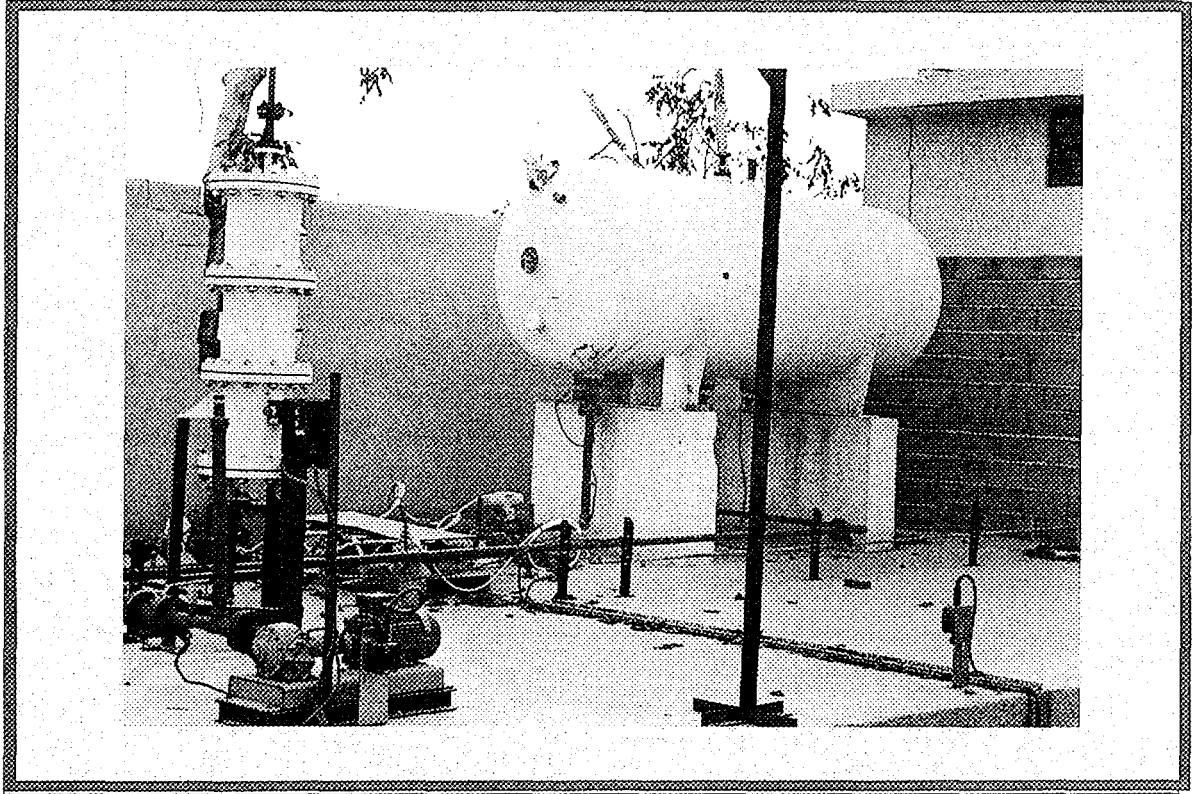
TEST BATH AND VENTILATION SYSTEM



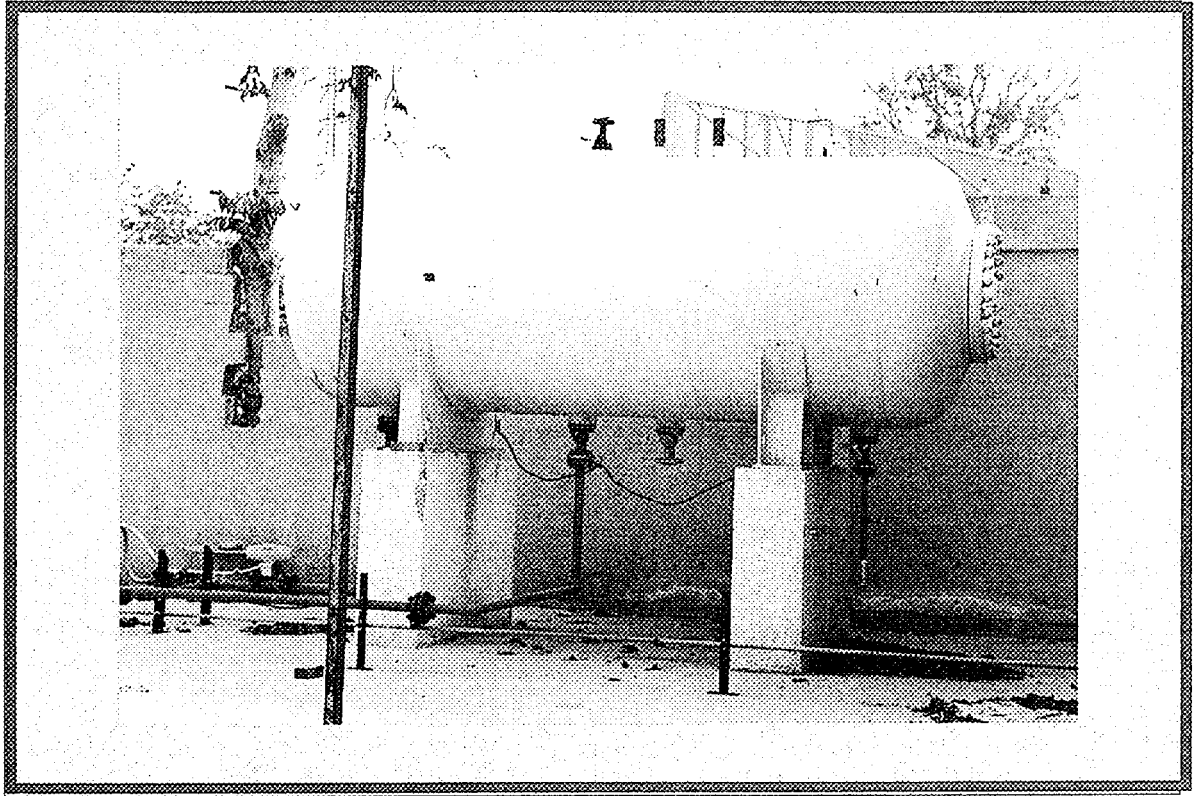
VIEW OF VENTILATION FAN AND EXHAUST STACK



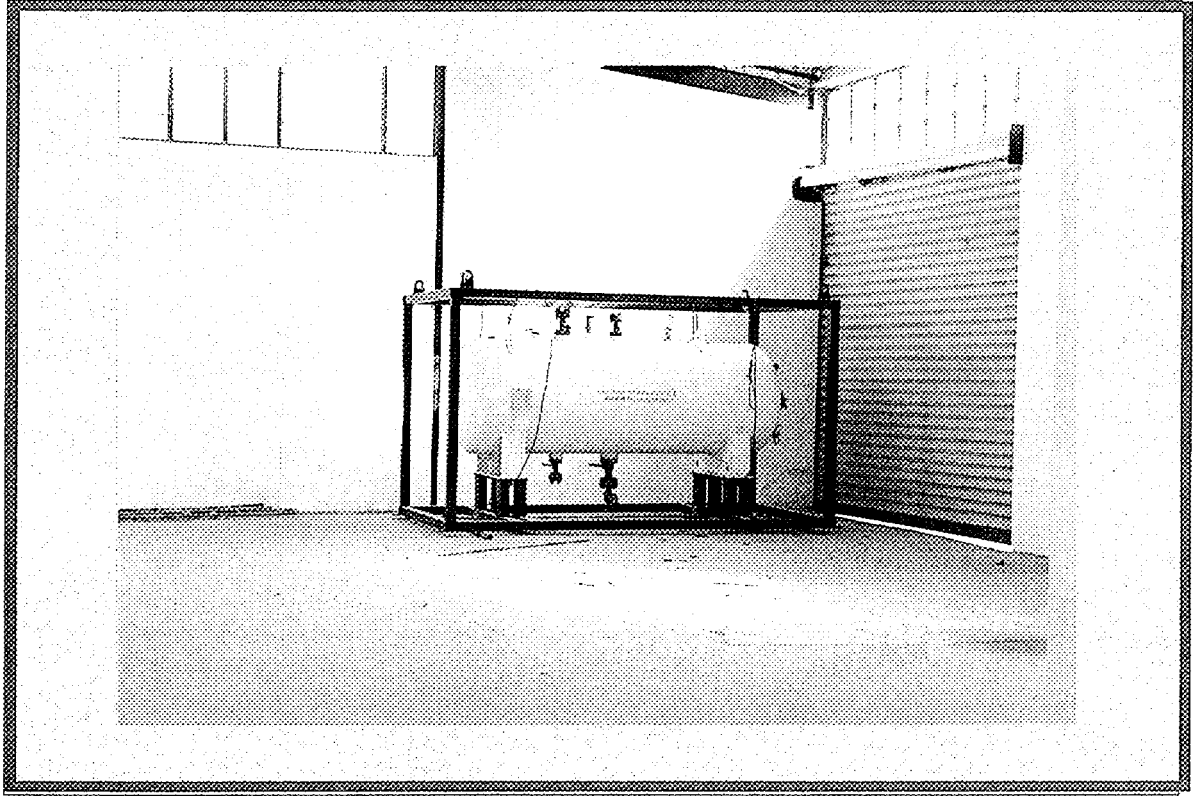
SAFETY SYSTEM CONTROL PANEL



**GENERAL VIEW OF THE TANK FARM SHOWING THE OFF LOAD
PUMP, TRANSFER PUMP , DESTENCH COLUMN AND SAFETY
SHUT - OFF VALVE**



VIEW OF 5M³ VESSEL



VIEW OF 2M³ TRANSPORTABLE VESSEL

3.4 BASIC SAFETY TRAINING PROGRAMME

BASIC SAFETY TRAINING PROGRAMME

1. Overview of Training Programme

Safety is everybody's business from Manager to Line Operative.

Create a culture of interest, team spirit and a focus on the common goal.

Create a team responsible for setting up procedures teaching the people who will operate them and monitoring and modifying procedures as and when required.

Suggestions for the Plant Operating Safety Team

Site Safety Officer -
Site Training Officer -
Site Fire Officer -
Site Engineer -
Trainers -

The team will probably have an interest in other areas as well as the Aerosol Plant.

The Company may have a structure in place.
Discuss with the team

REVIEW BAMA FEA REQUIREMENTS

BASIC TRAINING

INDUCTION TRAINING

LINE OPERATIVES

FORK LIFT OPERATIVES

PROCESS (MIXING) OPERATIVES

TANK FARM STAFF

QUALITY CONTROL STAFF

STOCK AUDIT STAFF

LINE MECHANICS (INCL. TANK FARM)

ELECTRICAL ENGINEERS

MANAGERS

SECURITY

FIRE FIGHTERS

L.P.G PROPERTIES

What do we know about L.P.G. A.K.A. BUTANE/PROPANE or HYDROCARBON PROPELLANT?

- It is a liquifiable gas stored under pressure in the liquid phase. But with vapour in the top of the tank.
- If spilt or leaked to the open air it will boil off rapidly to vapour.
- It is colourless and has a distinctive smell when delivered to site. After treatment it has only a very slight smell.
- It is non toxic but has Narcotic, Anaesthetic Properties.
- It is heavier than air but lighter than water.
- As a vapour it is highly flammable but only over a limited range of gas air mixtures. About 2% to 10% of gas in air.
- When boiling off from liquid to vapour it removes heat from surface in contact - "cold burns" to skin

How do we handle L.P.G.?

- Store and transfer in closed pressurised system 2-4 bar in liquid phase.

Vessels	}	All must be suitable for pressure and anti static fire safe.
Pipework	}	
Valves & Fittings	}	

- All electrical equipment to be suitable for flammable (Hazardous) area operation. Ex rated for main power systems "Intrinsically Safe" for low voltage (8-9v) non sparking control circuits.
- All of the storage and pipework are electrically continuous (bonding strips across flanged joints, for example) and the whole system is earthed.
- Tanker must be connected to earth before any other connections to it are made.
- The connecting hoses are anti static and pressure resistant. Special L.P.G. Hoses.

FILLING LINE

- Propellant filling takes place in an external room separated from the main room and designed to be explosion resistant (walls and roof).
- During the filling process there is an escape of liquid propellant every time a can is filled. This occurs every time the nozzle adaptor lifts off the valve and is a function of the valve type in terms of quantity of gas lost.
- There is also the possibility of gas loss for other reasons such as faulty or damaged can and/or valve or leaking propellant filling head.
- How do we deal with this potential hazard?
- First by ventilation to dilute and remove the vapour from the room. Two systems are used, one to remove the gas from the immediate Propellant Filler Area, the second to draw air from the floor of the room. (Gas is heavier than Air).
- These systems are two speed and the extraction can be increased by 100% if necessary.
- This action is automatic and is controlled by a system of Gas Detectors installed in the room. If any detector signals a gas concentration of more than 20% of the lower flammable limit (LFL) of the gas that is 20% of 2% gas in air, so still well below the flammable range, then the fans are automatically switched to high speed and audible and visual warnings are given.

If the gas level continues to rise indicating an escalating problem then at 40% of the 'LFL' the line is automatically stopped and gas safety shut-off valves are closed limiting the potential gas leakage to what is in the end of the pipework.

- For the ventilation system to operate effectively the room doors must be closed. Time switches are fitted to each door so that if the door is not closed and latched within say 11 seconds the line will stop.
- Further refinements include air flow switches to monitor the actual flow rate in each system and not merely the fact that the motors are switched on.
- SCRAP CANS WHICH ARE LEAKING

Rejects from the line should be placed in a suitable metal container (not plastic) and removed to an outside designated area where they may safely be emptied.

- Packed filled stock should be transferred from the filling hall to the finished goods area at regular intervals to ensure that there is no major hazard concentration in the filling area.

3.5 CERTIFICATE OF SAFETY -
GAS HOUSE AND GAS MANAGEMENT
SAFETY SYSTEM

**CERTIFICATE
OF
SAFETY**

Customer: Dina Cosmetics - Syria

Unido Reference: MP/SYR/97/172

Job No.: 51685E

Product: Gas Management Safety System

This is to certify that:

The Gas House and auxillary equipment fully conform to the Hydrocarbon Safety information incorporated in BAMA's "A Guide to Safety in Aerosol Manufacture" 1999 and FEA's "Guidelines on Basic Safety Requirements in Aerosol Manufacture" 1995. The specification of the equipment incorporates:

1. Pipework to BS3601.
2. Welded fittings to ANS B16.9 & BS1640.
3. Flanges to ANS B16.5 & BS1560.
4. Welding in accordance with BS2633.
5. Welders to be certified to BS4871.
6. All work carried out in accordance with LPGITA code of practice 1.
7. All pipework tested in accordance with LPGITA code of practice 1 section 63.

All electrical equipment to Europe CENELEC EN50 014 IEC Standard for Propane Gas grouping 11A.

The following equipment within the Gas House are termed simple devices and are connected through Intrinsically Safe Barriers. This specification is certified to European Zone O. This is by definition a higher specification than explosion-proof, which is Zone 1. All EXI circuits are designated by blue cable.

- Air Pressure Switch
- Air Flow Switches
- Emergency Stop Pushbuttons
- Gas House Door Switches
- Propellant Supply Valve Switch

Signed on behalf of KP Aerofill:



.....
TONY BARTER
Technical Communications Manager

Dated: 21st November 2000

3.6 MANUFACTURERS CERTIFICATE OF
APPROVAL

MANUFACTURERS CERTIFICATE OF APPROVAL

Customer: Dina Cosmetics - Syria
Unido Reference: MP/SYR/97/172
Make: KP Aerofill **Type:** Aerosol Filling
Serial Number: 51685E
Production Line Layout Drawing: X029-96-071
Manufactured By: KP Aerofill
Address: 33-35 Clayton Road, Hayes, Middlesex UB3 1RU
England

This machinery has been designed and manufactured in accordance with the following transposed harmonised European standards.

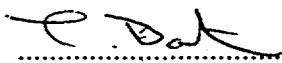
EN418: 1992 Safety of machinery - Emergency stop equipment, functional aspects - Principles for design.
EN60204: Part 1: 1993 Safety of Machinery - Electrical equipment of machines - Specifications for general requirements.
EN50081: Part 1: 1992 Generic emission standard - Domestic, commercial and light industrial environment.
EN50082: Part 1: 1992 Generic immunity standard - Domestic, commercial and light industrial environment.

In addition, this machinery has been designed and manufactured in accordance with materials as defined in

British Standard BS2050: 1978 Specification for Electrical resistance of conducting and anti-static products made from flexible polymeric material.

A technical construction file for this machinery is retained at the following address:

KP Aerofill
33-35 Clayton Road, Hayes, Middlesex UB3 1RU England

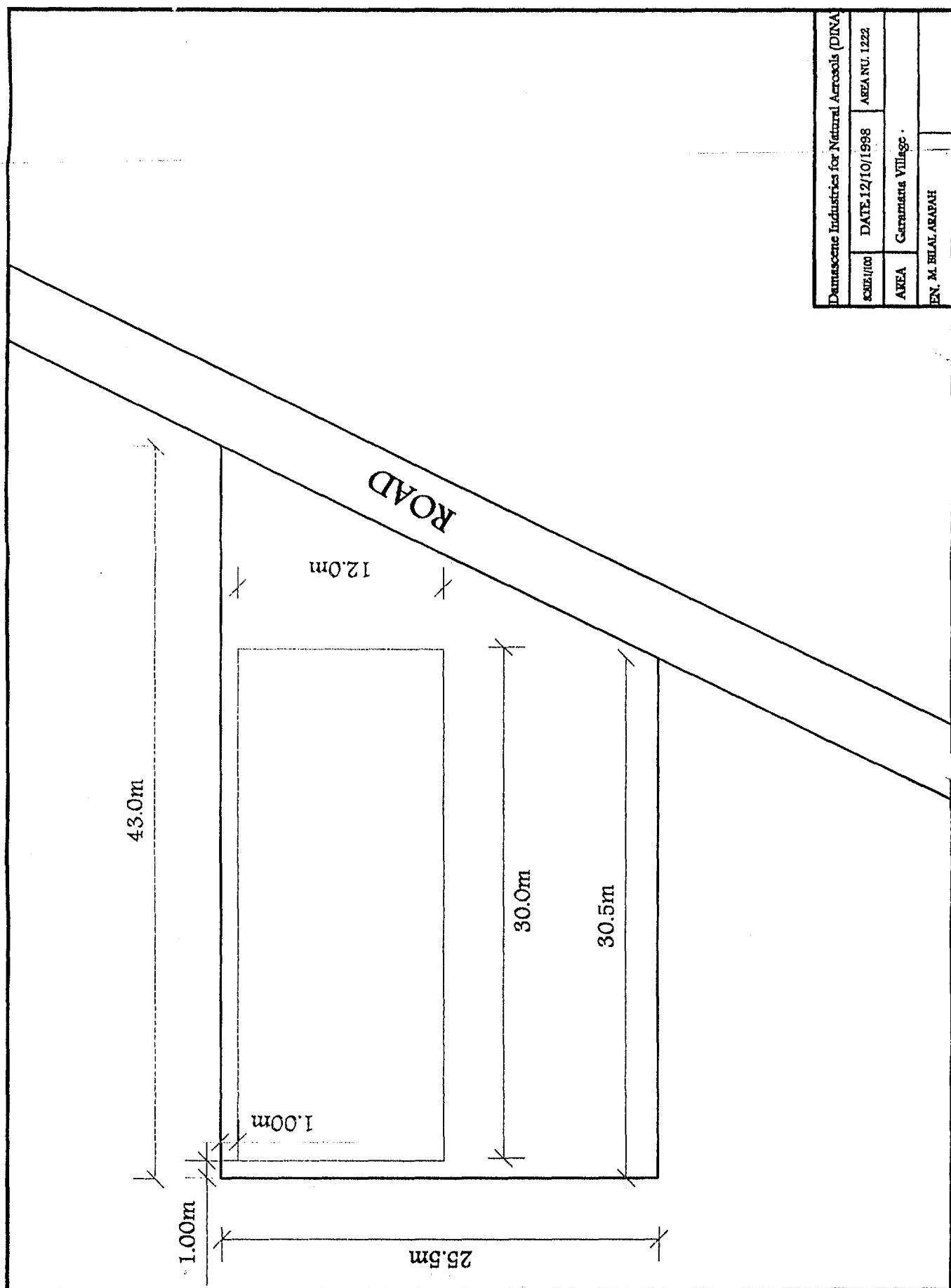
Signed: 
Name: Tony Barter

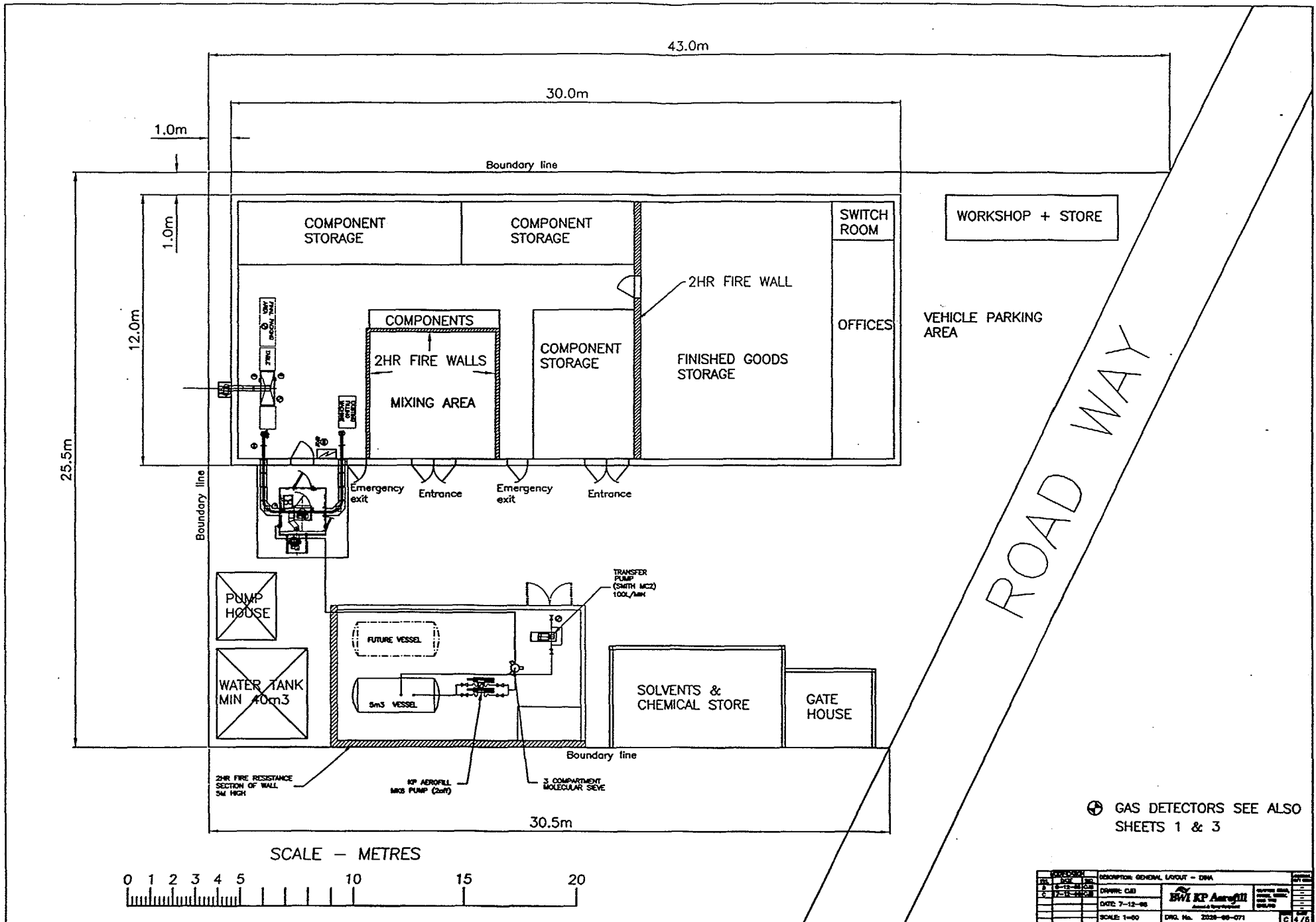
Date: 21st November 2000
Position: Technical Communications Manager

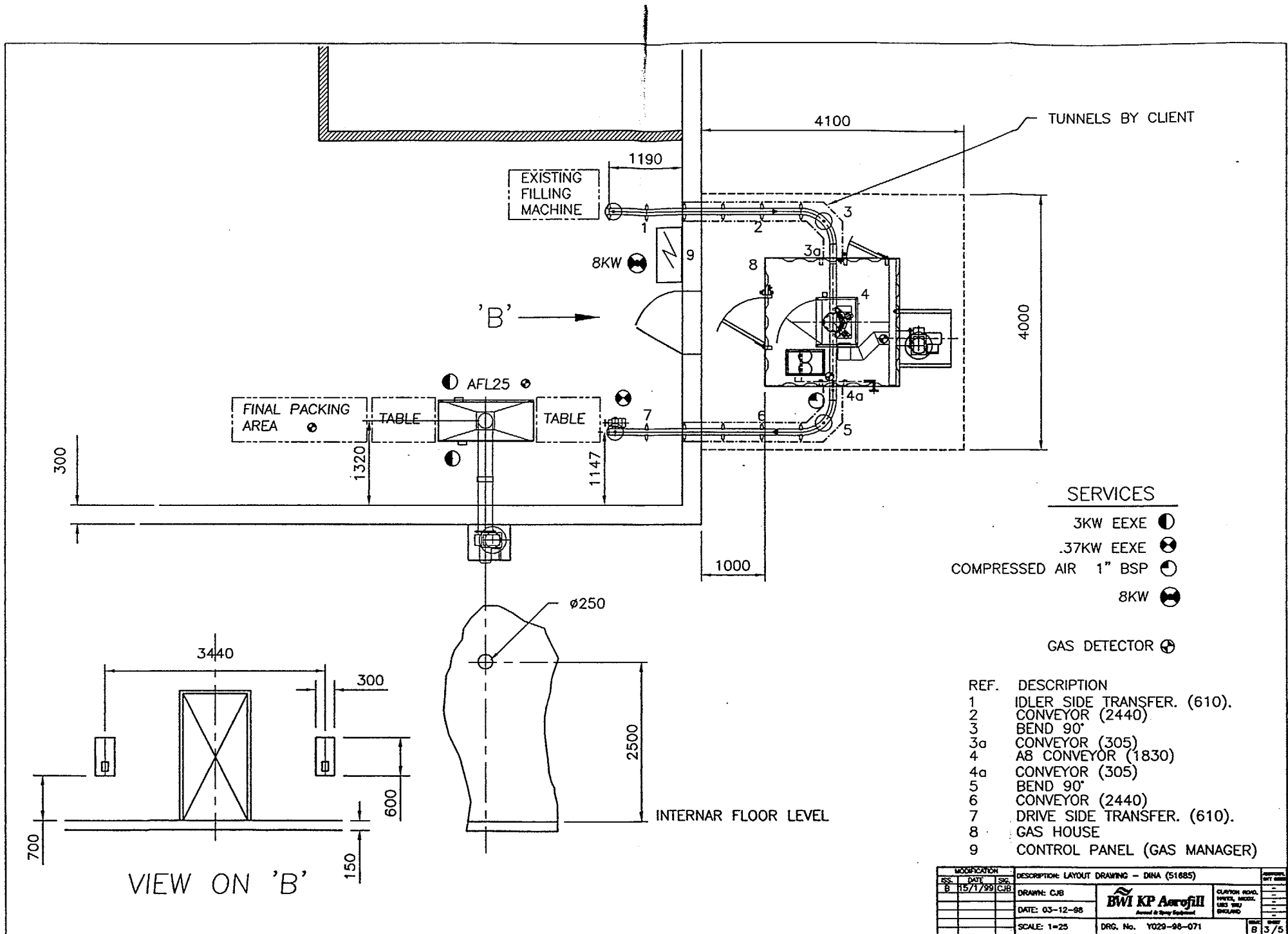
Being the responsible person appointed by the manufacturer and employed by **KP Aerofill, Hayes, England.**

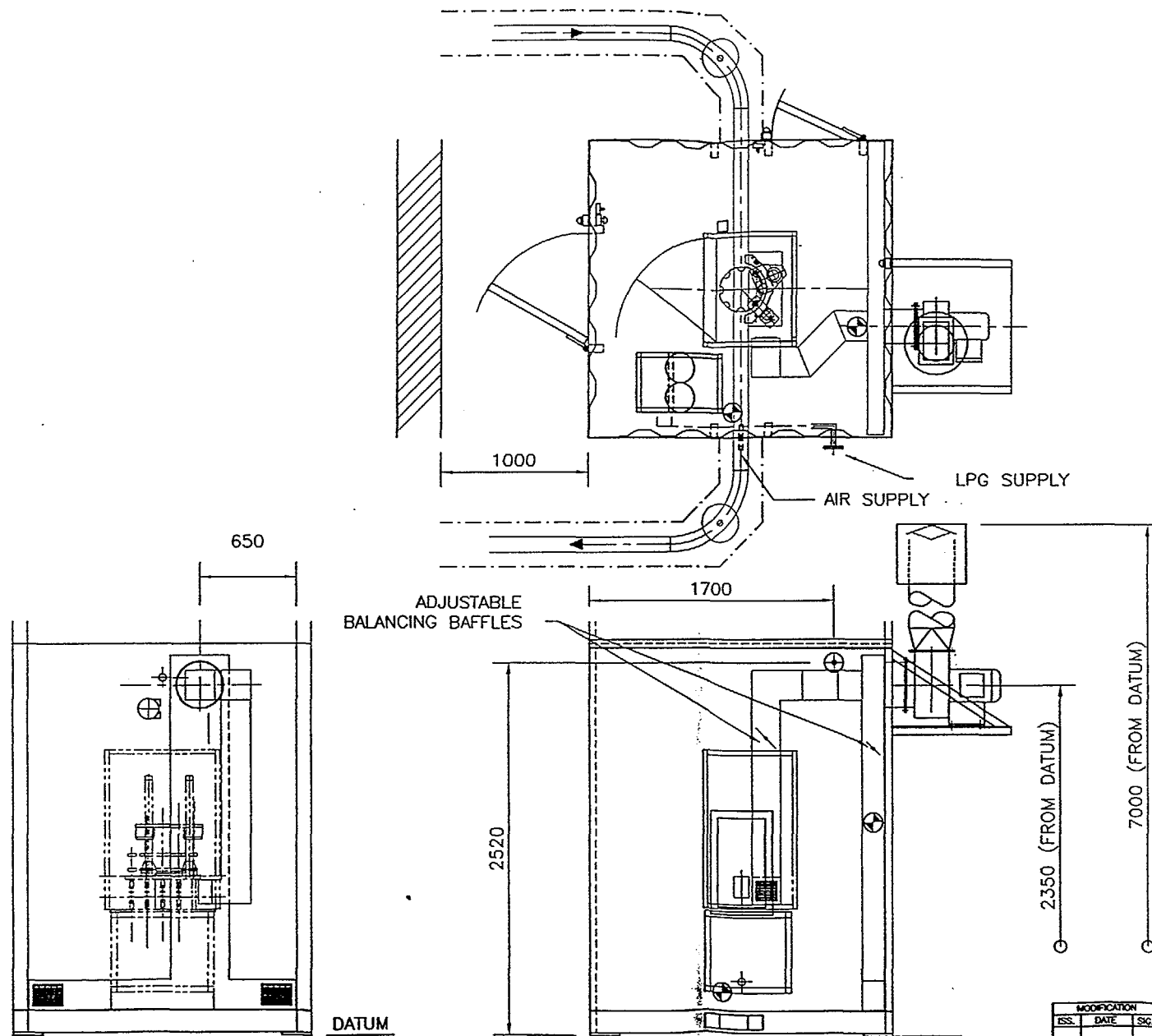
3.7 SITE PLANS (AS INSTALLED)

Damascene Industries for Natural Aerosols (DINA)			
SCHE/100	DATE: 12/10/1998	AREA NU. 1222	
AREA	Garamana Village		
EN. M. BELAL ARABAH			









DUCT PRESSURE SWITCH



GAS DETECTOR



EMERGENCY STOP

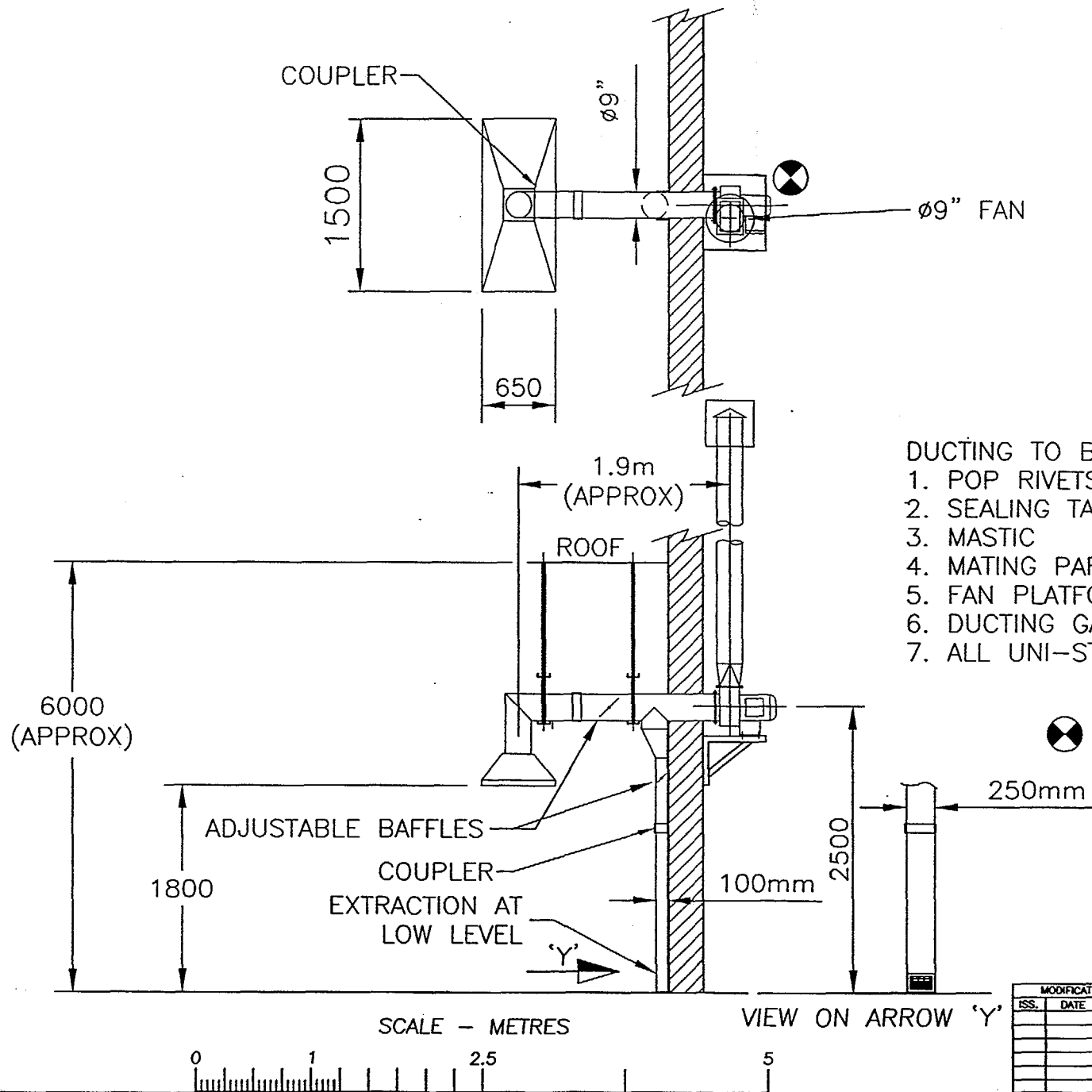


LIGHT SWITCH

MODIFICATION			DESCRIPTION: DUCTWORK LAYOUT - 2m x 2m GASHOUSE	DRAWN BY
ISS.	DATE	SG.		
			DRAWN: R.O.Y.	
			DATE: 23-9-98	
			SCALE: 1 - 20	
			DRG. No. X029-98-071	
				1/5

BW KP Aerofill
Aerial & Spray Equipment


CLAYTON ROAD,
HAYES, MIDDLESEX,
UB8 3PU
ENGLAND

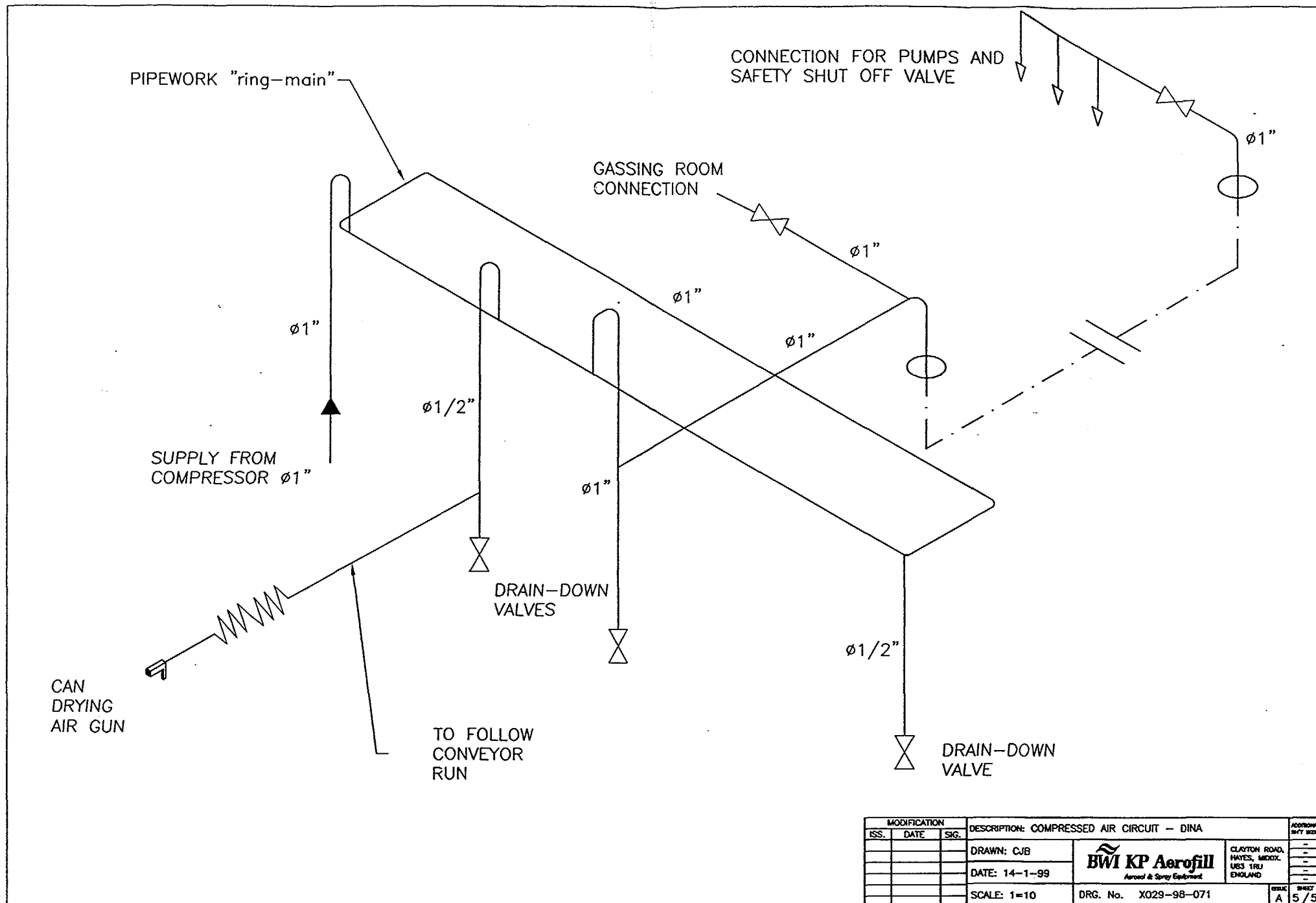



DUCTING TO BE SUPPLIED COMPLETE WITH:-

1. POP RIVETS
2. SEALING TAPE
3. MASTIC
4. MATING PARTS TO BE NUMBERED
5. FAN PLATFORM PAINT RAL 7035
6. DUCTING GALVANISED
7. ALL UNI-STRUT & THREADED SUPPORTS

DINA 51685

MODIFICATION			DESCRIPTION: TEST BATH DUCTING/EXTRACTION		ADDITIONAL SHEET SIZES
ISS.	DATE	SIG.			
			DRAWN: CJB	 BWI KP Aerofill <i>Aerosol & Spray Equipment</i>	CLAYTON ROAD, HAYES, MIDD. UB8 3RU ENGLAND
			DATE: 03-12-98		
			SCALE: 1-25	DRG. No. X029-98-071	ISSUE A SHEET 2/5



MODIFICATION			DESCRIPTION: COMPRESSED AIR CIRCUIT -- DINA		ADDITIONAL SHEET NO.
ISS.	DATE	SIG.			
			DRAWN: CJB	 BWI KP Aerofill <i>Aerosol & Spray Equipment</i>	CLAYTON ROAD, HAYES, MIDDLESEX, UB3 1RU ENGLAND
			DATE: 14-1-99		
			SCALE: 1=10	DRG. No. X029-98-071	ISSUE: A 5/5