



KATHERINE METER STATION HAZARDOUS AREA DOSSIER



FYFE REFERENCE: 18756-5-HAD-002 APA REFERENCE: HAD DATA REPOSITORY/ KKP_0005_KMS

Prepared by:

Claire Kolodziej Mechanical Engineer - Fyfe Date: 03-Nov-2011

Date: 03-Nov-2011

Reviewed by:

Tony Bird Principal Process Engineer - Fyfe

Client Accepted:

Date:

Anthony Comerford Pipeline Engineer – APA Group

Manager:

Henry Dupal Engineering Manager - APA Group Northern Territory

FYFE EARTH PARTNERS 80 FLINDERS STREET, ADELAIDE 5000 PHONE (08) 8201 9600 - FAX (08) 8201 9650 - EMAIL <u>info@fyfe.com.au</u> Date:



Credential Exposure

PERSONNEL

Tony Bird from Fyfe Pty Ltd is a principal process engineer with over ten years of experience in hazardous area classifications of new and existing projects. His experience in the development of retrospective hazardous area classifications includes Palm Valley gas plant, Torrens Island power station, Pelican Point power station and numerous Santos facilities.

His experience covers oil and gas pipeline and facility projects during all stages of design from concept, feasibility, and FEED through to detailed design. He also has experience in procurement, construction supervision, commissioning and operations support of pipeline facilities.

Tony's responsibilities for this project included the examination of site, confirmation of installed equipment, and development of hazardous area classification and hazardous area mapping drawings.

Neville Green from Sitzler Pty Ltd is an electrical engineer with over ten years of experience in the design, construction, commissioning and inspection of installation in hazardous environment in the oil and gas industry. Neville has the following competencies in accordance to AS/NZS 4761(Refer attachments):

UTE NES 010 AReport on integrity of explosion protected equipment in hazardous areasUTE NES 107Install explosion-protected equipment and wiring systems (Ex)UTE NES 707Design electrical installations in hazardous areas (Ex)

Neville's role was to perform close inspection of all electrical equipment in accordance to AS/NZS 60079 series on site to verify installation. His role was also to review inspection sheets and provide recommendations for remedial actions to ensure compliance.

David Bourke from Fyfe Pty Ltd is the surveyor who completed three dimensional (3D) scanning and photography of the facilities. The 3D images were used by Fyfe drafters to update site arrangement drawings. The 3D scan data is retained by Fyfe for future use if required by APA Group.

METHODOLOGY

The Hazardous Area Verification Dossier is produced to ensure that the installation complies with the appropriate certification documents as well as with AS/NZS 2381.1 and any other relevant part of the AS/NZS 2381 and AS/NZS 60079 series. In addition equipment and installations where hazardous areas exist are required to comply with the applicable regulations of the applicable Australian State or Territory. It should be borne in mind that an installation can come under the jurisdiction of several authorities with different areas of responsibility, e.g. mining, electrical safety, handling and transport of flammable materials and occupational health and safety.



This dossier has been prepared in accordance with the following codes and standards:

- Dossiers AS 2381.1:2005 Electrical equipment for explosive gas atmospheres -Selection, installation and maintenance Part 1: General requirements
- Hazardous area AS/NZS 60079.10.1:2009 Explosive atmospheres: Classification of areas - Explosive gas atmospheres (IEC 60079-10-1, Ed. 1.0 (2008) MOD) (2009)
- AS/NZS 60079.17:2009 : Explosive atmospheres Electrical installations inspection and maintenance (IEC 60079-17, Ed.4.0 (2007) MOD)

Note that a Hazardous Area Verification Dossier is a living document and should be updated by APA and / or its contractors. Any modifications to electrical equipment, including removing an instrument cover should be recorded and stored within the Dossier. Changes to the operation or equipment installed within the station will require a review of the hazardous area classification and may require revision of the classification, hazardous area mapping drawings, hazardous area equipment lists and associated certificates of conformity. An extract from AS 2381.1 (2005) is included to provide guidance to APA.

Equipment requires conformity to the following standards:

- AUS Ex
- IEC Ex

Previously AS / NZS Ex and FLP have been recognised certification standards for equipment in hazardous areas and may have been applicable at the time of construction / installation. Equipment that was identified as having any of the certification to show conformity to the above standards was deemed to be acceptable. Where no certification was available or certification was available to standards not recognised in Australia, a conformity assessment document (CAD) is required. The CAD shall be completed by a suitably qualified organisation and the associated residual risk shall be accepted by the head of APA. For new installations, equipment with the correct certificates of conformity should be used unless no item exists and then a CAD should be produced. No information on the date of installation/ of equipment purchase/manufacturer has been provided of the site. Therefore no checking has been undertaken to determine the currency of the certificate at the time of installation.

DISCLAIMER

Opportunities for improvements (OFI) are provided for items associated with hazardous area and general engineering. The scope of work for the project was to identify hazardous area and provide visual inspection of the equipment. The visual inspection did not include opening of equipment and the OFIs are limited to the level of inspection. General engineering OFIs are non-exhaustive and require APA to confirm the OFI and the recommendation.



Extract from AS 2381.1 (2005)

1.6 DOCUMENTATION

It is necessary to ensure that any installation complies with the appropriate certification documents as well as with this Standard and any other requirements specific to the plant on which the installation takes place.

To achieve this result, a verification dossier shall be prepared for every plant and shall be either kept on the premises or stored in another location in which case a document shall be left on the premises indicating who the owner or owners are and where that information is kept, so that when required, copies may be obtained. This dossier should contain the information detailed in the appropriate Parts of this series of Standards for the types of protection concerned.

Up-to-date information typically required is as follows:

- a) Where applicable a statement of the identity of the person(s) having legal ownership of the installation or parts thereof and where the verification dossier is located.
- b) The classification of hazardous areas and the Standards used for the classification.
- c) Equipment group and temperature class.
- d) Installation instructions.
- e) Documentation/certification for electrical equipment, including those items with special conditions, for example, equipment with certificate numbers that have the suffix 'X'.
- f) Descriptive system document for the intrinsically safe system.
- g) Documentation relating to the suitability of the equipment for the area and environment to which it will be exposed, e.g. T rating, Ex rating, IP rating, corrosion resistance.
- h) Documentation certifying that the equipment is rated for the voltages and frequency applied during normal operation.
- *i)* Manufacturer's/qualified person's declaration, e.g. tradesperson's documentation and inspector's inspection reports.
- *j)* Records sufficient to enable the explosion-protected equipment to be maintained in accordance with its type of protection (for example, list and location of equipment, spares, technical information).
- k) Records covering any maintenance, overhaul and repair of the equipment.
- *I)* Records of selection criteria for cable entry systems for compliance with the requirements for the particular explosion technique.
- m) Drawings and schedules relating to circuit identification (see Clause 3.8.16).
- n) In New Zealand, the Hazardous Area Statement of Periodic Verification on completion of a periodic inspection. (Refer to Appendix B).



Where alternative methods of equipment identification are used for inspection in accordance with Clause 4.3 then additional documentation to support the traceability of the equipment shall be provided.

It shall be the responsibility of the person(s) having legal ownership of the installation or parts thereof to ensure that the relevant information is produced but the preparation of the document may be delegated to expert bodies/organizations. The dossier may be kept as hard copy or in electronic form.

1.7 QUALIFICATIONS OF PERSONNEL

The design, construction, maintenance, testing and inspection of installations covered by this Standard shall be carried out only by competent persons whose training has included instruction on the various types of protection and installation practices, relevant rules and regulations and on the general principles of area classification. The competency of the person shall be relevant to the type of work to be undertaken.

Appropriate continuing education or training should be undertaken by personnel on a regular basis.

Competency may be demonstrated in accordance with AS/NZS 4761, Competencies for working with electrical equipment for hazardous areas (EEHA), or equivalent training and assessment framework.

MOXI / SKILL + LEARNING

This is a Statement that

Neville Owain Green

has been assessed as having fulfilled the following requirements

UTE NES 010 A	Report on the integrity of explosion-protected equipment in hazardous areas
UTE NES 107 TA	Install explosion-protected equipment & wiring systems (Ex mixed)
UTE NES 107 WA	Install explosion-protected equipment & wiring systems (Ex n)
UTE NES 107 XA	Install explosion-protected equipment & wiring systems (Ex i)
UTE NES 107 YA	Install explosion-protected equipment & wiring systems (Ex e)
UTE NES 107 ZA	Install explosion-protected equipment & wiring systems (Ex d)
UTE NES 707 TA	Design electrical installations in hazardous areas (Ex mixed)
UTE NES 707 WA	Design electrical installations in hazardous areas (Ex n)
UTE NES 707 XA	Design electrical installations in hazardous areas (Ex i)
UTE NES 707 YA	Design electrical installations in hazardous areas (Éx e)
UTE NES 707 ZA	Design electrical installations in hazardous areas (Ex d)

in partial completion of the following qualification Certificate IV in Electrotechnology (Explosion-protection) UTE 4 07 99

Prepared by Sarah Petrides Administration Assistant

Approved by Sam Zacha Managing Director

Date of Issue: 5 December 2007



This statement of attainment is recognised within the Australian Qualifications Framework

Certificate No.: 1089-1-07

National Provider Code 51160

This is to certify that

Neville Green

GPA Engineering Pty Ltd

Completed the 3 day Electrical Safety in Hazardous Areas



26th to 28th February 2001

Signed:



Colin Baker CEng, MIEE, MInstMC, FIICA Partner, Principal Consultant & H-Class Electrical Inspector

Certificate Number: 2001.02.26-28/05

This 24 hour short course is recognised by The Institution of Engineers, Australia, for Continuing Professional Development (CPD) purposes

Explosion Protection Technology, 8 Kirkfell Court, Berwick, Victoria 3806, Australia



Table of Contents

- 1 Site Information
- 2 Hazardous Area Classification Report
- 3 Observation For Improvement (OFI)
- 4 Hazardous Area Mapping Drawings
- 5 Hazardous Area Equipment Register and Certificates of Conformity
- 6 Datasheets and Electrical Drawings
- 7 Calculations
- 8 Manufacturer's Data Report (MDR) and Installation, Operating and Maintenance (IOM) Manual
- 9 Maintenance Register
- 10 Inspection Register
- 11 Overhaul, Repair, Modification and Replacement Register
- 12 Schedule of Equipment and Conditions Requiring Compliance Status Attention

Revision History:

Rev.	Status	Date	Prepared	Reviewed	Approved
А	Preliminary issue for client's review	28-Sep-2011	CEK	ТСВ	
0	Original Issue	03-Nov-2011	CEK	ТСВ	EZG



1 Site Information

An inspection on the Katherine meter station site was performed on 10th September 2011 by Tony Bird, a principal process engineer from Fyfe, Neville Green, an electrical engineer from Sitzler and David Bourke a surveyor from Fyfe.

Katherine meter station is located at KKP0005 on the ADP to Katherine Pipeline.

The Katherine Meter/Regulating Station includes two filter separator, two water bath heaters, a slop tank, a main line valve, control valves, pressure relief valves and the related pipe work and valving.

The inlet to the station is DN 100 and consists of a buried station limit valve (MLV 11) with above ground actuator, maintenance ports and cavity bleed. A scraper receiver vessel is installed in parallel to MLV 11. The scraper vessel is fitted with local vent, PSV, pressure indicator and associated pipe work and valving. The closure on the vessel is a blind flange.

The following instrumentation is installed at the inlet; pressure indicator, a pressure transmitter and a temperature indicator.

The gas then passes through two parallel filter separators. Upstream of both filter separators are temperature control valves that reduce the pressure to $4,400 \text{ kPag} / 16 ^{\circ}\text{C}$ [based on operating conditions at the site visit]. The temperature control valves are provided with cascade control for pressure and temperature. One valve is fitted with a pneumatic controller to continue supply during outage of the electronic control system. The filter separators are fitted with differential pressure transmitter, pressure indicator, high liquid level switches and high-high liquid level switches. The liquids are drained manually to an elevated slops tank. The slop tank is fitted with a liquid level glass and a hose to allow emptying. Gas from filter separators is then heated by indirect fired water bath heaters up to approximately 60 °C. The water bath heaters are operated as duty - standby, with the standby heater remaining "hot" to allow quick change over of the that is controlled by actuated valves on the inlet to each heater.

The heated gases from heaters pass through two parallel regulator / meter runs. The regulator / meter runs are operated in duty - standby and each contains active - monitor pressure regulators. The meter skids are provided with two actuated valves that close on high pressure downstream of the regulators. Additional high pressure switches at the station outlet provide a station ESD. Further over pressure protection is provided by a PSV at the station outlet. A meter is provided in each run. The meters are orifice meters with upstream flow conditioners, temperature transmitters, pressure transmitters and high and low range differential pressure transmitters. Each run is provided with a local blowdown point, pressure indicators and valving.

The station outlet is provided with a temperature indicator, temperature transmitter and low temperature switches. There is also provision for the installation of a future gas sampler. The connection to the Katherine power generation site is DN 100.

Instrument gas is conditioned locally for each actuated valve and temperature control valve. Gas is conditioned at each water bath heater to provide fuel gas for the pilot and main burners. The fuel gas conditioning trains comprise of pre-heat coil, strainer, primary



pressure regulating valve, actuated ESD valves, secondary pressure regulating valve, meter and temperature control valve.

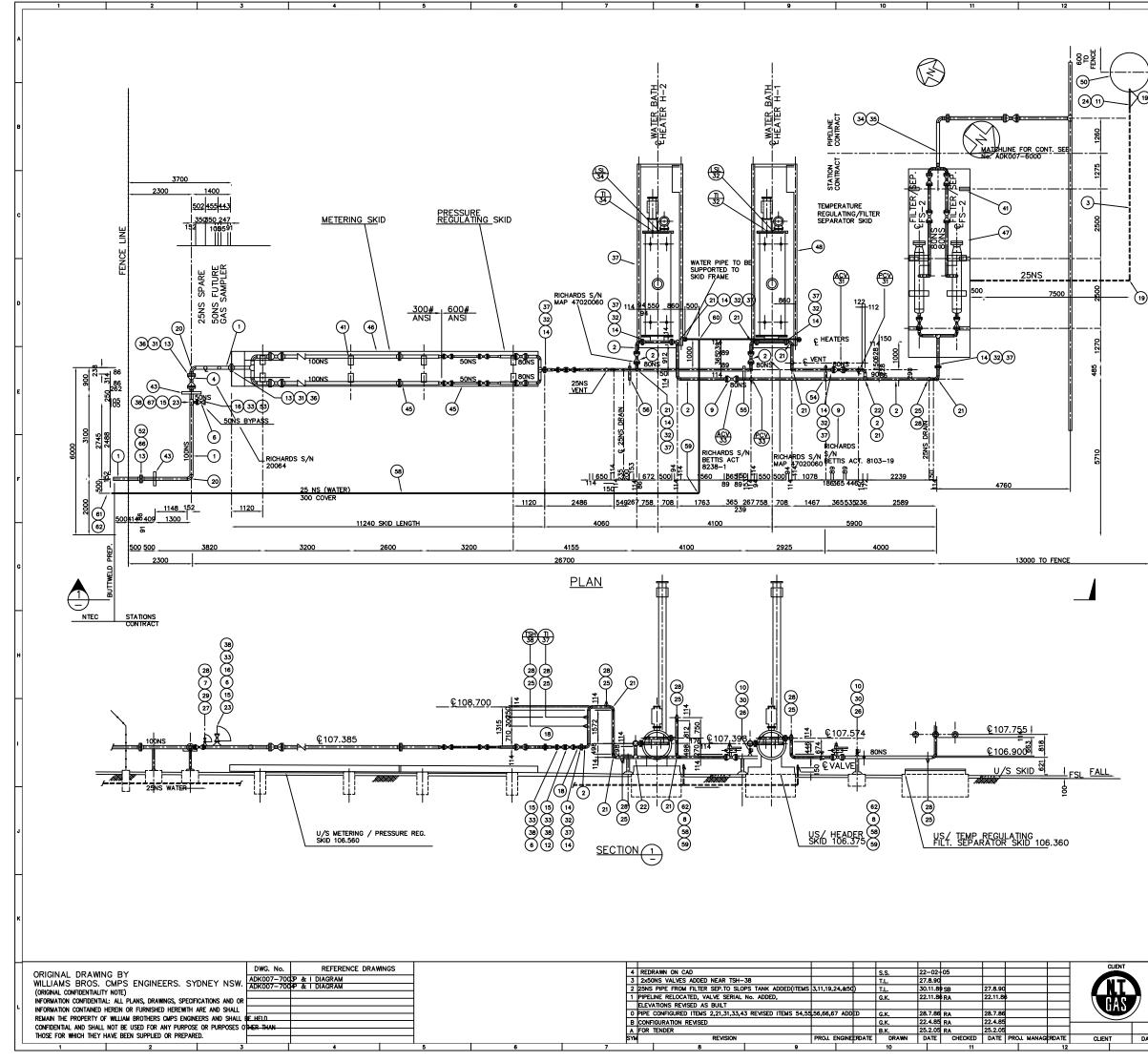
The gas released in emergency directs to the vent stack that discharges to atmosphere and the liquid removed from the gas flows to the slop tank. The maximum PSV set point is 3,200 kPag and the temperature limit is set at 60 °C in the station.

A control system provides control and telemetry for the various process measurement parameters. The control system provides flow control and high pressure automatic shutdown functionality and allows remote operator shutdown. The control system is powered by single phase 230 VAC power supply, with back up batteries.

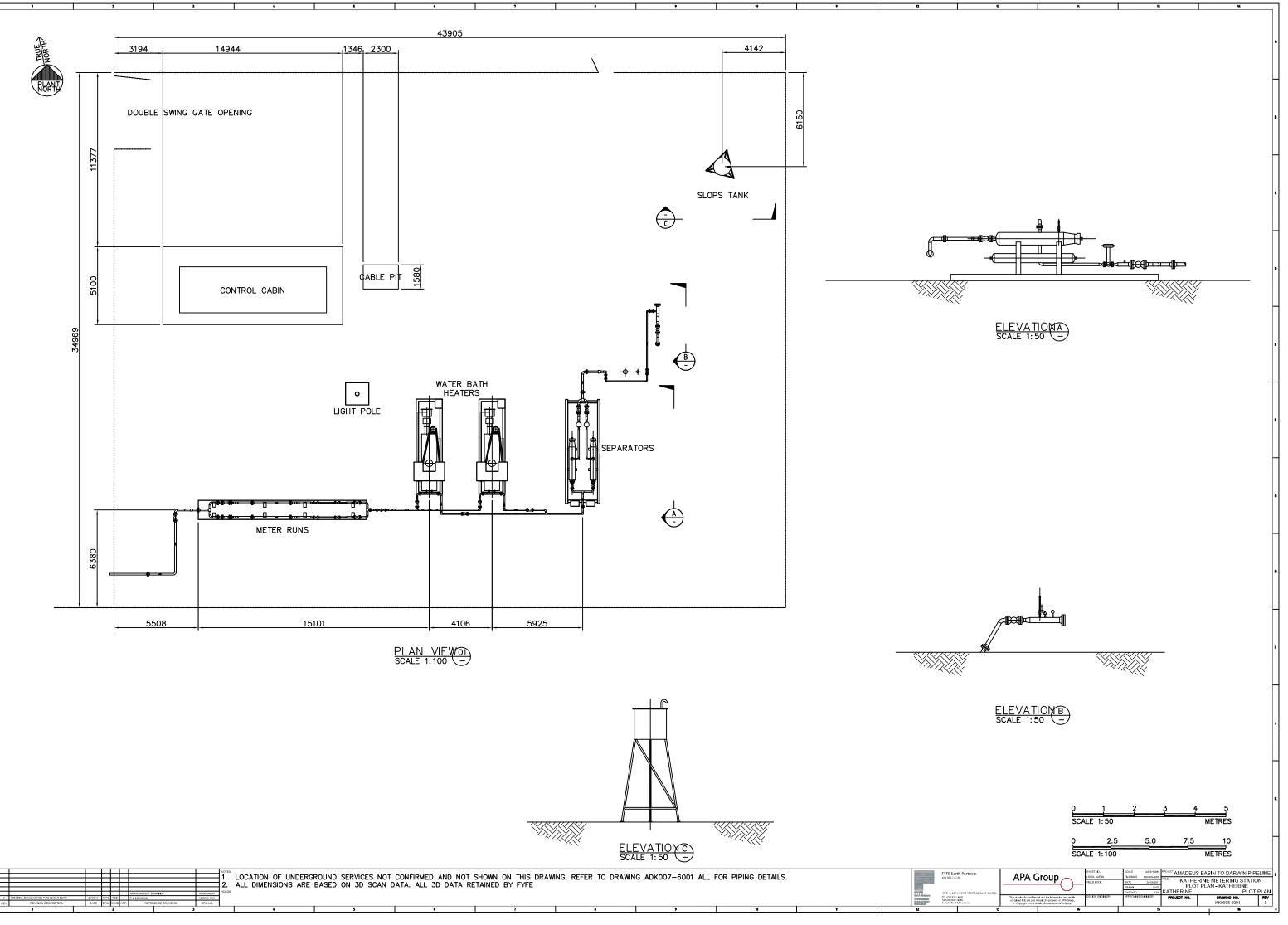


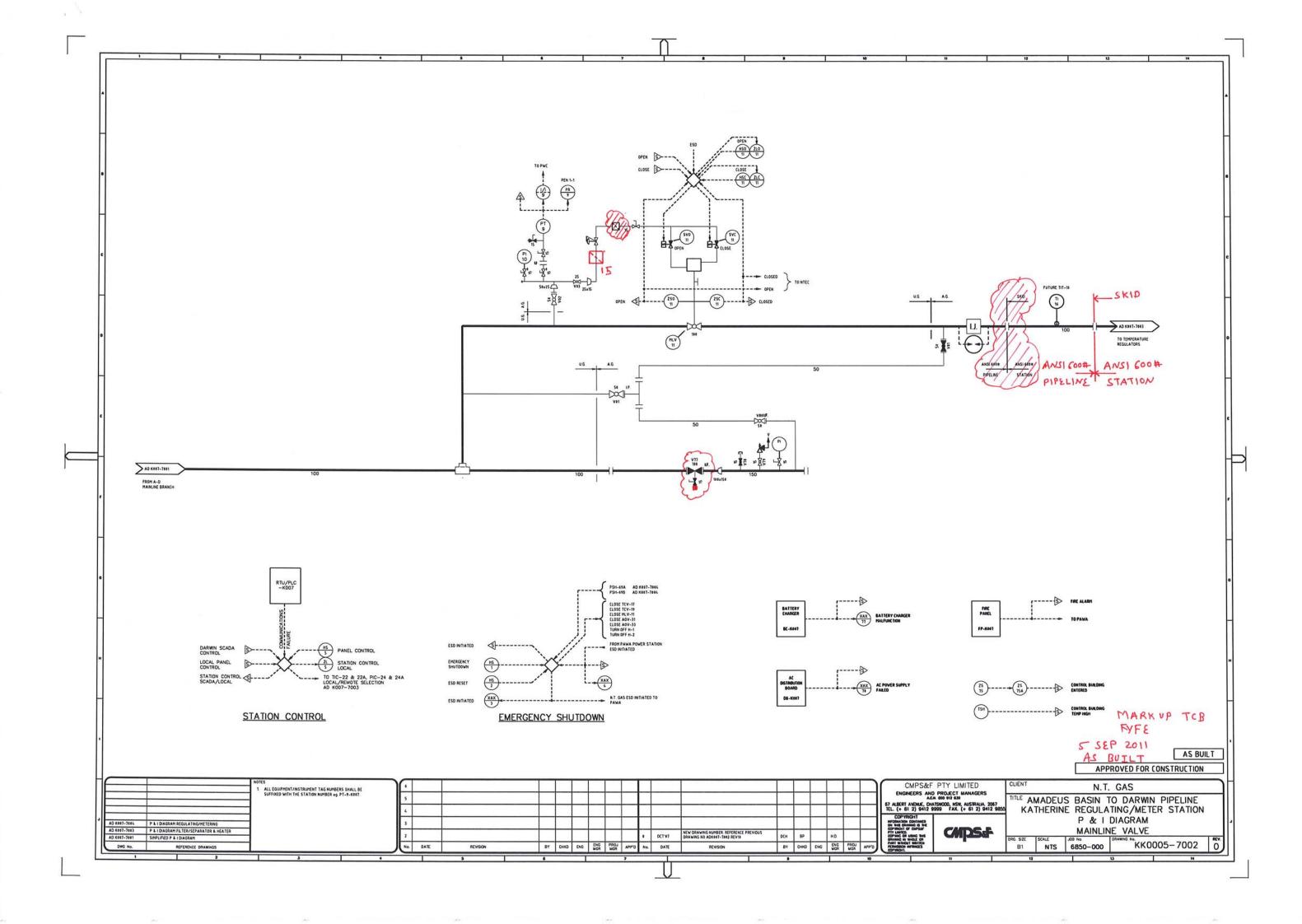
The site arrangement drawings and P&IDs for Katherine meter station can be found overleaf.

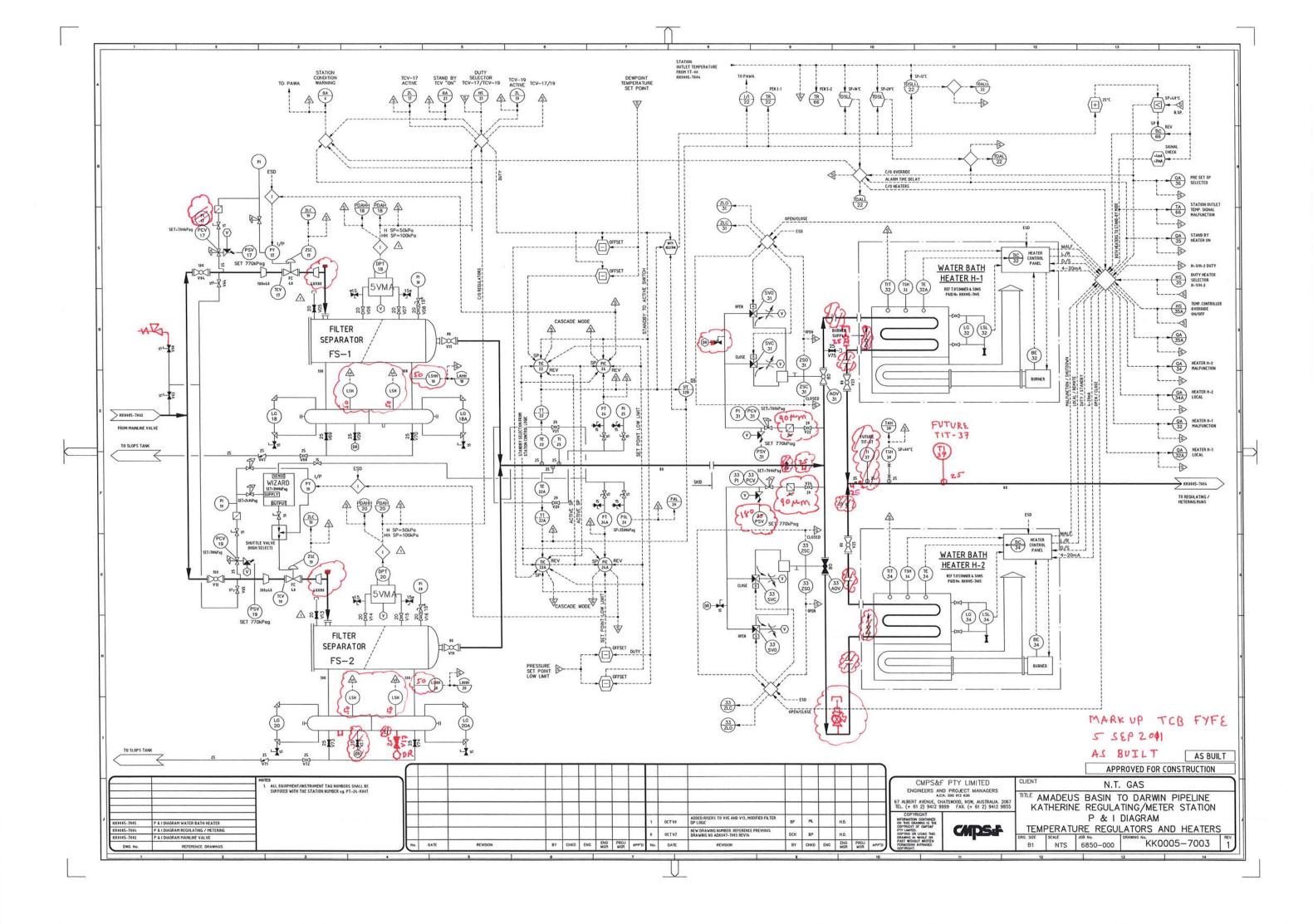
Drawing Numbe	er Description	Revision
APA Group Arr	angement Drawing	
ADK 0007-6001	Katherine Meter Station Piping Arrangement	4
Fyfe Updated P	lot Plan	
KK 0005-6001	Meter Station– Katherine MS	0
P&ID		
KK 0005-7002	Katherine Meter Station Mainline Valve	0
KK 0005-7003	Katherine Meter Station Temperature Regulator and Heaters	1
KK 0005-7004	Katherine Meter Station Pressure regulator and Metering	1
KK 0005-7005	Katherine Meter Station Indirect Heaters (2-off)	0

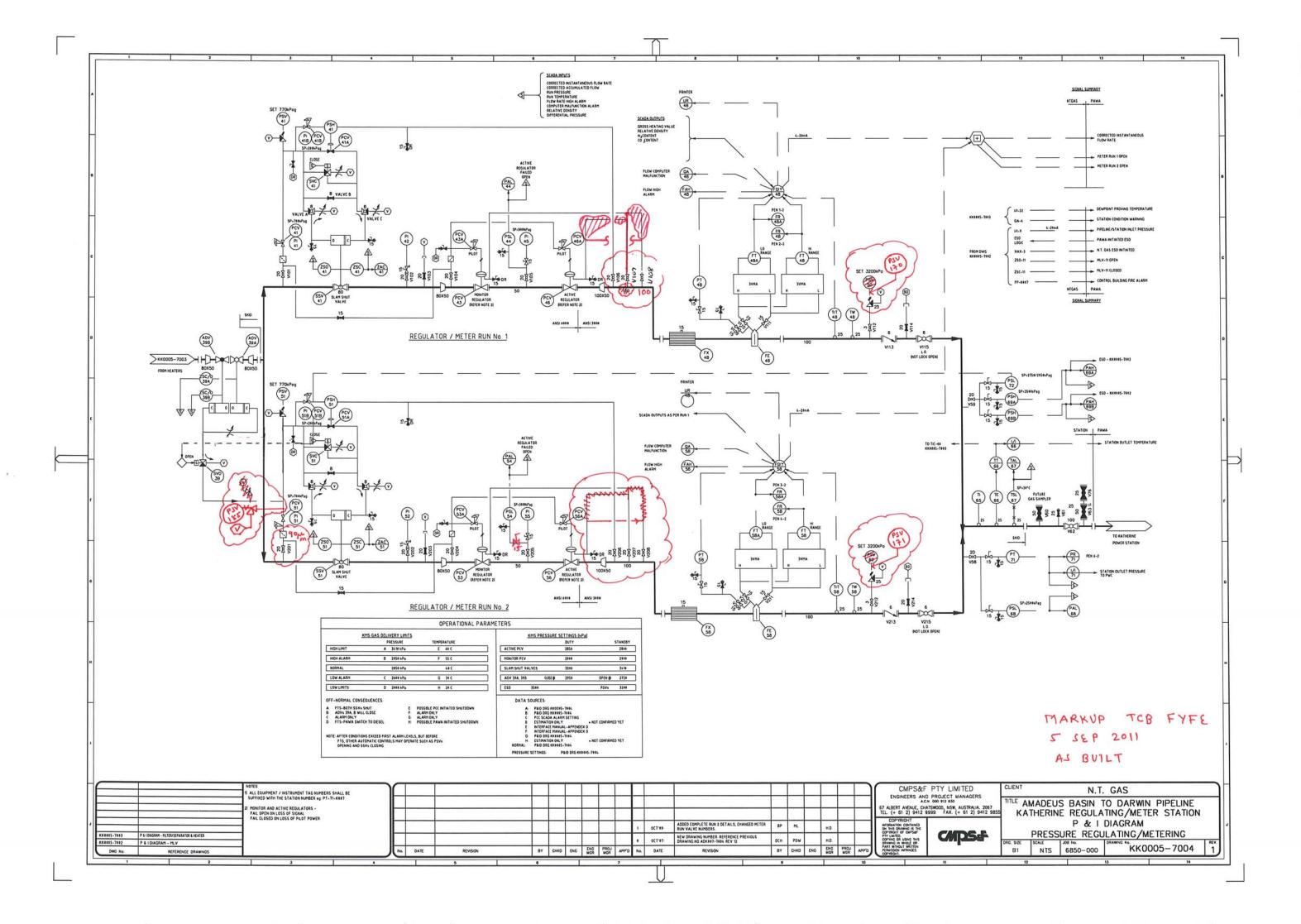


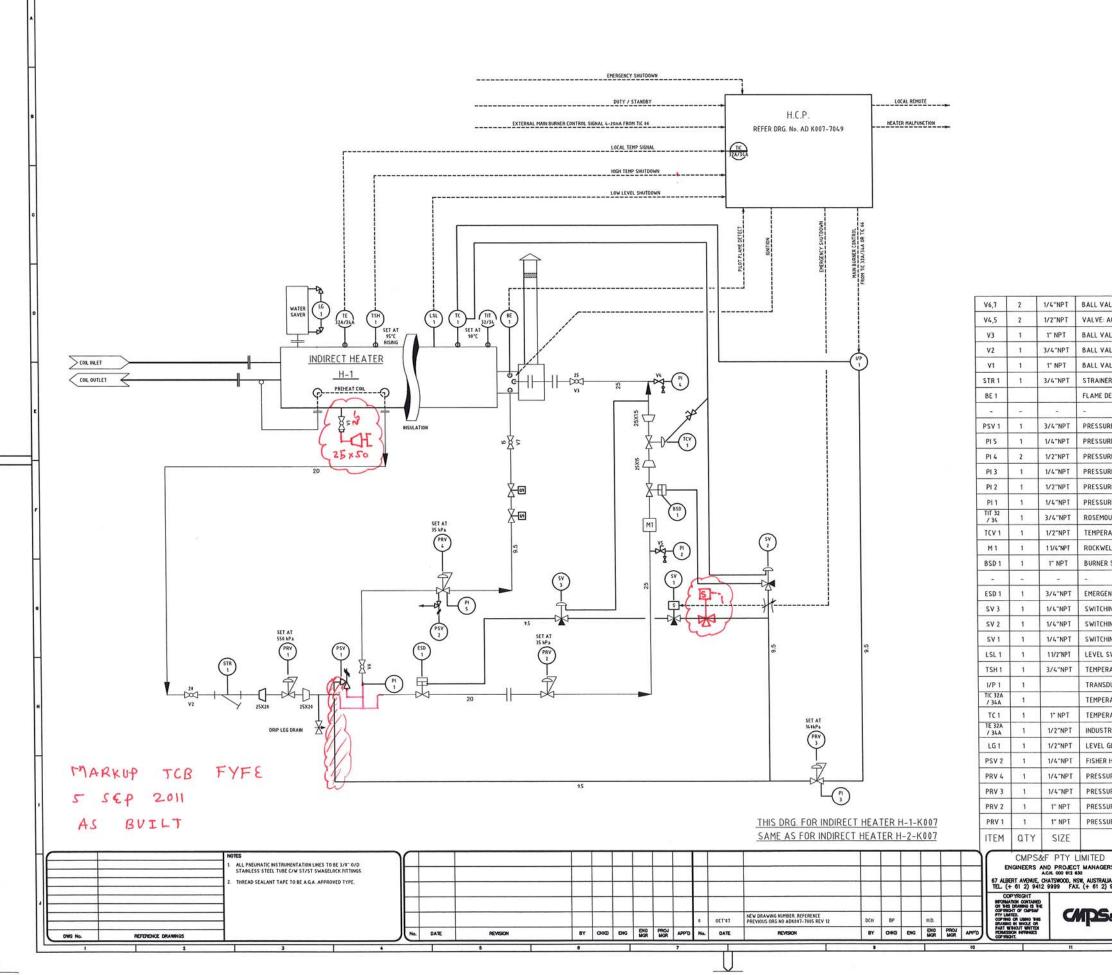
		. 14	15 16	
			BILL OF MATERIAL]
	ITEM	QTY	DESCRIPTION CODE N	1.
			* INDICATES MATERIAL TO BE SUPPLIED BY PRINCIPAL	ť^
	1	6.6m	PIPE 100NS SCH80 ASTM A106B C0065	1
	2		PIPE 80NS SCH80 ASTM A106B C0067	1
	3	29m	PIPE 25NS SCH80 S.S	1
	4	1	VALVE BALL 100NS 300# F.E. R.F. WRENCH C0266	1
	5	2	VALVE BALL 80NS 600# F.E. R.F. WRENCH C0212	1
	6	3	VALVE BALL 50NS 300# FE RF WRENCH C0268	1
	7	1	VALVE BALL 25NS 600# SW/NPT C0240	- 8
	8	2	VALVE GLOBE 25NS BRONZE BODY SCR BSF C0447	1
	9	2	VALVE GLOBE 23N3 BRONZE BODT SCR BSF COTT VALVE BALL 80NS 600# FE RF PNEUM/MAN COP222	+
	3 10	2		+
	11	1		┢
	12		VALVE BALL 25NS 600# SW/NPT	+
	13	1 5	VALVE BALANCED PLUG 50NS 300# FE RF	+
			FLGE WN 100NS 300# RF SCH 80SCH 80 ASTM A1080581	┥_
	14	16	FLGE WN 80NS 600# RF SCH 80 SCH 80 ASTM A1050540	ļ°
	15	4	FLGE WN 50NS 300# RF SCH 80 SCH 80 ASTM A1000588	+
	16 17	2	FLGE BLIND 50NS 300# RF ASTM A10500596	+
				┶
-	18	2	CONCENTRIC REDUCERS 80NSx50NS	-
	19	4	ELBOW 90° LR 25NS SCR NPT	4
	20		ELBOW 90° LR 100NS SCH 80 ASTM A234 WPBC0731	4
	21	19	ELBOW 90° LR 80NS SCH 80 ASTM A234 WPBC0732	70
	22	2	TEE EQUAL 80NS SCH80 ASTM A234 WPBC0757	4
	23	2	TEE REDUCING 100×50NS SCH80 ASTM A234 WPBC0795	4
	24	1	BARRWL UNION 25NS SCR NPT	4
	25	7	TOL 90-80x25NS 3000# SCR/NPT ASTM A105	╞
	26	2	SOL 125-80×20NS SCH80 ASTM A105	
	27	1	SOL 125-100x25NS SCH80 ASTM A105	
	28	8	PLUG HEX. HD 25NS SCR/NPT ASTMASAT1055A105	
	29	1	NIPPLE 25NSx100 SCH 160 PBE ASTM A106B	E
	30	2	NIPPLE 20NSx75SCH 160 PBE ASTM A106B	
	31	24	STUDBOLT 3/4"UNCx115 ASTM A193 B7	
			C/W 2 NUTS ASTM A194 2H	1
	32	120	STUDBOLT 3/4"UNCx125 ASTM A193 B7	Т
			C/W 2 NUTS ASTM A194 2H	1
	33	48	STUDBOLT 5/8"UNCx90 ASTM A193 B7	1
			C/W 2 NUTS ASTM A194 2H	٦,
	34	8	STUDBOLT 7/8"UNCx145 ASTM A193 B7	1
			C/W 2 NUTS ASTM A194 2H	1
	35	1	GASKET 100NS 600# 4.4 THK METAFLEX SGIR	1
	36	3	GASKET 100NS 300# 4.4 THK METAFLEX SGIR	1
	37	15	GASKET 80NS 600# 4.4 THK METAFLEX SGR	1
	38	6	GASKET SONS 300# 4.4 THK METAFLEX SGR	1
	39		GASKET JUNS JUU# 4.4 THK METAFLEX JUK	+
	40			G
	41	14	SKID HOLDING DOWN ASSY. DRG No. AD0000-1052	+
	42	17	SKID HOLDING DOWN ASS1. DKG NO. AD0000-1032	+
	43	2	PIPE SUPPORT . DRG No. AD0000-6143	+
	44	-	FIFE SUFFORT . DIG NO. AD0000-0145	┢
*	45	1	PRESSURE REGULATING SKID DRG No. ADK007-6003C1137	1
*	46	1	METERING SKID DRG No. ADK007-6003 C1138	+
*	47	1		- H
	4/	•	REGULATING (T) & FILTER/SEPARATOR SKID C1136	- "
	48	1	DRG No. ADK007-6003	+
Ţ			HEATER No. 1 (RUN 1) C1159	+
1	49 50	1	HEATER No. 2 (RUN 2) C1169	╇
	50 51	1	SLOPS TANK	+
	51	-		+
1	52	1	INSULATING KIT 100NS 300# RF C1029	+
*	53	1	INSULATING KIT 50NS 300# RF C1031	ŀ
-	54	1	PIPE SUPPORT (SPRING 2/80NS) DWG No. AD0000-6147	+
-	55	1	PIPE SUPPORT (SPRING 2/80NS) DWG No. AD0000-6148	4
-	56	1	PIPE SUPPORT (SPRING 80NS) DWG No. AD0000-6148	4
-	57			╀
	58		PIPE 25NS HEAVY GALV. AS1074	4
	59	3	ELBOW 25NS HEAVY GALV. AS1074	4
	60	1	TEE EQUAL 25NS HEAVY SCR. BSP. GALV BS1740	4.
	61	1	PIPE 25NS HEAVY GALV. AS1074	վ″
	62	3	PLUG HEX. HD 25NS SCR. BSP GALV BS1740	4
	63			4
	64			L
	65	8	M20 BOLT x60 LG GALV. AS1111	1
			C/W NUTØ FLAT WASHER M.S. AS1112, AS1237	
	66	8	STUDBOLT 3/4"UNCx125 LG ASTM A193 B7	
			C/W 2 NUTS ASTM A194 2H]ĸ
	67	8	STUDBOLT 3/4"UNCx95 LG ASTM A193 B7]
			C/W 2 NUTS ASTM A194 2H	1
				1
				‡
				4
	£.		AMADEUS BASIN TO DARWIN PIP	ᆂ
	19	Mit		
	1 9	Mit	KATHERINE STATION	
© T	HIS DRAW T. GAS PT	ING IS THE F Y. LIMHO HOLD NO PART OF T PRODUCED OR RIOR WRITTEN	KATHERINE STATION	-











	12		13		14		
						Ĩ	
						H	
						- 11	
						c	
ALVE: GEMI	NI 8 NB 86-4	RT-6-1					
	EL M9-VC-4					0	
	NI 20 NB 76-						
			40				
		51800SA/RP	12	6 - H - H - H			
22.22	NI 25 NB 76-	1002.0					
	1000 SA 2020	INER CL 600					
DETECTION	'HIM' PILOT	TORCH No H1	4				
				a trans			
RE SAFET	Y VALVE: FIS	SHER H202, S	ET AT 690 kPa (10	0 PSIG)			
RE INDICAT	OR: FLOYD)-50 kPa RA	NGE; TYPE ØSO DR	s			
IRE INDICAT	OR: FLOYD	0-50 kPa RA	NGE; Ø100 REFINER	Y			Ł
IRE INDICAT	OR: FLOYD	0-250 kPa R	ANGE; TYPE DRS Ø	50			
IRE INDICAT	OR \$100: FL	OYD 0-100 k	Pa RANGE; TYPE P	REFINERY			
IRE INDICAT	OR FLOYD	0-1000 kPa A	RANGE; TYPE DBS	ø50			
DUNT 444 (15-75°C) C/1	W RTD ASSY	AND 150mm THER	MOWELL		'	
ATURE CO	NTROL VAL	E SAUTER	V6R15 F300 AV42 I	P10			
ELL MODEL	MR12 DIAPH	RAGM METER	2				
SHUTDOW	N VALVE W	ORCESTER /	AF 44-46 RF C/W N	NORBR9 ACT.			1
NCY SHUT	DOWN VALV	E: 20 NB GEN	1INI 76-4-RT6-412	SR		_	
	FISHER 168	SWITCHING	PILOT	50.00			•
			5 PSIG SPRING RAI	NGE			
	ASCO 832	and the second second					
alon vezience		L-1100 SPDT					
2 T. S.) C/W W140 WELL !		SING		
	KBORO E69F		CIN WIGO WELL	3CT (0 75 C NIS	3840	-	
<u></u>	100000000000000000000000000000000000000	C 12674					
(C)(1995, 2013)			1-206 0-100°C, RTD				н
<u></u>			C/W THERMOWEL	Providente de la construcción de la			
States and states		LUCENCE PROCESS	C/W FLP HEAD &	and the second second			
GLASS: CE	NATCO CAT	No 1456-G-	101 C/W ¢16 GLAS	s			
H800 PRE	SSURE RELIE	F					
URE REGUL	ATOR FISH	R 67 AFR. 3	is kPa				
URE REGUL	ATOR FISH	ER 67 AFR. 1	40 kPa				
URE REGUL	ATOR: FISH	R 621 C/W 1	/4" PORT SIZE 35	kPa			'
URE REGUL	ATOR: FISH	R 630 C/W	1/8" PORT SIZE 55	0 kPa			
		DESCRIP	TION				
	CLIENT	and a second second second		010			-
		1.000		GAS			
RS	ITTE A	ADEU:			IN PIPELINE		
	6			IERINE DIAGRAM			
RS JA. 2067 9412 9555							
UA 2067 9412 9855				이 이 것 같은 것 같은 것 같은 것이 없다.	19 - 19 - 19 - 19 - 19 - 19 - 19 - 19 -		'
	ORG. SIZE B1	INC scale NTS	DIRECT HE	ATER (2	19 - 19 - 19 - 19 - 19 - 19 - 19 - 19 -	REV.	



2 Hazardous Area Classification Report

This section contains the hazardous area classification report written for the Amadeus Basin to Darwin pipeline facilities.





AMADEUS BASIN TO DARWIN PIPELINE HAZARDOUS AREA CLASSIFICATION



FYFE REFERENCE: 18756-4-HAD-001 APA REFERENCE: HAD DATA REPOSITORY/ADP_18756_HADC

Prepared by:

Tony Bird Principal Process Engineer - Fyfe

Reviewed by:

Rowan Kilsby Manager, Mechanical Engineering - Fyfe

Client Accepted:

Anthony Comerford Pipeline Engineer – APA Group

Manager:

Date:

Date:

Date:

Date:

24-Nov-2011

24-Nov-2011

Henry Dupal Engineering Manager – APA Group Northern Territory

FYFE EARTH PARTNERS 80 FLINDERS STREET, ADELAIDE 5000 PHONE (08) 8201 9600 - FAX (08) 8201 9650 - EMAIL <u>info@fyfe.com.au</u>



TABLE OF CONTENTS

2.1 INTROD	UCTION	3
2.1.1 Obje	ctive	3
	be of Stations	
•	usions	
	sion History	
2.1.4.1	Revision A	
2.1.4.2	Revision B	5
2.1.4.3	Revision C	
2.1.4.4	Revision D	
2.1.4.5	Revision E	
2.1.4.6	Revision 0	6
2.2 Methodo	logy	
	ralian Standards	
	national Standards	
	Description and Operations	
2.4.1 Proc	ess Description	
2.4.1.1	Overview	9
2.4.1.2	Mereenie	9
2.4.1.3	Palm Valley	. 10
2.4.1.4	Palm Valley Alice Springs	. 10
2.4.1.5	Tylers Pass	. 11
2.4.1.6	Tennant Creek Metering Station	
2.4.1.7	Elliott Meter Station	. 13
2.4.1.8	Daly Waters Scraper and Meter Station	. 13
2.4.1.9	Katherine Offtake	
2.4.1.10	Katherine Meter / Regulating Station	. 14
2.4.1.11	Pine Creek	
2.4.1.12	Darwin City Gate	
2.4.1.13	Channel Island	
2.4.1.14	Scraper Stations	
2.4.1.15	Ban Ban Springs Scraper Station	
2.4.1.16	Warrego Scraper Station	
2.4.1.17	Mainline Valves	
	Bachelor Mainline Valve	
	rating Conditions	
	ilation	
•	es of Hazardous Materials	
2.5.1 Gase	es Handled	. 21
2.5.2 Liqui	ds Handled	. 23
2.5.2.1	Filter Separator Drains	. 23
2.5.2.2	Odorant	. 23
2.6 EQUIPM	ENT SELECTION	. 24
2.7 CLASSIF	FICATION	. 25
	ig	
2.7.1 Fipii 2.7.1.1	Process Piping	
2.7.1.1	Instrument Gas Piping	
2.7.1.2	Fuel Gas Piping	
2.7.1.4	Control Valves	
2.7.1.5	Pressure Relief and Safety Relief Valves	
2.7.1.6	Mainline Valves	



2.7.1.	7 Local Vent Point	28
2.7.1.		28
2.7.1.		28
2.7.1.	•	
	craper Vessels	
	ulticyclone and Filter Separators	
	lop Tanks	
2.7.6 C	atalytic Heater	31
2.7.8 G	as Chromatograph System	32
	/ater Dew Point Analyser / Gas Sampler	
2.7.10 O	dorant Injection System	34
	0.1 Odorant Pipework	
2.7.10	0.2 Odorant Storage Tank	35
	0.3 Odorant Injection Pumps	
2.7.12 V	apour Barriers	37
APPENDIX	A HAZARDOUS AREA CLASSIFICATION DATA SHEET	38
APPENDIX	B HAZARDOUS AREA MAPPING DRAWINGS	44

Revision History:

Rev.	Status	Date	Prepared	Reviewed	QA
А	Preliminary Issue	30/08/2010	YZW	ТСВ	
В	Revised to Incorporate Information from 2011 Part 1 Site Inspection	24/08/2011	ТСВ	RDK	
С	Revised to Incorporate Comments from Client	19/09/2011	ТСВ	RDK	
D	Revised to following 2011 Part 3 and Part 4 site inspections	26/09/2011	ТСВ	RDK	
E	Revised following 2011 Part 2 site inspections	10/10/2011	TCB	RDK	
0	Original Issue	24/11/2011	ТСВ	RDK	EZG



2.1 INTRODUCTION

2.1.1 OBJECTIVE

The hazardous area classification covers the above ground gas regulating and metering stations, scraper stations and mainline valves in the Northern Territory Gas Network.

The pipeline and facilities were originally constructed in 1985 with the additional facilities added to supply new users and supply points. No hazardous area documentation was completed at the time of the construction as there were no Australian Standards for hazardous area classification in 1985. The selection, installation and maintenance of electrical equipment were covered by AS 1076 series (1977).

This report documents the results of a Hazardous Area Classification undertaken for the facilities mentioned in Section 2.4.

The interpretation and application of this classification should take into account that Hazardous Area Classifications are inherently "imprecise" and involve assumption based estimates, code interpretation and engineering judgement.



2.1.2 SCOPE OF STATIONS

The scope of stations covered by this hazardous area classification is shown below:

Station	Description	KP
Palm Valley	Meter Station	0000
Palm Valley Alice Springs	Meter Station	0000
Mereenie	Meter Station	0000*
Tylers Pass	Transfer Station	0045
Tanami Road	Scraper Station	0161
Aileron	Mainline valve	0241
Ti Tree	Scraper Station	0316
Barrow Creek	Mainline Valve	0401
Wauchope	Scraper Station	0458
Kelly Well	Mainline Valve	0546
Tennant Creek	Meter Station	0025†
Warrego	Scraper Station ONLY	0610
Morphett Creek	Mainline Valve	0660
Renner Springs	Scraper Station	0733
Fergusson	Mainline Valve	0791
Elliott Meter Station	Meter Station	0003‡
Daly Waters	Meter Station	0982
Newcastle Waters	Scraper Station	0844
Katherine Offtake	Scraper Station	0000**
Katherine	Meter Station	0005**
Larrimah	Mainline Valve	1053
Mataranka	Scraper Station ONLY	1108
Tindal	Mainline Valve	1209
Helling	Scraper Station	1243
Pine Creek	Meter Station	1317
Ban Ban Springs	Scraper Station	1378
Batchelor	Mainline Valve	1441
Acacia	Mainline Valve	1465
Berry Springs	Mainline Valve	1486
Darwin City Gate	Meter Station	1498
Channel Island	Meter Station	1510

* On Mereenie to Tylers Pass Pipeline

** On ADP to Katherine Pipeline

† On ADP to Tennant Creek Pipeline

‡ On ADP to Elliott Pipeline



2.1.3 EXCLUSIONS

The following stations are excluded from this hazardous area classification

- Alice Springs facilities (owned and operated by Envestra),
- McArthur River Mine pipeline lateral facilities,
- Warrego compression facilities (scraper facilities are included),
- Tenant Creek offtake,
- Helling scraper station training pipework,
- Cosmo Howley facilities,
- Mt Todd facilities,
- Weddell facilities,
- Mataranka meter station.

The hazardous area classification does not consider the hazardous area associated with equipment not included in the pipeline licence, e.g. gas plants at Mereenie and Palm Valley, and the gas reticulation facilities at Darwin.

2.1.4 REVISION HISTORY

2.1.4.1 Revision A

The hazardous area classification was raised and issued following the inspection of four sites on the Amadeus Basin to Darwin Pipeline in 2010, as listed below:

- Darwin City Gate Station
- Channel Island Station
- Helling Scraper Station
- Pine Creek Station

2.1.4.2 Revision B

Further inspection of sites was undertaken in August 2011 and the hazardous area classification updated to incorporate sources of hazardous release from the equipment at these sites. The additional sites inspected were:

- Mereenie Station
- Palm Valley Meter Station
- Palm Valley Interconnect / Alice Springs Meter Station
- Tylers Pass Station
- Tanami Road Scraper Station
- Aileron Valve Site
- Ti Tree Scraper Station

2.1.4.3 Revision C

The hazardous area classification updated to incorporate comments and recommendations from APA.



2.1.4.4 Revision D

Further inspection of sites was undertaken in September 2011 and the hazardous area classification updated to incorporate sources of hazardous release from the equipment at these sites. The additional sites inspected were:

- Katherine Meter Station
- Mataranka Scraper Station
- Ban Ban Springs Scraper Station
- Batchelor Valve Site
- Berry Springs Valve Site

In addition there were some revisions to site descriptions for the stations included at revision to ensure consistency.

2.1.4.5 Revision E

Further inspection of sites was undertaken in October 2011 and the hazardous area classification updated to incorporate sources of hazardous release from the equipment at these sites. The additional sites inspected were:

- Wauchope Scraper Station
- Tennant Creek Meter Station
- Warrego Springs Scraper Station
- Renner Springs Scraper Station
- Elliott Meter Stations
- Newcastle Waters Scraper Station
- Daly Waters Meter Station

2.1.4.6 Revision 0

• Original Issue for use.



2.2 METHODOLOGY

This Hazardous Area Classification has been carried out in accordance with the "sourceby-source" guidance taken from AS/NZS 60079.10.1 (Standards Association of Australia and New Zealand), in association with IP Code Part 15 (Institute of Petroleum – UK) and API RP 505 (American Petroleum Institute – USA).

The potential leaks that can be anticipated in both normal and abnormal operations have been considered, such as the failure of a valve gland and the partial failure of a gasket flange. The application of explosion proof (Ex) equipment will make sure that ignition does not take place. The classification does not allow for catastrophic failure of pipework or equipment where the associated mechanical effects are almost certain to cause ignition.

The extent of Zone 0, 1 and 2 areas has been identified by investigating each relevant source or type of source.

Due to the imprecision inherent in hazardous area classification, the designation of small non-hazardous area within larger hazard areas has been avoided.

Natural boundaries have been used to define zone limits where reasonably practical. In some cases, where believed adequate, this has reduced the assigned area to some extent. In other cases, where there is no economic disadvantage, the zone areas have been extended to simplify their arrangement.

The equipment and pipework in the stations are installed in open outdoor (all sides of the compounds are open and the stations are not installed in natural depressions), therefore they are considered adequately ventilated. This classification assumes that all stations on the ADP covered by this report are well maintained at all times.



2.3 REFERENCES

2.3.1 AUSTRALIAN STANDARDS

AS/NZS 60079.10.1:2009	Explosive atmospheres Part 10.1: Classification of areas – Explosive gas atmospheres (IEC 60079-10-1, Ed.1.0(2008) MOD)
AS/NZS 60079.20:2000	Electrical apparatus for explosive gas atmospheres Part 20: Data for flammable gases and vapours, relating to the use of electrical apparatus

2.3.2 INTERNATIONAL STANDARDS

IP 15 Third Edition, 2005	Model code of safe practice Part 15: Area classification code for installations handling flammable fluids
API RP 505 First Edition, 1997	Classification of locations for electrical installations at petroleum facilities classified as Class I, Zone 0, Zone 1, and Zone 2



2.4 PROCESS DESCRIPTION AND OPERATIONS

2.4.1 PROCESS DESCRIPTION

2.4.1.1 Overview

The Amadeus Darwin Pipeline (ADP) was constructed to deliver gas from the Palm Valley and Mereenie gas plants in the south of the Northern Territory to Darwin in the north of the territory. Several offtakes have been added to supply users along the length of the pipeline. The pipeline is approximately 1,513 km long.

Currently, the majority of the gas is supplied to the ADP from Wadeye via the Bonaparte pipeline. The Bonaparte pipeline connects in to the ADP at Ban Ban Springs.

Typically drains and vents in the facilities are fitted with plugs or caps and therefore are not a source of release during normal operation. Drains are operated only when then the pipeline is depressured and do not require further consideration, vent points marked with BD on the P&IDs are assumed to be operated during routine operation and maintenance of the station and require consideration as a source of release.

2.4.1.2 Mereenie

Gas to the Mereenie station comes from the Santos operated Mereenie gas plant. Currently there is no contract for the supply of gas from Mereenie, however the station remains pressurised and can be returned to operation if required.

The station consists of DN 200 above ground connection to the Mereenie gas plant. Close to the connection point are temperature and pressure transmitters and high temperature and pressure trips and a station limit valve (SLV). The SLV is pneumatically actuated from instrument gas conditioned locally. The instrument gas system is provided with a local PSV that vents to atmosphere.

The gas then passes to two parallel filter separators. The filter separators are horizontal and fitted with quick opening closures to allow removal of the filter elements. The filter separators have been swapped with the filters originally installed at Palm Valley and this required some pipework modifications. The liquids removed from the gas are collected in a drain boot underneath the filter separator. The liquids are drained back to the Mereenie production facility. The filter separators are fitted with the following instrumentation; pressure indicator, differential pressure transmitter, level glasses, high level switches and a PSV.

From each filter separator the gas flows to a meter run. The flow meters are orifice meters that are fitted with flow conditioners, pressure transmitter, a low range and a high range differential pressure transmitter and a temperature transmitter. A blowdown point is provided on each meter run that can blow down the meter run and filter separator.

The pipework downstream of each meter run joins to a common line. There is a DN 20 blowdown point and an insertion sample probe installed to provide gas samples for the gas chromatograph and dew point analyser.

The gas then passes underground through a manual station limit valve to the Mereenie to Tylers Pass pipeline. There is a scraper launcher installed with quick opening closure, pressure indicator, blow down vent and associated valving for the launching of pigs.



2.4.1.3 Palm Valley

The Palm Valley metering station receives gas from the Magellan Petroleum operated Palm Valley gas plant.

The station consists of DN 300 above ground connection to the Palm Valley gas plant. Close to the connection point are temperature and pressure transmitters and high value trips and a station limit valve (SLV). The SLV is pneumatically actuated from instrument gas conditioned locally. The instrument gas system is provided with a local PSV that vents to atmosphere.

The gas then passes to two parallel filter separators. The filter separators are horizontal and fitted with quick opening closures to allow removal of the filter elements. The filter separators have been swapped with the filters originally installed at Mereenie; the filters are installed in the same location and have required minimal pipework modifications. The liquids removed from the gas are collected in a drain boot underneath the filter separator. Liquids are removed to temporary containers. The filter separators are fitted with the following instrumentation; pressure indicator, differential pressure transmitter, level glasses, high level switches and a PSV.

From each filter separator the gas passes to a meter run. The flow meters are orifice meters that are fitted with flow conditioners, pressure transmitter, a low range and a high range differential pressure transmitter and a temperature transmitter. A blowdown point is provided on each meter run that can blow down the meter run and filter separator.

The pipework downstream of each meter run joins to a common line. There is a DN 20 blowdown point and an insertion sample probe installed to provide gas samples for the gas chromatograph and dew point analyser.

The gas then passes underground through a manual station limit valve to the Palm Valley to Tylers Pass pipeline. The underground section of pipe is fitted with a blowdown point. A connection point and additional valve has been installed on the blowdown stack to provide gas to the Palm Valley to Alice Springs station. The connection point for the gas analyser has been relocated to this section of pipework to allow measurement of the gas that passes from the Amadeus Darwin Pipeline to the Alice Springs Pipeline. The pipework to the Palm Valley to Alice Springs Pipeline passes underground to a point adjacent to the Palm Valley to Alice Springs compound. There is a flanged connection to the compound fence line.

There is a scraper launcher installed with quick opening closure, pressure indicator, blow down vent and associated valving for the launching of pigs to the ADP.

2.4.1.4 Palm Valley Alice Springs

The Palm Valley Alice Springs site, also referred to as the Palm Valley Interconnect receives gas from either the Magellan operated Palm Valley gas plant or from the ADP via the Palm Valley metering station.

The gas supply from the ADP is fed to a skid. The skid has recently been modified by APA, although no information is available. From the existing P&IDs and inspection; the pipe from the Palm Valley station is DN 100. The pipe decreases to DN 80 on the skid. At the inlet to the skid there is a pressure transmitter and indicator. The gas passes to a flow meter with pressure and temperature correction. Isolation valves and a manual bypass are provided. The skid is supplied with two pressure control valves, the main one is electro-pneumatic and the stand-by one is pneumatic controlled and actuated. Downstream of the control valves is an actuated valve fitted with pressure pilots and solenoids. The instrument gas for the control valves is conditioned from the transmission gas. The instrument gas is fitted with dual pressure regulators, knock out pot, filter, a PSV and high and low pressure pilots that close the actuated valve. The vents from all two valve instrument manifolds are tubed to a location at the edge of the skid roof.



The line from the Palm Valley gas plant is DN 100 which increases to DN 200. The gas then passes to a restriction orifice (RO). Upstream of the RO is the DN 50 kicker line connection to the scraper launcher. Downstream of the RO is the connection from the ADP. Next there is a station limit valve (SLV) that isolates Palm Valley to Alice Springs pipeline from both gas feeds. The SLV is pneumatically actuated from instrument gas conditioned locally and closes when a low pressure is sensed in the pipeline.

The scraper launcher is fitted with a quick opening closure, a pressure indicator, pressure relief valve and valves to allow operation.

Parallel to the scraper launcher is a wall. The wall is 1.8 m away from the centre line of the scraper launcher. The impact of the wall on the hazardous zones will be to extend the size of the hazardous area zone (refer section 2.7.12).

2.4.1.5 Tylers Pass

At Tylers Pass the gas from Mereenie and Palm Valley are commingled and odorant is added. The DN 250 pipeline from Mereenie passes to an above ground scraper receiver, fitted with pig sig, vent, pressure indicator, quick opening closure and valving to allow operation. During normal operation the gas bypasses the scraper vessel via underground pipework. A pipeline riser is fitted with pressure transmitter, pressure indicator and high pressure trip. Downstream, there is a buried valve with above ground pneumatic actuator. The actuator is powered by instrument gas conditioned locally from the transmission gas.

The gas from Palm Valley is similar to the Mereenie connection but does not have a scraper receiver. The pipeline is DN 350 and includes a riser with pressure transmitter and pressure indicator upstream of a buried valve with above ground pneumatic actuator. The actuator is powered by instrument gas conditioned locally from the transmission gas.

There is a DN 200 vertical blowdown stack fitted with quick opening closure. The stack has buried connections and valves to the pipeline sections to Mereenie, Palm Valley and Tanami Road, as well as the scraper receiver.

Downstream of the two actuated valves the two pipeline sections join and are fitted with a temperature transmitter, pressure transmitter, pressure indicator, instrument gas offtake and odorant injection point.

The odorant injection package consists of an odorant storage pressure vessel, instrument gas conditioning and control and odorant dosing pumps. The storage vessel is fitted with a pressure relief valve, pressure indicator, two level glasses, a level transmitter and a continuous vent fitted with adsorption vapour filter. The vent from the tank is fitted with a cap so that the discharge point is vertically downwards. The instrument gas conditioning equipment comprises two regulators to reduce the pressure to 400 kPag. The tank blanket instrument gas is regulated to 15 kPag by a pressure regulator / over pressure shut off (OPSO) valve. The injection pump instrument gas is regulated to 400 kPag by a regulator. Control of the odorant injection pumps is by solenoid valves. The odorant dosing pumps suction is connected to the bottom of the odorant storage vessel. The discharge of each odorant dosing pump is fitted with a flow switch and pressure relief valve. The odorant injection point is fitted with a site flow indicator.

Note that there is no gas supply from Mereenie or Palm Valley and the gas flow through Tylers Pass is in the reverse direction. At the time of inspection the odorant plant was not operating.



2.4.1.6 Tennant Creek Metering Station

The Tennant Creek pressure reduction and metering station receives gas from ADP to Tennant Creek Pipeline, approximately 25 km long, and supplies the Tennant Creek power generation site. The Tennant Creek Station comprises of two filter separators, two water bath heaters, an atmospheric slop tank, control valves, pressure regulators, pressure relief valves, and the related pipework, instrumentation and valving.

The inlet to the station is DN 100 and consists of a scraper receiver vessel. The scraper vessel is fitted with local vent, PSV, pressure indicator and associated pipework and valving. The closure on the vessel is a blind flange.

The piping in parallel to the scraper receiver is fitted with a pressure transmitter, pressure gauge and a buried mainline valve. The valve has an aboveground gas over oil hydraulic actuator.

The gas then passes through two parallel filter separators. Upstream of both filter separators are temperature control valves that reduce the pressure to 5,200 kPag / 17°C [based on operating conditions at the time of the site visit]. The temperature control valves are provided with cascade control for pressure and temperature. The filter separators are fitted with a differential pressure transmitter, pressure indicator, high liquid level switches and high-high liquid level switches. The liquids are drained manually to an elevated slops tank. The slop tank is fitted with a liquid level glass and hose to allow emptying.

Gas from the filter separators is then heated by indirect fired water bath heaters to approximately 60 °C. The water bath heaters are operated as duty - standby, with the standby heater remaining 'hot' to allow quick change over, controlled by the actuated valves on the inlet to each heater.

The heated gases from heaters pass through two parallel regulator / meter runs. The regulator / meter runs are operated in duty - standby and each contains active - monitor pressure regulators. The meter skids are provided with two actuated valves that close on high pressure downstream of the regulators. Additional high pressure switches at the station outlet initiate a station ESD. Further over pressure protection is provided by a PSV at the station outlet. A meter is provided in each run. The meters are orifice meters with upstream flow conditioners, temperature transmitters, pressure transmitters and high and low range differential pressure transmitters. Each run is provided with a local blowdown point, pressure indicators and valving.

The station outlet is provided with a temperature indicator, temperature transmitter and low temperature switches. There is also provision for the installation of a future gas sampler. The connection to the Tennant Creek power generation site is DN 100.

Pipework downstream of the heater is fitted with insulation up to the station outlet.

Instrument gas is conditioned locally for each actuated valve and temperature control valve. Gas is conditioned at each water bath heater to provide fuel gas for the pilot and main burners. The fuel gas conditioning trains comprise of a pre-heat coil, strainer, primary pressure regulating valve, actuated ESD valves, secondary pressure regulating valve, meter and a temperature control valve.

A control system provides control and telemetry for the various process measurement parameters. The control system provides flow control and high pressure automatic shutdown functionality and allows remote operator shutdown. The control system is powered by single phase 230 VAC power supply, with back up batteries.



2.4.1.7 Elliott Meter Station

The Elliott Meter Station receives gas from a DN 50 lateral from the ADP. The lateral is approximately 4 km long and provides gas for the Elliott power generation site. The station consists of a scraper receiving vessel, dry gas filter, filter separator, knock out pot, two stages of pressure regulation, a catalytic heater, metering run, slop tank, atmospheric vent stack and the associated pipework, valves and instrumentation.

At the inlet to the station is a scraper receiving vessel. The scraper vessel is fitted with local vent, PSV, pressure indicator and associated pipework and valving. The closure on the vessel is a blind flange.

The main gas flow to the skid passes to an actuated valve. The gas is then filtered in a dry gas filter. The filter is horizontal and fitted with a quick opening closure, differential pressure gauge, PSV and vent.

The gas then passes to a temperature gauge and then two parallel pressure regulators that operate in duty and standby that reduce the gas pressure to 3,000 kPag.

The gas passes to a filter separator fitted with a differential pressure gauge with inductive high differential pressure switch, level gauge, pneumatic liquid level controller and control valve and high liquid level switch, pressure relief valve.

The gas from the filter separator passes to a knock out pot and then to a catalytic heater. The catalytic heater is decommissioned and has not operated for some time.

From the heater the gas passes to the second stage pressure regulators. The gas is reduced in pressure to 500 kPag in the parallel pressure regulators, operating in a duty-standby arrangement.

The gas is then metered in a rotary positive displacement meter that is corrected for temperature and pressure. Upstream of the meter is a second pressure relief valve.

Instrument gas for the site instrumentation and fuel gas for the catalytic heater are conditioned in an offtake from the outlet of the skid and distributed as required.

A control system provides control and telemetry for the various process measurement parameters. The control system provides flow control and high pressure automatic shutdown functionality and allows remote operator shutdown. The control system is powered by single phase 230 VAC power supply, with back up batteries.

2.4.1.8 Daly Waters Scraper and Meter Station

The Daly Waters Scraper and Meter Station is located at KP 0982 on the ADP and consists of a scraper receiver, scraper launcher and a filter, meter and pressure regulator station. The scraper part of the station is on the ADP and is the same as the scraper stations described in section 2.4.14. The meter part of station provides filtration and metering for the McArthur Mine River Pipeline. The meter station consists of gas over oil hydraulically actuated mainline, filter separators, metering, pressure regulation, a scraper launcher and associated pipework, valving and instrumentation.

The connection to the meter station is from the underground future compressor connection on the southern side (nominally upstream) of the scraper station. An above ground DN 350 blank flange has been provided for future connections. The connection to the meter station is DN 150 and consists of a ball valve with pressurising bypass and a downstream blank flange. The connection to the meter skid is by approximately 50 m of DN 150 welded pipe across the station.

The metering station is installed on two skid frames. The first comprises of an actuated valve, two dry gas filters, two meters, pressure control valves, instrument gas conditioning system and a scraper launcher.



The actuated valve is gas over oil actuated. Downstream of the actuated valve are two dry gas filters. Each dry gas filter is fitted with a differential pressure transmitter, manual vent and a drain. The gas from each filter passes to a meter run that comprises of a flow conditioner, orifice plate and thermowells. One of the meter runs is not fitted with instruments. The other is fitted with pressure transmitter, differential pressure transmitter and temperature transmitter.

2.4.1.9 Katherine Offtake

The Katherine Offtake is installed on the ADP at approximately KP 1,221. The site consists of a take-off from the mainline. The offtake is fitted with a DN 100 buried valve. The valve is manual operated and has above ground gear box, maintenance ports and a cavity bleed. The valve has DN 50 risers either side of the valve, fitted with manual valves. A scraper launcher is installed at the site. The scraper vessel is fitted with pressure indicator, PSV and local vent. An above ground DN 100 valve with DN 50 bypass is also provided at the station. The valve may be a plug valve, a ball valve or a globe valve in accordance with the P&ID, details drawing or site photographs respectively.

2.4.1.10 Katherine Meter / Regulating Station

The Katherine Meter/Regulating Station includes two filter separator, two water bath heaters, a slop tank, main line valve, control valves, pressure relief valves and the related pipework, instrumentation and valving.

The inlet to the station is DN 100 and consists of a buried station limit valve (MLV 11) with above ground actuator, maintenance ports and cavity bleed. A scraper receiver vessel is installed in parallel to MLV 11. The scraper vessel is fitted with a local vent, PSV, pressure indicator and associated pipework and valving. The closure on the vessel is a blind flange.

The following instrumentation is installed at the inlet; pressure indicator, a pressure transmitter and a temperature indicator.

The gas then passes through two parallel filter separators. Upstream of both filter separators are temperature control valves that reduce the pressure to 4,400 kPag / 16°C [based on operating conditions at the site visit]. The temperature control valves are provided with cascade control for pressure and temperature. One valve is fitted with a pneumatic controller to continue supply during outage of the electronic control system. The filter separators are fitted with differential pressure transmitter, pressure indicator, high liquid level switches and high-high liquid level switches. The liquids are drained manually to an elevated slops tank. The slop tank is fitted with a liquid level glass and a hose to allow emptying. Gas from filter separators is then heated by indirect fired water bath heaters up to approximately 60 °C. The water bath heaters are operated as duty - standby, with the standby heater remaining 'hot' to allow quick change over of the that is controlled by actuated valves on the inlet to each heater.

The heated gases from the heaters pass through two parallel regulator / meter runs. The regulator / meter runs are operated in duty - standby and each contains active - monitor pressure regulators. The meter skids are provided with two actuated valves that close on high pressure downstream of the regulators. Additional high pressure switches at the station outlet provide a station ESD. Further over pressure protection is provided by a PSV at the station outlet. A meter is provided in each run. The meters are orifice meters with upstream flow conditioners, temperature transmitters, pressure transmitters and high and low range differential pressure transmitters. Each run is provided with a local blowdown point, pressure indicators and valving.



The station outlet is provided with a temperature indicator, temperature transmitter and low temperature switches. There is also provision for the installation of a future gas sampler. The connection to the Katherine power generation site is DN 100.

Instrument gas is conditioned locally for each actuated valve and temperature control valve. Gas is conditioned at each water bath heater to provide fuel gas for the pilot and main burners. The fuel gas conditioning trains comprise of pre-heat coil, strainer, primary pressure regulating valve, actuated ESD valves, secondary pressure regulating valve, meter and temperature control valve.

The gas released in emergency directs to the vent stack that discharges to atmosphere and the liquid removed from the gas flows to the slop tank. The maximum PSV set point is 3,200 kPag and the temperature limit is set at 60 °C in the station.

A control system provides control and telemetry for the various process measurement parameters. The control system provides flow control and high pressure automatic shutdown functionality and allows remote operator shutdown. The control system is powered by single phase 230 VAC power supply, with back up batteries.

2.4.1.11 Pine Creek

The Pine Creek pressure reduction and metering station receives gas from ADP to supply the Pine Creek power generation site. The Pine Creek Station comprises of a dry gas filter vessel, a filter separator, a knockout pot, two water bath heaters, an atmospheric slop tank, control valves, pressure relief valves, and the related pipework, instrumentation and valving.

The Pine Creek station is located close to the ADP and a mainline valve is located within the station. The inlet connection to the station has two DN 80 manual valves. One valve is fitted with an insulation flange and a surge arrestor, the second is fitted with a pressurising bypass. Downstream of the manual valves is an actuated valve that is also fitted with a pressurising bypass. The gas then passes to a dry filter vessel that is fitted with a pressure indicator, PSV, a vent valve, pressurising line and a bypass line to allow maintenance of the filter. From the filter, the gas passes to a duty standby temperature control valve that drops the gas pressure from 7,800 to 4,200 kPag and a temperature of 16°C [based on observations during the site visit]. The gas then passes to a filter separator that is fitted with level gauge, level controller, level control valve, high level switch, pressure indicator, PSV, vent valve and differential pressure transmitter. In parallel to the filter separator is a knock out pot to allow maintenance on the filter separator. The knock out pot is fitted with level gauge, pressure indicator, PSV, vent valve and drain valve.

Gas from filter separator / knock out pot is then heated by indirect fired water bath heaters up to approximately 60 °C. The water bath heaters are operated as duty - standby, with the standby heater remaining "hot" to allow quick change over of the that is controlled by actuated valves on the inlet to each heater.

The heated gas then passes to parallel pressure control valves. The valves are operated as duty and standby. The valves are pneumatically controlled. Over pressure protection is provided by a PSV downstream of the pressure control valves. Gas metering is by a single orifice meter fitted with a pressure transmitter; high and low range differential pressure transmitters and a temperature transmitter. A bypass is provided around the meter for maintenance.

Metered gas then passes to a second knock out pot fitted with a drain valve, PSV and level gauge. The piping from the knock out pot contains a temperature transmitter, temperature indicator, high pressure switches and a pressure transmitter. A double block and bleed valving arrangement is provided. The connection to the Pine Creek power generation site is via an underground pipework and the above ground flange is provided with an insulation



gasket. A spare flange is provided at the connection point for a future connection to the Pine Creek power generation site, the flange is fitted with a blind flange, insulation gasket and a surge arrestor.

Liquids collected from the dry filter, filter separator and knock out pots is sent to an elevated slops tank. The slops tank is fitted with a safety relief valve (SRV, pressure vacuum vent valve, flame arrestor, pressure indicator, high liquid level switch and hose for emptying.

Vents and PSV discharges from the dry filter, filter separator and knock out pots and vents from instrument manifolds and pneumatic controllers are sent to a local vent stack. The vent stack is fitted with a flame arrestor.

Instrument gas is conditioned centrally for the site from a connection from the outlet knock out pot.

Gas is conditioned at each water bath heater to provide fuel gas for the pilot and main burners. The fuel gas conditioning trains comprise of pre-heat coil, strainer, primary pressure regulating valve, actuated ESD valves, secondary pressure regulating valve, meter and temperature control valve. A control system provides control and telemetry for the various process measurement parameters. The control system provides flow control and high pressure automatic shutdown functionality and allows remote operator shutdown. The control system is powered by single phase 230 VAC power supply, with back up batteries.

2.4.1.12 Darwin City Gate

Darwin City Gate receives gas from the ADP. Gas flows to three locations, Wickham Point, Channel Island and Trunk Package Offtake Station (TPOTS). The Wickham Point (Corroco Philips, Darwin LNG plant) pipeline can be reversed to ensure gas supply to Darwin/Channel Island. The gas supply to Wickham point is fitted with an actuated valve. The gas supply to Channel Island and TPOTS is filtered, reduced in pressure to 5,800 kPag and the gas composition and moisture dew point is analysed. The gas to TPOTS is regulated to a 850 kPag and metered.

The Darwin City Gate Station comprises of scraper vessels, a multicyclone, two filter separators, an atmospheric slop tank, gas chromatograph system, moisture analyser, control valves, pressure regulator, pressure relief valves, blowdown stack and the related pipework. Liquids (condensate, water and compressor lube oil) removed from the gas is stored in the slop tank for batch treatment.

The station consists of DN 300 above ground connection. A scraper receiver is installed with buried hydraulically actuated valve. The actuated valve includes electric solenoids to allow remote operation. During normal operation gas bypasses the scrapers and flows through the actuated valve, the scraper vessels are closed and isolated from the pipeline. At the station inlet, the pipeline divides in two, with one supplying gas to Weddell interconnect and one supplying to the City Gate station. The main line is installed with DN20 blowdown, temperature transmitter and pressure transmitter. The line then divides in to two, the normal flow is through the multi-cyclone to remove solids. The multicyclone is fitted with a PSV with a set point of 9,650 kPag. Both parallel streams include a temperature control valve and a filter separator. The filter elements. The liquids removed from the gas are collected in a drain boot underneath the filter separator and flow under level control to a slop tank. The filter separators are fitted with the following instrumentation and connections; pressure indicator, differential pressure transmitter, level glasses, high level switches, high high level switches, local drains and level controllers. The



temperature and level control valves are pneumatically controlled and actuated. Local instrument gas conditioning skid is provided with PSV to provide over pressure protection.

Common line of the outlet from the filter separators is installed with temperature indicators, temperature transmitter, pressure indicators, and pressure transmitters. The connection point for the gas chromatograph and dew point analyser has been installed to this section of pipework to allow analysis of the gas. The gas chromatograph and dew point analyser are installed in a shelter adjacent to the filter skid. The chromatograph receives a sample of the transmission gas at a pressure of approximately 140 kPag from an insertion regulator installed in the pipe. The carrier and calibration gases are stored in gas bottles and regulated for use at 140 kPag. The chromatograph vents gas to exhaust vents above the analyser shelter roof. The mainline then passes through a mainline valve. Downstream of the mainline valve is installed with pressure indicator and transmitter before the pipeline directed to Channel Island meter station.

A separate offtake to TPOTS passes gas to a DN 50 pressure regulation and metering skid. The skid has duty and standby arrangement with each containing active and monitor pressure regulators and turbine meters. A high pressure trip is provided that closes an actuated valve at the inlet. The meter runs, with one serving as duty run and other as standby run. The gas is then directed to Berrimah Road.

A control system provides measurement and telemetry for the various process instruments. The control system allows remote operator shutdown. The control system is powered by single phase 230 VAC power supply, with back up batteries.

2.4.1.13 Channel Island

Channel Island regulating and metering station receives gas from Darwin City Gate meter station. The Channel Island Regulating Meter Station consists of two water bath heaters, solids filter, four filter separators, slam shut valves, active and monitor regulators, meters, pressure relief valves, local vent points and the associated valving and pipework.

The gas passes to a solids filter. The filter is fitted with a pressure indicator, differential pressure transmitter, local vent point and local drain. The filter has a quick opening closure and a bypass, with manual valving. The filtered gas is then heated to approximately 60°C in two parallel water bath heaters. One water bath heater is operating and the other is in hot-standby. Actuated valves at the heater inlets control the gas flow.

The combined outlet line from the water heaters as a high temperature switch, temperature indicator and temperature transmitter. The line then passes to one of two filter, regulation and metering runs to supply gas to either Unit 1 or Unit 7 at the Channel Island Power Generation Site.

The Unit 1 filter, regulation and metering run comprises of two parallel runs each containing actuated valve, active-monitor pressure regulators, filter separators and meters. The actuated valves are both normally open and are closed on either signal from the control system or high pressure downstream of the regulators. The pressure regulators are self acting and externally sensed. The gas of each regulator pair flows to the corresponding filter separator. The filter separators are horizontal and fitted with quick opening closures to allow removal of the filter elements. The liquids removed from the gas are collected in a drain boot underneath the filter separator. No slops tank is installed at site at liquids are drained from the filter separators manually. The filter separators are fitted with the following instrumentation and connections; pressure indicator, differential pressure transmitter, level glasses, high-high level switches, local drains and level controllers. The filtered gas is metered in orifice meters, each meter is fitted with flow conditioner, pressure transmitter, high and low range differential pressure transmitters and temperature transmitters. Additional overpressure protection is provided by a PSV. The combined outlet from the Unit



1 regulation, filter and metering runs is fitted with low pressure switch and high pressure switches that all initiate an ESD, and a pressure transmitter, pressure indicator, temperature transmitter, temperature indicator, low temperature switch connection for future gas analysis and an isolation valve.

The Unit 7 filter, regulation and metering run comprises of two parallel runs each consisting of filter separator, pressure regulators, metering and associated instrumentation and valving. There is an actuated valve at the inlet before a split to two filters. The filters are fitted with pressure indicator and differential pressure transmitter. Downstream of each filter is an actuated valve. The valves are normally open and are closed on signal from the control system or high pressure downstream of the pressure regulators. Metering is provided by a Coriolis meter and a AVT turbine meter. The primary duty meter is the Coriolis meter, but the turbine meter can be operated in series or parallel. Both meters are provided with temperature and pressure correction. Downstream of the meters the combined outlet has a PSV, local manual vent, temperature transmitter and pressure transmitter.

Instrument gas is conditioned locally for each actuated valve.

A control system provides measurement and telemetry for the various process instruments. The control system allows remote operator shutdown. The control system is powered by single phase 230 VAC power supply, with back up batteries.

2.4.1.14 Scraper Stations

The scraper stations are provided along the length of the pipeline to allow cleaning and inspection of the pipeline. The scrapers stations are installed at Tanami Road, Ti Tree, Wauchope, Renner Springs, Newcastle Waters, Helling and Ban Ban Springs. Additionally scraper vessels are included at some of the stations along the pipeline. A scraper receiver and launcher are installed at each site along with a buried hydraulically actuated valve. The actuated valve includes electric solenoids to allow remote operation. During normal operation gas bypasses the scrapers and flows through the actuated valve, the scraper vessels are closed, isolated from the pipeline and depressured.

The pipeline is provided with buried isolation valves. A pressure transmitter and indicator are installed on a pipe riser either side of the actuated valve. A temperature transmitter is installed downstream of the actuated valve.

The scraper vessels are fitted with quick opening closures, a DN 25 local vent, a pressure gauge and connections with valves to allow operation. The vessels also include connections for pressure relief valves that have been removed on some / all scraper vessels. Pig passage indicators are installed on the pipeline and scraper vessels.

There is also a pipeline vent installed at the site within a separate compound. During normal operation the vent is closed with a quick opening closure.

2.4.1.15 Ban Ban Springs Scraper Station

The scraper station at Ban Ban Springs also includes an off take connection to Cosmo-Howley and a supply connection from the Wadeye pipeline. The off take to Cosmo Howley is a blind flange on a pipeline riser. The pipeline is decommissioned and the meter station has been removed. The connection from the Wadeye pipeline is underground pipework from the Ban Ban Springs meter station. The pipeline connections is to the upstream connection for a future compressor. There is an above ground valve with bypass installed adjacent to the connection.



At the Helling scraper station there are pipework and vents that are used for training The training pipework is not connected to the station pipework during normal operation of the pipeline and the training pipework is unpressurised. No records have been provided for the training pipework and it is not included in the hazardous area classification.

2.4.1.16 Warrego Scraper Station

The scraper station at Warrego is also the site of a compressor. The compressor is connected to underground connections either side of the mainline valve. An actuated valve with manual bypass / pressuring line is installed at each connection. The actuated valves are provided with an instrument gas connection from the Warrego compressor site.

The remainder of the Warrego compressor site is not considered within this hazardous area classification.

2.4.1.17 Mainline Valves

There are several mainline valve sites located at Aileron, Barrow Creek, Kelly Well, Morphett Creek, Fergusson, Larrimah, Tindal, Acacia and Berry Springs. The data used for classifying the mainline valves' hazardous area is obtained solely from the Aileron site. Each of the sites is assumed to be identical and comprises of a buried valve with an above ground bypass and vent points with no instrumentation installed on the mainline valve. The buried valve has a manual actuator and gear box, injection ports and cavity bleed extended above ground. This is shown in the photograph below.





2.4.1.18 Bachelor Mainline Valve

The Batchelor mainline valve site is located at KP 1441 between Ban Ban Springs and Darwin City Gate. The Batchelor Mainline valve site is similar to other mainline valve sites but the mainline valve has an actuator, similar to the scraper stations. The mainline valve consists of a DN300 underground valve with an above ground actuator, maintenance ports and cavity bleed. The valve has an above ground DN100 bypass. Pressure transmitters are fitted either side of the valve. The site also has a control room.

2.4.2 OPERATING CONDITIONS

The maximum operating pressures and temperatures at the stations are summarised in Table 1.

Table 1 Operating pressures and temperatures

Temperature	Pressure (Process)	Pressure	Pressure
		(Fuel gas)	(Instrument gas)
Max. (°C)	Max. (kPag)	Max. (kPag)	Max. (kPag)
60	9,650	≤ 650	770

2.4.3 VENTILATION

Each of the sites is in the open air and is considered to have good ventilation. Some equipment is installed in open-sided shelters. These are not considered to have any impact on ventilation.



2.5 PROPERTIES OF HAZARDOUS MATERIALS

2.5.1 GASES HANDLED

The gas processed through the regulating and metering stations contains mainly methane (typically 87 mol%) and nitrogen (about 8 mol%), along with small quantities of hydrocarbons (C2+) and carbon dioxide (totally < 5 mol%). The specific gravity of the gas is 0.62, which is lighter than air (SG=1.0). It is classified as a Category G(i) fluid in accordance with IP15 Section 1 (Table 1.2 – fluid categories) and as a Group IIA in accordance to AS/NZS 60079.20 section 4.6. The composition of the gas is shown in Table 2.

Note that the gas composition in the pipeline can vary from the typical figures shown in Table 2. However, methane will remain the predominant component and the properties of the gas will remain the same and will be the same as methane. Australian standard AS 4564 (AG 865) Specification for general purpose natural gas, provides information of the allowable properties of natural gas. Similarly, APA will have a Sales / Shippping Agreement for the injection of gas into the pipeline that should be observed. The limitations are summarised in Table 3.

Note that on release from high pressure, the gas will be cooled due to Joule-Thomson cooling. At lower temperatures the gas is less dense and the dispersion in air will be slightly impacted, but the flammable range is reduced. Similarly, for higher temperatures the flammable range is increased, but the dispersion is increased. At the dilute concentrations at the lower explosive limit, the gas-air mixture temperature will be close to ambient temperature therefore, there will be no additional consideration for temperature effects.

Symbol	mol%
CH ₄	87.0
C ₂ H ₆	2.6
C ₃ H ₈	0.8
C ₄ H ₁₀	0.1
C_4H_{10}	0.2
C_5H_{12}	0.07
C_5H_{12}	0.05
C ₆ H ₁₄	0.07
C ₇ H ₁₆	0.02
C ₈ H ₁₈	0.004
C ₉ H ₂₀	0.004
CO ₂	0.95
N ₂	8.2
	100
nixture)	0.62
	$\begin{array}{c} CH_4 \\ C_2H_6 \\ C_3H_8 \\ C_4H_{10} \\ C_4H_{10} \\ C_5H_{12} \\ C_5H_{12} \\ C_6H_{14} \\ C_7H_{16} \\ C_8H_{18} \\ C_9H_{20} \\ CO_2 \end{array}$

Table 2 Typical Gas Composition



Table 3	Gas	specification	limits
---------	-----	---------------	--------

Characteristic	APA Schedule 4 Limits	AS 5654 Limits
HHV	Minimum 33.0 MJ/Sm ³	-
	Maximum 42.0 MJ/Sm ³	
Wobbe Index	Minimum 44.0 MJ/Sm ³	Minimum 46.0 MJ/m ³
	Maximum 51.0 MJ/Sm ³	Maximum 52.0 MJ/ ^{m3}
Oxygen	Maximum 0.2 mol%	Maximum 0.2 mol%
Hydrogen Sulphide	Maximum 10.0 ppmw	Maximum 5.7 mg/m ³
Total Sulphur	Maximum 50 mg/Sm ³	Maximum 50 mg/ ^{m3}
Water Content	Maximum 80 mg/Sm ³	Maximum – Dewpoint 0°C at the highest MAOP in the relevant transmission system (in any case, no more than 112.0 mg/m ³)
Cricondentherm	Maximum 10.0°C	
Hydrocarbon Dewpoint		Maximum 2.0°C at 3,500 kPa
Total inert gases	Maximum 12.0 mol%	Maximum 7.0 mol%
Nitrogen	Maximum 11.0 mol%	-
CO ₂	Maximum 7.5 mol%	-
Mercury	Maximum 0.2 mg/Sm ³	
Methanol	Maximum 1.0 mg/Sm ³	
Glycols	Maximum 1.0 mg/Sm ³	
Radioactivity	Maximum 8,000 Bq/Sm ³	
Notes		m ³ refers to dry gas at standard conditions (15°C and 101.325 kPa)

The chromatograph used for gas composition analysis requires carrier and calibration gases. The carrier gas (helium) is not flammable, while the calibration gas (mainly methane) is classified as a Category G(i) fluid with similar compositions as process gas.



2.5.2 LIQUIDS HANDLED

2.5.2.1 Filter Separator Drains

The liquids handled at the facilities may consists of condensate, compressor lubrication oil or water, which is removed from the gas by the filter separators. The condensate is considered to be flammable liquid and based on hexane is considered to be a group IIA liquid in accordance to AS/NZS 60079.20. The compressor lube oil used in the stations is combustible, but not flammable, with a typical flash point (closed cup) over 60 °C. Therefore, it is treated as a non-hazardous material for the purpose of the hazardous area classification. Water is considered to be non-hazardous liquid.

2.5.2.2 Odorant

Odorant is injected into the pipeline at Tylers Pass. The odorant is SpotLeak 1005 and is a flammable liquid. It consists of Thiophene, Propanethiol and methyl as per the product specification. The odorant is classified as group IIA in accordance to AS/NZS 60079.20 and category C fluid in accordance with IP15 Section 1 (Table 1.2 – fluid categories).



2.6 EQUIPMENT SELECTION

The general requirements for selection, installation and maintenance of explosion proof (Ex) electrical equipment are described in AS/NZS 2381.1:2005.

To ensure the Ex electrical equipment performs satisfactorily, without the risk of ignition, the data shown in Table 3 must be used as area specification requirements.

Table 4 Gas Group and Temperature Class

Performance Criterion	Requirement	Reference
Ambient temperature	0 - 50 °C	Bureau of Meteorology
Auto-ignition temperature (Methane)	537 °C	AS/NZS 60079.20
Apparatus Group	IIA	AS/NZS 60079.20
Temperature Class	T1 / T3	AS/NZS 60079.20

The recommendations on equipment group and temperature class should be regarded as *minimum* requirements. Equipment selection must take into account local conditions, such as the presence of hot surfaces close by and electrical equipment design.



2.7 CLASSIFICATION

2.7.1 PIPING

2.7.1.1 Process Piping

Welded piping at the stations is designed and constructed to ANSI/ASME B 31.3 and is not considered as a source of release. However, the possible release of flammable material occurs at flanges, valves and fittings due to the possible leakage from a gasket or seal. A majority of process gas service pipework installed in the stations is flanged. The screwed connections are limited to the small bore piping with a nominal size less than DN25. The screwed piping has tapered threads with similar leakage integrity to the flanged connections. The piping in the facilities is a permanent fixture and not subject to vibration.

All flanges and infrequently used valves are considered to be well maintained and located in an adequately ventilated area in the gas regulating and metering stations. Leakage of the flammable material at connection points is considered abnormal and the quantity of the hazardous material released is considered minor. Consequently, they are regarded as sources of *Secondary* grade release and a hazardous Zone 2 within a sphere area with 2 m radius from the potential leakage points is claimed around the piping with flanges or threaded joints, meters or regulators and valves other than relief valve in accordance with AS/NZS 60079.10.1 Clause ZA.6.6.2.4 for high pressure gas transmission system.

As a worst case the liquid piping is assumed to carry condensate which is a flammable liquid in accordance with AS/AZS 60079.10.1 clause ZA 5.2.8 that claims a hazardous area of Zone 2 of 1.5m in all directions of potential release points. However the liquid drain lines may contain sufficient quantities of dissolved and entrained. Since this hazardous area classification must account for a number of installations with a range of process conditions, liquid piping is classified as gas piping.

All process drains and vents used infrequently for maintenance or start-ups are normally plugged. Similarly, the sample points are taken on an infrequent or as required basis (maximum once every six months). To simplify hazardous area management, the classification for process gas piping will be assigned to the uncommonly operated process drains, vents and sample points, meaning a Zone 2 area of radius 2 m is declared around those potential leakage points.

The hazard zones adopted for the process piping, flanges, joints, valves and fittings are summarised below:

Zone 2 2 m radius from the edge of the process piping routes, including infrequently used process drains, vents and sample points

2.7.1.2 Instrument Gas Piping

The instrument gas pipework is fabricated from screwed pipe and tube with compression fittings. Similar to process gas piping, the instrument gas piping has potential leakage points at connection points. The leakage is considered abnormal with minor quantities of flammable material. Hence, they are regarded as sources of *Secondary* grade release and the associated hazardous area zone will be classified as Zone 2.

According to AS/NZS 60079.10.1 Clause ZA.6.4.2.3c, for the lighter-than-air flammable gas operating with a pressure between 700 and 2,000 kPag, a hazardous Zone 2 within a sphere area with 1 m radius from the potential leakage points is assigned to the piping with flanged and screwed joints.

The hazard zone adopted for instrument gas piping is summarised below:

Zone 2 1 m radius from the edge of the instrument gas piping routes



2.7.1.3 Fuel Gas Piping

Fuel gas piping is fabricated with screwed connections, except those pipes with a nominal diameter less than DN25 and with flanges for larger diameters. The screwed piping has tapered threads with similar leakage integrity to flanged connections. The leakage is considered abnormal with the presence of minor quantities of flammable material. Hence, they are regarded as sources of *Secondary* grade release and the associated hazardous area zone will be classified as Zone 2.

According to AS/NZS 60079.10.1 Clause ZA.6.4.2.3c, for the lighter-than-air flammable gas operating with a pressure between 100 and 700 kPag, a hazardous Zone 2 within a sphere area with 0.5 m radius from the potential leakage points is declaimed around the piping with flanged and screwed connections.

The hazard zone adopted for fuel gas piping is summarised below:

Zone 2 0.5 m radius from the edge of the fuel gas piping routes

2.7.1.4 Control Valves

There are several shut down valves, pressure / temperature control valves and level control valves installed in the stations. Similar to process piping, the process connections of control and actuated valves are considered well maintained and leakage is considered abnormal. Therefore connection points are considered the same as process pining as described in Sections 2.7.1.1, 2.7.1.2 and 2.7.1.3.

In addition, the control valves are in regular use and leakage is more likely due to wear on the packing. An additional *Primary* grade of release (Zone 1) with a nominal hazard radius of 0.3 m around the glands is claimed in accordance with IP15 Section 5.4.5.1.

Control valves will release minor amounts of flammable gas with a small continuous bleed from the positioners or exhausts at a low discharge velocity in normal operation. It contributes a *Continuous* grade of release and in accordance with AS/NZS 60079.10.1 clause ZA 6.6.2.5, a Zone 1 area with a 0.5m radius will be claimed. A larger region that represents infrequent higher gas velocities that may exist surrounding the Zone 1 area due to abnormal operation or failure of the valves. A Zone 2 area within 1 m radius in all directions is assigned to the low velocity vents.

The additional hazard zones adopted for the control valves are summarised below:

- **Zone 1** 0.5 m radius around the control valve positioners and exhausts
 - 0.3 m radius around the control and actuated valve glands
- **Zone 2** 1 m radius around the control valve positioners and exhausts

2.7.1.5 Pressure Relief and Safety Relief Valves

Pressure relief valves (PSVs) and safety relief valves (SRVs) are mounted on the multicyclone, filters, process gas piping, fuel gas and instrument pipework to provide the protection against operational overpressure for the piping and equipment.

Note that SRVs in Pine Creek Station piped to the vent stack do not contribute to the extent of the hazardous classification except as discussed under Section 2.7.1.1 for process piping.

PSVs and SRVs venting directly to atmosphere are normally treated as a *Secondary* grade of release due to no action on normal operating conditions, and as a result the associated hazard zone will be classified as Zone 2. In accordance with AS/NZS 60079.10.1 Clause ZA.6.6.2.9, a Zone 2 area is assigned within 6 m diameter cylinder with its axis on the line



of discharge from 1 m behind the points of discharge to a distance 8 m in front of the points of discharge.

The seats on the PSVs and SRVs will be metal to metal and tight shut-off, which will contribute to a small leakage at the vent tips during the normal operation. In line with the specification described in IP15 Section 5.4.4.5, a Zone 2 area of nominal 1 m radius should be placed around the end of the discharge point to account for any small leakages. It is recommended to upgrade the *Secondary* grade of release to a *Primary* grade of release accounting for the presence of the flammable material in the normal operating. Hence, an additional Zone 1 area with a nominal hazard radius of 1 m is claimed around the PSV and SRV discharge points to account for the minor leak through the valve seats.

The hazard zones of the PSVs and RSVs are considered to be the same due to lack of the discharge rates, which actually affect the extending zone of hazardous area.

The hazard zones adopted for the PSVs and RSVs are summarised below:

- **Zone 1** 1 m radius from the vent tips
- **Zone 2** 6 m laterally, 8 m above and 1 m below the discharge points

2.7.1.6 Mainline Valves

Some of the actuated mainline valves (MLV) installed at the scraper stations as shown in the following photographs include an enclosure containing the solenoids and a hand pump for the valve. The solenoids vent to a location outside of the enclosure, however the tubing connections to the solenoid are a *Secondary* source of release. The enclosure has minimal ventilation and released gas can accumulate within the enclosure. Therefore a Zone 1 hazardous area is claimed within the enclosure.

Body bleeds valves maintenance ports and instrument gas connections from the buried valve are brought above grade. These provide potential leak sources and are treated the same as process piping connections as per section 2.7.1.1.

The hazard zone adopted for the actuated valve enclosures is summarised below:

- **Zone 1** Within the solenoid valve enclosure
- **Zone 2** 2m radius from point of discharge





2.7.1.7 Local Vent Point

There are several local vent points installed in the facilities to allow the purging of gas from the stations following isolation. Each manual vent generally consists of a ball valve to control blow down rate. The ball valve provides high integrity isolation and wear is not considered on the valves. Hence, no leak is taken into account during the normal operation.

The hazardous area classification for those points is considered to be the same as PSVs and RSVs due to the similar operation which happens only during the period of system depressurisation. Therefore, they are treated as a *Secondary* grade of release and a Zone 2 area within 6 m diameter cylinder with its axis on the line of discharge from 1 m behind the points of discharge to a distance 8 m in front of the points of discharge are declared in accordance with AS/NZS 60079.10.1 Clause ZA.6.6.2.9.

Note: Majority of the vents are fitted with a cap and have a hole drilled in the vent pipe.

The hazard zone adopted for the local vent points is summarised below:

Zone 2 6 m laterally, 8 m above and 1 m below the discharge points

2.7.1.8 Pine Creek Vent Stack

There is a vent stack installed in the Pine Creek Station. Gas released from the PSVs, instrument manifold vents and vented instrument gas from the pneumatic controllers is sent to the vent stack. During normal operation, there is minimal flow from the vent stack from the pneumatic controllers. The vent stack is fitted with a flame arrester that offers protection against fire and explosion from outside sources of ignition. The flame arrestor is fitted with a cover to prevent rain ingress but also acts to direct gas downwards. and will increase the diameter of the hazardous area.

The hazardous area is increased to a Zone 2 area within 12 m diameter cylinder and 6 m below the discharge point is claimed, compared with 8 m distance stated for vertical up discharge.

Furthermore, minor leakage of flammable mixture may occur through the PSV seats under normal operation as analysed in Section 2.7.1.5. As a result, it contributes to a *Primary* grade of release and an additional Zone 1 hazardous area with a nominal radius of 1 m is claimed around the vent stack discharge point to account for any small leakages from safety relief valve seats.

The continuous bleed from the pneumatic controllers also vents through the vent stack. As per Section 2.7.1.4, a 0.5 m Zone 1 hazardous area is claimed. This is within the hazardous area claimed for leakage through PSV seats.

The pipework to the vent stack is flanged and will generally be at close to atmospheric pressure. However for continuity the claimed hazardous area will be claimed to be as for process pipework, refer section 2.7.1.2.

The hazard zones adopted for the vent stack are summarised below:

- **Zone 1** 1 m radius from the vent tip
- **Zone 2** 12 m laterally, 6 m below and 8 m above the vent tip

2.7.1.9 Pipeline Blowdown

There are pipeline blowdown points at the scraper stations and meter stations. The vents are approximately 2.4 m tall, discharge vertically upwards and are fitted with quick opening closures. Pipeline blowdowns have the potential to release large volumes of gas to atmosphere and to obtain a representative hazardous area zone it would be required to



undertake plume analysis based on the blowdown conditions. An estimate of the extent of the plume from previous experience for pipeline blowdown vents is a cylinder with a radius of 15 m and a length of 30 m extending in the direction of the discharge and 1 m below the discharge point to account for the localised turbulence at the vent tip. Pipeline blowdowns are a done infrequently and therefore a *Secondary* release that results in a Zone 2 hazardous area. The discharge is vertically upwards and therefore no ground effect would occur.

During normal operation a quick opening closure in the closed position is considered to provide similar containment as a pipe flange or fitting. Therefore the associated release would be *Secondary* providing a Zone 2 hazardous area of 2 m as per AS/NZS 60079.10.1 Clause ZA.6.4.2.4.

- **Zone 2** A cylinder of radius 15 m extending 30 m vertically upwards and 1 m downwards from the point of discharge
- **HOLD** The exact shape of the hazardous area zone should be determined using plume dispersion modelling based on the blowdown operation and conditions.
- 2.7.1.10 Low Velocity Vents

There are numerous pressure relief valves installed on instrument gas systems, for example on the station limit valves. The relief from these pressure relief valves are similar to low velocity vents in accordance with AS/NZS 60079.10.1 ZA.6.6.2.8 that has an associated Zone 1 hazardous area of 0.5 m in all directions surrounded by a Zone 2 hazardous area of 1.0 m from the point of discharge. The pressure relief valves will not typically be relieving gas and the release will be *Secondary*, therefore the Zone 1 area is not appropriate. Therefore a Zone 2 hazardous area of 1 m radius from the point of discharge is claimed.

The hazard zone adopted for the instrument gas relief and vent points is summarised below:

Zone 2 Radius of 1 m extending in all directions from the point of discharge

2.7.2 SCRAPER VESSELS

The scraper vessels shall be operated such that it is normally isolated from the pipeline. There are no regular pigging operations. It is expected that the scraper vessels are opened at approximately yearly intervals and the small quantities of flammable gas may occur at the closures. Accordingly, they are treated as sources of *Secondary* grade release and a hazardous Zone 2 within a radius of 3 m centred at the closure is claimed as indentified in AS/NZS 60079.10.1 ZA.6.6.2.2b for the equipment located at an adequately ventilated area.

The scraper vessels are enclosed vessels containing nozzle connections with piping, valves and fittings, which are also potential release sources. These are classified as piping as per section 2.7.1.1.

The hazard zone adopted for the pig receivers and launchers is summarised below:

Zone 2 3 m radius in all directions from quick opening closure

As per section 2.7.1.1 for piping for remainder of the vessel



2.7.3 MULTICYCLONE AND FILTER SEPARATORS

Similar to receiving traps, the multicyclone and filter separators have quick opening closures that are operated at approximately yearly intervals under normal operation. The hazard zone assigned to the receiving traps in accordance with AS/NZS 60079.10.1 ZA.6.6.2.2b is also applicable to the filter coalescers, resulting in a hazardous Zone 2 area within 3 m radius around the discharge points is claimed.

Since the multicyclone and filter coalescers are enclosed vessels which handle process gas and liquids removed from the gas, the nozzle connections with piping, valves and fittings are also potential release points. To simplify hazardous area management, the classification for process gas piping will be applied to the vessels meaning a Zone 2 area of radius 2 m will be declared from the shell of the vessels.

The hazard zone adopted for the multicyclone and filter coalescers is summarised below:

Zone 2 3 m radius around the quick opening closures and 2 m radius from the edge of the vessels

2.7.4 SLOP TANKS

The slop tank installed at some stations are above ground storage tank used to collect condensate, compressor lube oil and water from the filter separators. The liquids in the tank are treated as a flammable fluid. The capacity of the tanks are approximately 1 kL. The tanks are provided with a vent that discharges to atmosphere. During the short period of the drainage from the filter coalescers to slop tank, the liquids may form a flammable mist and additionally the gas may break through into the drain tank. The freely vented tank allows vapour/air mixtures to be released during the normal operation.

Therefore, the slop tank will contain flammable vapours and a range of hazard zones is required. As such, it is likely that a small amount of flammable gas mixture would continuously exist in the tank and within close proximity of the tank vent, surrounded by a larger region that may sometimes exist due to occasional higher gas quantities and an even larger region that represents very infrequent high gas quantities.

The slop tank installed at the Pine Creek Station has a pressure vacuum vent set at 2 kPa pressure / vacuum. The vapour or released gas is directed to atmosphere though the vent that installed in conjunction with an inline flame arrester and a cap. The flame arrester is required to provide protection against internal fire and explosion from outside sources of ignition. The vented gas will be discharged vertical downwards to the surrounding equipment or pipework due to the installation of the cap. However, the additional extent zones are not claimed considering the relatively low operating pressure in the tank.

In accordance with API RP 505 Section 8.2.1, a Zone 0 area within 0.5 m radius, a Zone 1 area within 1.5 m radius and a Zone 2 area within 3 m radius of the vent point are declared. It is also stated in API RP 505 Section 8.2.1, a Zone 0 area should be claimed inside the tank above the liquid level due to the possibility of the continuous presence of the flammable mixture and a Zone 2 area with radius of 3 m should be placed around the shell of the equipment.

The hazard zones adopted for the slop tanks in the stations are summarised below:

- **Zone 0** Inside the tanks above the liquid level and 0.5 m radius from the tank discharge points
- **Zone 1** 1.5 m radius from the tank discharge points
- **Zone 2** 3 m radius around the shell of the tanks and from the tank discharge points



2.7.5 WATER BATH HEATERS

The indirect fired water bath heaters are fitted in some stations to heat the high pressure gas up to a temperature of 60 °C prior to pressure reduction, which prevents hydrate formation that may occur due to the Joule-Thomson effect when the temperature drops. The water bath heater consists of an insulated shell, removable process coils, removable fire tubes, stack burners, fuel gas conditioning train and control system.

During normal operation, a flame is projected into a submerged "fire-tube" located at the bottom of a horizontal cylindrical shelf. Energy is transferred through the tube wall to the surrounding bath fluid water. By means of natural convection, the water then transfers the required amount of energy into a series of process coils located at the top of the heater shell.

The water bath burners are continuously flaming and provided with burner elements to ensure that the flame is maintained. On loss of flame the fuel gas supply is shut down. Therefore it no hazardous area zones are claimed from the stacks.

The process tube within the water bath is fully welded with no potential points for release and would not normally provide a hazardous area. If there was a history of failure of the process coils leading to corrosion or erosion of the tubes, then a hazardous area should be claimed on the vent of the water bath heater. APA has not indicated that there have been failures of the process coils. Further, the maximum operating temperature of the water bath heaters is 95°C, the pH and the nitrate content of the water in the baths is checked frequently and APA has confirmed that the water bath heaters are treated with oxygen scavenger. Therefore no hazardous area is claimed from the water bath vent.

The potential release points on the vessels are process connections to the heaters. The classification for process piping will be applied to the process connections resulting in a *Secondary* grade of release and a related Zone 2 area with 2 m radius from the connection points in accordance with AS/NZS 60079.10.1 Clause ZA.6.4.2.4.

The hazard zone adopted for the water bath heaters is summarised below:

Zone 2 2 m radius from the high pressure gas connections of the vessel.

2.7.6 CATALYTIC HEATER

A catalytic heater is installed at the Elliott meter station. The heater consists of a section of pipe contained in a compartment. The inside of the compartment is surrounded by heating elements that heat the gas by radiant heat. The heat is generated by the combustion of gas in catalytic elements. The manufacturer's information indicates that the catalytic elements ensure that the gas is combusted at a lower temperature. The heating unit is approved for installation in hazardous areas and has Factory Mutual certification.

The pipework has no additional source of release and will be classified the same as the process pipework as described in section 2.7.1.1 and a 2 m Zone 2 hazardous area is claimed from the outside of the of the heater.

Additionally, there is a possibility of fuel gas not being combusted inside the heater. The manufacturer's literature indicates that there is a protection to prevent uncombusted gas being released. However the configuration of the heater is not well defined and to be conservative a primary grade of release is claimed. There is minimal ventilation in the compartment and the claimed zone is increased from Zone 1 to Zone 0 within the compartment.



The heater compartment is not considered to be gas tight and an additional hazardous area zone is claimed that will surround the heater compartment. The release will be a primary grade of release. The heater has good ventilation and a Zone 1 hazardous area is claimed. The released gas will be fuel gas and will be close to atmospheric pressure. In accordance with section 2.7.1.3 the extent of the hazardous area will be 0.5 m from the outside of the box.

The hazard zone adopted for the catalytic heater is summarised below:

- **Zone 0** Inside the heater compartment
- **Zone 1** 0.5 m from the edges of the heater box
- **Zone 2** 2 m radius from the high pressure gas connections of the vessel

2.7.7 KNOCKOUT POTS

The knockout pots are enclosed vessels which do not contribute to the hazardous area classification. However, the nozzle connections with piping, valves and fittings on the vessels are potential release points where small amounts of flammable mixture may present. To simplify hazardous area management, the classification for process gas piping will be applied to the vessels meaning a Zone 2 area of radius 2 m will be declared from the shell of the vessels.

The hazard zone adopted for the knockout pots is summarised below:

Zone 2 2 m radius from the edge of the vessels

2.7.8 GAS CHROMATOGRAPH SYSTEM

Gas chromatograph (GC) system is a specific analyser to determine natural gas stream composition and anticipated concentration of the selected components.

The chromatograph system comprises of several components: the analyser, sample tubing, process vents, pressure control valve, pressure safety valve, carrier gas cylinders and tubing, calibration gas cylinder and tubing. The chromatograph system is located under a shelter with open sides, therefore it is considered as being adequately ventilated.

The process tubing and analyser contain gas at approximately 140 kPag. The tubing will be well maintained and minor release of the flammable gas may occur at the connections due to leakage, and as a result the grade of release is considered to be *Secondary*. Therefore, a Zone 2 hazardous area with 0.5 m radius is assigned around the whole chromatography system to cover the process tubing potential leakage points according to AS/NZS 60079.10.1 Clause ZA.6.4.2.3c, for the lighter-than-air flammable gas operating at a pressure between 100 and 700 kPag.

The carrier gas is helium that is a non-hazardous material and therefore the carrier gas cylinders and tubing do not contribute to the hazardous zone.

The calibration gas comprises mainly methane and stores in a gas cylinder with an approximate volume of less than 10 L. AS/NZS 60079.10.1 Clause ZA.6.4.2.6d states that cylinder located in ventilated area, whether in storage or installed for use, is not associated with a hazardous zone when the gas capacity is less than 30 m³. Therefore, no hazardous zone is claimed around the calibration gas cylinder. The calibration gas tubing is at the same operating pressure as the process tubing and will have the same Zone 2 hazardous with 0.5 m radius around the calibration gas tubing connections.

The chromatograph system has several vent points that release the sample line contents at low velocity during the normal operation. The amount of the released gas will be small and the discharge rate will be slow and readily dispersed. Consequently, they are regarded as sources of *Primary* grade release and a hazard Zone 1 within a sphere area with 0.5 m



radius is declared from the vent tips in accordance with AS/NZS 60079.10.1 Clause ZA.6.6.2.8 for the low velocity vents in adequately ventilated area.

In addition, a larger region that represents infrequent higher gas quantities may exist surrounded the Zone 1 area due to the failure of pressure regulator or PSV. It results a *Secondary* grade of release and an additional Zone 2 area with 1 m radius is considered around the vents in accordance with AS/NZS 60079.10.1 Clause ZA.6.6.2.8.

The pressure relief valve will be activated in emergency. To simplify the hazardous area arrangement, it is treated the same as a vent as described above.

The hazard zones adopted for the chromatograph system are summarised below:

- **Zone 1** 0.5 m radius from the vent tips
- Zone 20.5 m radius around the gas chromatograph system, excluding the cylinders

1.0 m radius around the vent tips

2.7.9 WATER DEW POINT ANALYSER / GAS SAMPLER

The water dew point analyser uses a chilled mirror to determine the dew point of the gas. The analysers receive gas from the sampler as shown in the photographs below. The gas sampler consists of an insertion regulator installed in the pipework, a heated capillary tube a sample cylinder, solenoid valve, further regulators and pressure relief valves. A solenoid valve is installed inside a box with a removable cover. The box prevents ventilation and therefore the declared hazardous area zone is increased to Zone 1 for the interior of the box.

The water dew point analyser comprises of several components: the analyser, sample tubing, process vents, pressure control valve, pressure safety valve, gas cylinders and tubing, calibration gas cylinder and tubing. The analyser system is located under a shelter with open sides, therefore it is considered as being adequately ventilated.

The process tubing and analyser contain gas at approximately 140 kPag. The tubing will be well maintained and minor release of the flammable gas may occur at the connections due to leakage, and as a result the grade of release is considered to be *Secondary*. Therefore, a Zone 2 hazardous area with 0.5 m radius is assigned around the whole analyser system to cover the process tubing potential leakage points according to AS/NZS 60079.10.1 Clause ZA.6.4.2.3c, for the lighter-than-air flammable gas operating at a pressure between 100 and 700 kPag.

The water dew point analyser and gas sampler have local vents that will frequently vent gas at low velocity to atmosphere during the normal operation. The amount of the released gas will be small and the discharge rate will be slow due to the characterisation of the systems. Consequently, they are regarded as sources of *Primary* grade release and a hazard Zone 1 within a sphere area with 0.5 m radius is declared from the vent tips in accordance with AS/NZS 60079.10.1 Clause ZA.6.6.2.8 for the low velocity vents in adequately ventilated area.





The hazard zone adopted for the water dew point analyser / gas sampler is summarised below:

Zone 1 0.5 m radius from the vent tips

Inside the sampler box

Zone 2 0.5 m radius around the water dew point analyser system

1.0 m radius around the vent tips

2.7.10 ODORANT INJECTION SYSTEM

2.7.10.1 Odorant Pipework

A majority of the odorant pipework is tubing fitted with compression fittings, these are considered to be well maintained and infrequently operated. This provides a *Secondary* source of release and a Zone 2 hazardous area. In accordance with AS/NZS 60079.10.1 Clause ZA.5.2.8 the associated hazardous area is 1.5 m in all directions down to ground level.

Zone 2 1.5 m in all directions extending down to ground level



2.7.10.2 Odorant Storage Tank

The odorant storage tank is a pressure vessel supplied with a natural gas blanket and a pressure relief valve.

AS/NZS 60079.10.1 Clause ZA.5.2.1.2c describes the hazardous area associated with the above ground vent on a storage tank as Zone 1 within 1.5 m radius in all directions from point of discharge and Zone 2 within the cylindrical volume below the Zone 1 area. This is applicable for a vent on a storage vessel. There will be a constant release from the vent however the volume of release is small and is considered to be a *Primary* and a Zone 1 area is claimed.

The connections on the pressure vessel will have the same Zone 2 hazardous area as the odorant pipework.

The tank pressure relief valve will provide a *Secondary* release. This will result in a Zone 2 hazardous area. The extent of the hazardous area will be as the Zone 1 area for the vent, but without the additional Zone 2 area.

Zone 1 1.5 m in all directions from vent tip

Zone 2 Cylindrical volume below the Zone 1 area

1.5 m in all directions extending down to ground level for tank connections

2.7.10.3 Odorant Injection Pumps

The odorant injection pumps are pneumatically powered from instrument gas that is derived from the transmission gas. During operation of pumps there will be a continuous vent of gas. There will be a *Continuous* release from the pump discharge through a bug screen located on the pump, refer photograph below. The minimum diameter of the instrument gas is small. It is reasonable to assume that the solenoid valve has a reduced bore, and a typical size is 1/8" (3.2 mm). Based on Table C9(a) from IP15 for a G(i) gas, a pressure of 5 bar(a) (400 kPag) and a 5 mm hole the hazard radius is <1 m. Therefore a hazardous radius of 0.5 m is claimed around the pump.

The pump is a high integrity positive displacement pump capable of developing high discharge pressures to the odorant, therefore it is assumed that any hazardous area associated with leakage from the pump seals would be small and within the hazardous zone associated with the gas vent.



Zone 1 0.5 m radius from the pump



2.7.11 GROUND EFFECT

IP 15 Section 5.5 states that the determination of the full three dimensional envelope of the hazardous area zone shall consider the location of the release. The shape factor depends on height and orientation of the release. The key factors are:

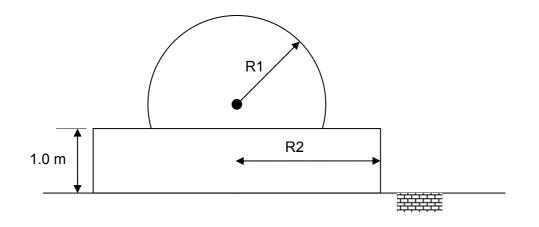
- 1. For sources of release that are higher from grade than the hazardous radius, there is no impact due to ground effect.
- 2. For sources of release that are higher than 1 m from grade but less than the hazardous

radius, there is a ground effect, up to 1 m above grade.

3. For sources of release that are 1 m or less from grade, there is a ground effect up to 1 m above grade.

The main process pipework has a hazardous area of radius 2 m, and is located less than 2 m above grade. The direction of release from flanged joints and screwed fittings could be in any direction, therefore ground effects are to be considered. Other hazardous area zones will be sufficiently above grade so that there is no ground effect, or the direction of release will be upwards and therefore ground effect is negligible.

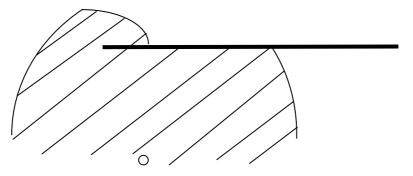
The ground effect increases the hazardous radius in accordance with IP 15 Table C9(b). A majority of the pipework in the facilities is to be located less than 1 m above grade. Interpolation of IP 15 Table C9(b) shows that the hazardous area for ground effect is 0.5 m larger than the hazardous area radius defined above, from the figure below, R2 = R1 + 0.5. Therefore the hazardous area at grade for gas pipework at transmission pressure will be 2.5 m to a height of 1 m.





2.7.12 VAPOUR BARRIERS

At Palm Valley Alice Springs and Mereenie the hazardous area zone impacts on a wall and the control hut, respectively. At these locations the hazardous area zone will extend around the barrier as shown in the diagram below. This is in accordance with AS/NZS 60079.10.1 Clause ZA.2 for measurements of distances.



Source of release



APPENDIX A HAZARDOUS AREA CLASSIFICATION DATA SHEET

Part I : Flammable material list and characteristics Part II : List of sources of release

Part I – Sheet 1 of 1							Revisi	ion:	0						
Flammable material list and	d characte	ristics				-	Autho	r:	TCB						
Amadeus Basin to Darwin Pi	peline					_	Check	(ed:	RDK						
Surface facilities					Earth Partners	(F	QA:		EZG						
					DEVELOPMENT RESOURCES	Í	Date:		24/11	/2011					
Material	Phase	ADG Class	IP 15 Fluid Category	Boiling Point ⁰C	ASTM D86 5%(vol) Point of Stabilised Liquid at Atmospheric Pressure	Relat Densit Flui Vapo (Air S0 Liqu (Water S	y Of id our G=1) iid	Flash Poi Stabilis Liquid Atmosph Pressu ⁰C	ed at eric	Vapour LEL (Vol %) In Air	Vapour UEL (Vol %) In Air	Ignition Temperature °C	Temperatu Class	re Equipment Group	Source Of Data
1	2	3	4	5	6	7		8		9	10	11	12	13	14
Process gas and calibration gas (mixture)	Vapour	2.1	G(i)	-162	-	0.6	2	Gas		4.4 (Methane)	17 (Methane)	537 (Methane)	T1	IIA	AS/NZS 60079.20
Odorant (tetrahydrothiophene and tertiary butyl mercaptan)	Liquid	3	С	82	-	0.939 (l 3.06 (va		-8		1.1*	12.1*	224	T3*	IIA	AS/NZS 60079.20 MSDS
Condensate	Liquid	3	С	69 [†]	-	2.97	7 [†]	-21 [†]		1.0 [†]	8.4 [†]	233 [†]	T3 [†]	IIA	AS/NZS 60079.20

Part	I – Sheet 1 of 4					Income and the second second	Revision:	0					
List o	of sources of rel	ease				-	Author:	тсв					
Amac	leus Basin to Da	rwin Pipeline					Checked:	RDK					
Surfa	ce facilities					Earth Partners	QA:	EZG					
						DEVELOPMENT RESOURCES	Date:	24/11/2011					
Р	rocess Equipme	ent Item	Flammable	Operating Conditions	Description of Flammable	Ventilation	Source Of R	elease	Dis	stance From So	urce To	Equipment Group and	Section
No.	Description	Location	Material	Pressure and Temperature	Material Containment	· · · · · · · · · · · · · · · · · · ·	Description	Grade*	Boundary of Zone 0	Boundary of Zone 1	Boundary of Zone 2	Temperature Class	coolion
1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	Process piping		Vap. Cat "G(i)"	<u><</u> 9,650 kPag <u><</u> 60 °C	Closed system with flanges, piping joints and valves	Natural (open air)	Flanges, joints, valve seals, drains and vents	S	N/A	N/A	2 m radius from the edge of piping routes	IIA, T1	2.7.1.1
2	Instrument gas piping		Vap. Cat "G(i)"	<u><</u> 770 kPag <u><</u> 60 °C	Closed system with flanges, piping joints and valves	Natural (open air)	Flanges, joints, valve seals, drains and vents	S	N/A	N/A	1 m radius from the edge of piping routes	IIA, T1	2.7.1.2
3	Fuel gas piping	Amadeus	Vap. Cat "G(i)"	<u><</u> 700 kPag <u><</u> 60 °C	Closed system with flanges, piping joints and valves	Natural (open air)	Flanges, joints, valve seals, drains and vents	S	N/A	N/A	0.5 m radius from the edge of piping routes	IIA, T1	2.7.1.3
4	Control valves	Basin to Darwin Pipeline surface facilities	Vap. Cat "G(i)"	≤ 9,650 kPag <u>≤</u> 60 °C	Valves with packed gland / positioner / exhaust	Natural (open air)	Valve glands, positioners and connections	C&P&S	N/A	0.5 m radius around control valve positioners and exhaust	1 m radius around control valve positioners and exhausts;	IIA, T1	2.7.1.4
5	Pressure relief and safety relief valves		Vap. Cat "G(i)"	<u>≤</u> 9,650 kPag <u>≤</u> 60 °C	Valves and piping discharging vertically upwards	Natural (open air)	Pipe vent to atmosphere	C & P	N/A	1 m radius from vent tips	6 m laterally, 8 m above and 1 m below discharge points	IIA, T1	2.7.1.5
6	Mainline valves		Vap. Cat "G(i)"	≤ 9,650 kPag ≤ 60 °C	Closed system with flanges, piping joints and valves	Natural (open air)	Connections and valve seals	S	N/A	Within solenoid valve enclosure	As Piping	IIA, T1	2.7.1.6
7	Local Vent Points		Vap. Cat "G(i)"	<u>≤</u> 9,650 kPag <u>≤</u> 60 °C	Valves and piping discharging vertically upwards	Natural (open air)	Pipe vent to atmosphere	S	N/A	N/A	6 m laterally, 8 m above and 1 m below discharge points	IIA, T1	2.7.1.7



Part	II – Sheet 2 of	4						Revision:	0					
List	of sources of r	elease						Author:	ТСВ					
Ama	deus Basin to D	arwin Pipelir	e				125	Checked:	RDK					
Surf	ace facilities					Ear	TFE Th Partners VIRONMENT VELOPMENT	QA:	EZG					
						RE	SOURCES	Date:	24/11/2011					
Р	rocess Equipm	ent Item		Operating Conditions	Description of		Source Of	Release		Distance From	n Source To		Equipment	
No.	Description	Location	Flammable Material	Pressure and Temperature	Flammable Material Containment	Ventilation	Description	Grade*	Boundary of Zone 0	Boundary of Zone 1	Boundar	y of Zone 2	Group and Temperature Class	Section
1	2	3	4	5	6	7	8	9	10	11		12	13	14
8	Pine Creek vent stack	Pine Creek	Vap. Cat "G(i)"	Atmospheric pressure Ambient temperature	Valves and piping discharging vertically upwards	Natural (open air)	Pipe vent to atmosphere	P&S	N/A	1 m radius from the vent tip		lly, 6 m below bove vent tip	IIA, T1	2.7.1.8
9	Pipeline blowdown		Vap. Cat "G(i)"	<u><</u> 9,650 kPag <u><</u> 60 °C	Valves and piping discharging vertically upwards	Natural (open air)	Pipe vent to atmosphere	S	N/A	N/A	extending : upward downwards	of radius 15 m 30 m vertically s and 1 m from discharge oint be confirmed	IIA, T1	2.7.1.9
10	Low velocity vents	Amadeus Basin to	Vap. Cat "G(i)"	<u>≤</u> 9,650 kPag <u>≤</u> 60 °C	Valves and piping discharging vertically upwards	Natural (open air)	Pipe vent to atmosphere	S	N/A	N/A	all directions	m extending in s from the point scharge	IIA, T1	2.7.1.10
11	Scraper vessels	Darwin Pipeline surface facilities	Vap. Cat "G(i)"	≤ 9,650 kPag <u>≤</u> 60 °C	Enclosed system with closures	Natural (open air)	Flanges, joints, valve seals, drains and vents	S	N/A	N/A	from quick of As per sect piping for re	all directions pening closure ion 2.7.1.1 for mainder of the essel	IIA, T1	2.7.2
12	Multicyclone and filter separators		Vap. Cat "G(i)"	≤ 9,650 kPag <u>≤</u> 60 °C	Enclosed vessels with quick opening closures	Natural (open air)	Flanges, joints, valve seals, drains and vents	S	N/A	N/A	closures a	s around the nd 2 m radius e of the vessels	IIA, T1	2.7.3
			Liq. Cat "C"	<u><</u> 9,650 kPag <u><</u> 60 °C	Liquid drain pipework	Natural (open air)	Piping connections	S	N/A	N/A		ections down to nd level	IIA, T3	2.7.1.1
* C -	- Continuous; S	 Secondary 	; P – Primary											

Part	II – Sheet 3 of 4				the state of the state		Revision:	0					
List	of sources of relea	se			-		Author:	ТСВ					
Amad	deus Basin to Darwi	n Pipeline					Checked:	RDK					
Surfa	ace facilities				Earth Partners ENVIRONMENT		QA:	EZG					
					DEVELOPMENT RESOURCES		Date:	24/11/2011					
	Process Equipme	nt Item	Flammable	Operating Conditions	Description of Flammable		Source	Of Release	Dis	tance From So	urce To	Equipment Group and	
No.	Description	Location	Material	Pressure and Temperature	Material Containment	Ventilation	Description	Grade*	Boundary of Zone 0	Boundary of Zone 1	Boundary of Zone 2	Temperatur Class	
1	2	3	4	5	6	7	8	9	10	11	12	13	14
13	Slop tanks		Vap. Cat "G(i)"	Atmospheric pressure Ambient temperature	Open vessels	Natural (open air)	Piping connections and vents	C&P&S	Inside the tank above liquid level and 0.5 m radius from tank discharge points	1.5 m radius from tank discharge points	3 m radius from around shell of tanks and from tank discharge points	IIA, T1	2.7.4
14	Water bath heaters		Vap. Cat "G(i)"	<u>≤</u> 9,900 kPag <u>≤</u> 60 °C	Enclosed vessels	Natural (open air)	Piping connections	S	N/A	N/A	2 m radius from high pressure ga connections of vessel	s IIA T1	2.7.5
15	Catalytic heater	Amadeus Basin to Darwin	Vap. Cat "G(i)"	<u><</u> 9,900 kPag <u><</u> 60 °C	Enclosed vessels	Natural (open air)	Piping connections	S	Inside the heater compartment	0.5 m from the edge of the heater compartment	2 m radius from high pressure ga connections of vessel	s IIA T1	2.7.6
16	Knockout pots	Pipeline surface facilities	Vap. Cat "G(i)"	<u><</u> 9,900 kPag <u><</u> 38 °C	Enclosed vessels	Natural (open air)	Piping connections	S	N/A	N/A	2 m radius from edge of vessels		2.7.7
17	Gas chromatograph systems		Vap. Cat "G(i)"	<u>≤</u> 140 kPag <u>≤</u> 60 °C	Closed tubing systems with joints and vents	Shelter with open sides (open air)	Tubing joints, drains and vents	P & S	N/A	0.5 m radius from vent tips	0.5 m radius around system, excluding cylinders 1.0 m radius around vent tips	IIA, T1	2.7.8
18	Water dew point analysers / gas samplers		Vap. Cat "G(i)"	≤ 140 kPag <u><</u> 60 °C	Closed tubing systems with joints and vents	Shelter with open sides (open air)	Tubing joints, drains and vents	P&S	N/A	0.5 m radius from vent tips Inside sampler box	0.5 m radius around the system, 1.0 m radius around vent tips	IIA, T1	2.7.9

Part	II – Sheet 4 of 4						Revision:	0						
List	of sources of relea	se			the first the second se		Author:	ТСВ						
Ama	deus Basin to Darwi	n Pipeline					Checked:	RDK						
Surfa	ace facilities				Earth Partners ENVIRONMENT		QA:	EZG						
					ENVIRONMENT DEVELOPMENT RESOURCES		Date:	24/11/2011						
	Process Equipme	nt Item	Flammable	Operating Conditions	Description of Flammable			Of Release		Dista	nce From S	ource To	Equipment Group and	
No	Description	Location	Material	Pressure and Temperature	Material Containment	Ventilation	Description	Grade*	Boundar Zone (-	Boundary of Zone 1	Boundary of Zone 2	_	Section
1	2	3	4	5	6	7	8	9	10		11	12	13	14
19	Odorant injection system pipework		Vap. Cat "C"	<u>≤</u> 9,650 kPag <u>≤</u> 60 °C	Closed system with flanges, piping joints and valves	Natural (open air)	Flanges, joints, valve seals, drains and vents	S	N/A		N/A	1.5 m in all directions dow to ground leve		2.7.10.1
			Vap. Cat "C"	15 kPag <u>≺</u> 60 °C	Enclosed vessel	Shelter with open sides (open air)	s	S	N/A		N/A	1.5 m in all directions dow to ground leve	, -	2.7.10.2
20	Odorant injection system storage tanks	Tylers Pass odorant injection			Blanket gas vent		Pipe vent to atmosphere	Р			Radius of 1.5 m in all directions from vent tip	Within cylindric volume belov Zone 1		
		station			Pressure relief valve and piping discharging vertically upwards		Pipe vent to atmosphere	S			N/A	Radius of 1.5 in all direction from vent tip	s	
21	Odorant injection system pumps		Vap. Cat "G(i)"	<u><</u> 400 kPag <u><</u> 60 °C	Pneumatic pump instrument gas exhaust	Shelter with open sides (open air)	and vents	с	N/A		N/A	Radius of 0.5	m IIA, T1	2.7.10.3
22	Ground effect	Amadeus Basin to Darwin Pipeline surface facilities	Vap. Cat "G(i)"	<u>≤</u> 9,650 kPag <u>≤</u> 60 °C	Closed system with flanges, piping joints and valves	Natural (open air)	Flanges, joints, valve seals, drains and vents	S	N/A		N/A	2.5 m laterally and extending 1 m above grad for all process piping less that 2 m above grad	to de N/A s In	2.7.12



APPENDIX B HAZARDOUS AREA MAPPING DRAWINGS

For hazardous area mapping drawings, refer to Section 4 of the Hazardous Area Dossiers for each site.



3 Observation For Improvement (OFI)

OFI No.	Description	Proposed Remedy
KK0005-OFI-1	Blue sheath cable needs replacing with UV cable.	Replace cable sheath (blue) with UV damage cable
Pressure Transmitter KK0005-PT-9	Gas migration into cable conduit.	Seal cable conduit to prevent gas migration
	No earth on instrument stand	Provide earth to instrument stand
KK0005-OFI-2	Equipment and cable ID required	Provide ID for equipment and cable
Valve Limit Switch (Open) KK0005-ZSO-11	Nil equipment and associated conduit certification details available to Aus. Standards	Provide relevant certification to Australian Standards
	Equipment and circuit ID required	Provide ID to all equipment
	Equipment earth required	Earth all equipment
KK0005-OFI-3 Solenoid Valve (Open)	Equipment method of protection Ex s (special) however certification detail not available	Obtain certification for equipment protection method
KK0005-SVO-11	Cable gland certification unknown	Provide cable gland certification to relevant standards
	General condition of equipment is poor	Conduct maintenance on equipment
KK0005-OFI-4	Equipment and cable ID required	Provide equipment and cable ID
Valve Limit Switch (Close) KK0005-ZSC-11	Nil equipment and associated conduit certification details available to Aus. Standards	Provide relevant certification to Australian Standards



OFI No.	Description	Proposed Remedy
	Equipment and circuit ID required	Provide equipment and circuit ID
	Equipment earth required	Provide earthing equipment
KK0005-OFI-5 Solenoid Valve (Closed) KK0005-SVC-11	Equipment method if protection Ex s (special) however certification detail not available	Obtain certification for equipment protection method
	Cable gland certification unknown	Obtain certification for cable gland
	General condition of equipment is poor	Conduct maintenance on equipment
KK0005-OFI-6	Cable ID label required	Fit cable with ID label
KK0005-PY-17	Blue sheath to cabling	Fit the cable with a blue sheath
KK0005-OFI-7	Cable ID label required	Fit cable with ID label
Valve Limit Switch (Closed)	Blue sheath to cabling	Fit the cable with a blue sheath
KK0005-ZSC-17	Cable support required	Supply cable support
KK0005-OFI-8 Differential Pressure	No blue sheathing	Provide blue sheath to cabling
Transmitter KK0005-DPT-18	No cable support	Provide cable support
KK0005-OFI-9	Equipment and cable ID required	Provide equipment and label ID
High Level Switch (Left Side)	Replace cabling blue sheath	Fit cable with blue sheath
KK0005-LSH-18	Loose cable gland nut	Tighten
KK0005-OFI-10 High Level Switch (Right	Equipment and cable ID required	Provide equipment and label ID
Side) KK0005-LSH-18A	No blue sheath	Replace cabling blue sheath
	Damaged blue cable sheath	Replace blue cable sheath
KK0005-OFI-11 High-High Level	Loose gland - check cable termination	Check cable termination
Switch/Alarm	No cable support	Provide cable support
KK0005-LSHH/LAHH-18	Equipment ID required	Provide equipment and label ID



OFI No.	Description	Proposed Remedy
KK0005-OFI-12	Device ID required	Provide equipment and label ID
KK0005-PY-19	Damaged outer blue sheath of cabling	Replace blue sheathing
KK0005-OFI-13 Valve Limit Switch	Equipment ID required	Provide equipment and label ID
(Closed)	Outer sheath - UV damage	Replace blue cable sheath
KK0005-ZSC-19	Cable support required	Supply cable support
KK0005-OFI-14 Differential Pressure Transmitter	Plastic plug	Replace with suitably rated IP plug
	Replace cabling blue sheath	Replace cabling blue sheath
KK0005-DPT-20	Provide cable support	Review as per description
KK0005-OFI-15	Equipment label required	Fit cable with ID label
High-High Level Switch/Alarm	Loose cable gland nut	Tighten cable gland nut
KK0005-LSHH/LAHH-20	Exposed armour	Replace cable
KK0005-OFI-16 Temperature Transmitter/Element KK0005-TT/TE-22	No cable support	Provide cable support
	Damaged outer blue sheath of cabling	Replace blue sheathing
KK0005-OFI-17 Pressure Transmitter KK0005-PT-24	Replace blue cable sheath, verify exposed armour and rectify if required	Replace blue sheathing
	Provide cable support	Provide cable support
	Replace damaged black plug	Replace damaged plug
KK0005-OFI-18 Temperature Transmitter/Element KK0005-TT/TE-22A	Blue sheath and cabling support required	Fit the cable with a blue sheath and provide cable support
	TE22A housing is loose at thermowell stem	Tighten housing at thermowell stem
KK0005-OFI-19	Damaged blank plug	Replace blanking plug
Pressure Transmitter KK0005-PT-24A	Blue sheath and cabling support required	Fit the cable with a blue sheath and provide cable support



OFI No.	Description	Proposed Remedy
KK0005-OFI-20 Pressure Level Switch/Alarm KK0005-PSL/PAL-26	Blue sheath and cabling support required.	Replace blue sheath and provide cable support
	ID on device is incorrect	Replace device ID with 'PSL'-26
KK0005-OFI-21 Valve Limit Switch (Open) KK0005-ZSO-31	Blue sheath and cabling support required	Replace cable sheath and provide cable support
	Gas transmission cable around conduit needs replacing	Seal conduit surrounding cable to prevent gas transmission
	Labels needed on equipment	Provide equipment label
KK0005-OFI-22 Solenoid Valve (Open) KK0005-SVO-31	Equipment and cable ID required	Provide equipment and cable ID
	Nil equipment and associated conduit certification details available to Aus. Stand.	Obtain equipment and associated conduit certification details
	Corrosion exists on equipment and conduit	Mitigate corrosion on equipment and conduit
KK0005-OFI-23 Valve Limit Switch (Closed) KK0005-ZSC-31	Replace cable sheath and provide cable support	Replace cable sheath and provide cable support
	Seal conduit surrounding cable to prevent gas transmission	Seal conduit
	No equipment label	Provide equipment label
K0005-OFI-24 Solenoid Valve (Closed) KK0005-SVC-31	Equipment and cable ID required	Provide equipment and cable ID
	Nil equipment and associated conduit certification details available to Aus. Stand.	Obtain equipment and associated conduit certification details
	Corrosion exists on equipment and conduit	Mitigate corrosion on equipment and conduit
	Equipment label required	Provide equipment label
K0005-OFI-25 Valve Limit Switch (Open) KK0005-ZSO-33	Replace cable sheath (blue) and provide cable support	Replace cable sheath and provide cable support



OFI No.	Description	Proposed Remedy
	Equipment and cable ID required	Provide equipment and cable ID
KK0005-OFI-26 Solenoid Valve (Open) KK0005-SVO-33	Corrosion exists to equipment and conduit	Mitigate corrosion on equipment and conduit
	Nil equipment/conduit certification available	Obtain equipment and associated conduit certification details
KK0005-OFI-27	Equipment label required	Provide equipment labels
Valve Limit Switch (Closed)	Replace cable sheath (blue) and provide cable support	Replace cable sheath and provide cable support
KK0005-ZSC-33	Seal conduit around cable	Seal conduit
	Equipment and cable ID required	Provide equipment and cable ID
KK0005-OFI-28 Solenoid Valve (Closed) KK0005-SVC-33	Corrosion exists to equipment and conduit	Mitigate corrosion on equipment and conduit
	Nil equipment/conduit certification available	Obtain equipment and associated conduit certification details
KK0005-OFI-29 Temperature Indicator Transmitter KK0005-TIT-32	Equipment and cable label required	Provide equipment and cable label
	Blue sheath to cable required	Provide blue sheath to cable
KK0005-OFI-30 High Temperature Switch KK0005-TSH-32	Equipment and cable ID required	Provide equipment and cable ID
	Uncertified reducer requires replacement	Replace and find certification to reducer
	Remove "white" thread tape and ensure minimum thread engagement is provided	Review as per description
KK0005-OFI-31 Temperature Element KK0005-TE-32A	Replace cable from J/Box to main J/Box	Replace cable
	Ensure conduit/gland installation complies Ex d via certified adaptors, if within hazardous zone	Check gland
	Equipment and cable ID required	Provide equipment and cable ID



OFI No.	Description	Proposed Remedy
KK0005-OFI-32 Low Level Switch KK0005-LSL-32	Equipment and cable ID required	Provide equipment and cable ID
	Nil certification detail for adapter JB, suggest replacement	Replace JB
	UV damage to cable sheath, suggest re-sheath as minimum	Provide cable sheath
KK0005-OFI-33	Equipment and cable label required	Provide equipment and cable label
Temperature Indicator Transmitter	Provide blue sheath to cable	Review as per description
KK0005-TIT-34	Transmitter label illegible; replace instrument	Replace transmitter label and instrument
KK0005-OFI-34 High Temperature Switch	Equipment and cable ID required	Provide equipment and cable ID
KK0005-TSH-34	Uncertified adaptor	Replace adaptors
KK0005-OFI-35 Temperature Element KK0005-TE-34	Remediate cable between main JB	Replace cable
	Equipment and cable ID required	Provide equipment and cable ID
	Verify adapter ratings to suit hazardous installation (if any)	Review as per description
KK0005-OFI-36	Equipment and cable ID required	Provide equipment and cable ID
Low Level Switch KK0005-LSL-34	No Australian certifications for adapter Junction Box	Provide Australian Certification for adapter JB
	Remediate cable sheath	Install cable sheath
KK0005-OFI-37		
High Temperature Switch/Alarm	Cable sheath (blue) required	Provide blue cable sheath
KK0005-TSH/TAH-38		
KK0005-OFI-38 Valve Limit Switch (Closed/Open) KK0005-ZSC/ZSO-39A	Cable and equipment label required	Provide equipment and cable label
	Blue sheath to cable required	Provide blue sheath to cable



OFI No.	Description	Proposed Remedy
KK0005-OFI-39 Valve Limit Switch (Closed/Open) KK0005-ZSC/ZSO-39B	IS install	Review as per description
	Equipment and cable label required	Provide equipment and cable label
	Incorrect installation	Blue sheath to cable and re-terminate exposed armour
KK0005-OFI-40 Solenoid Vale (Open) KK0005-SVO39	Replace cable sheath	Replace cable sheath
	Illegible solenoid certification, suggest replacement due to age	Replace equipment
	Provide equipment and cable ID	Provide IDs
	Remove JB and terminate directly at new solenoid	Reconfigure installation
	Replace/remove JB gasket	Replace gasket
	Replace cable outer sheath	Replace sheath
	Provide equipment ID	Provide equipment ID
KK0005-OFI-41 Solenoid Valve (Closed) KK0005-SVC-41	Replace solenoid valve due to insufficient Ex information	Replace solenoid
	Remove JB and terminate directly at solenoid	Reconfigure installation
	Provide new cable support and UV protection	Provide cable support
KK0005-OFI-42 Valve Limit Switch	Cable and equipment ID required	Provide equipment and cable ID
(Closed) KK0005-ZSC-41	Cable support and blue sheath required	Provide blue cable sheath and cable support
KK0005-OFI-43 Valve Limit Switch (Open) KK0005-ZSO-41	Cable and equipment ID required	Provide equipment and cable ID
	Cable support and blue sheath required	Provide blue cable sheath and cable support
KK0005-OFI-44 Low Pressure Switch/Alarm KK0005-PSL/PAL-44	Swap label with adjacent indicator (PI-45)	Correct labelling
	Provide blue sheath and support to cable	Provide blue cable sheath and cable support



OFI No.	Description	Proposed Remedy
KK0005-OFI-45 Solenoid Valve (Closed) KK0005-SVC-51	Equipment ID required	Provide equipment ID
	Replace cable outer sheath and support cable	Provide cable sheath and cable support
	Replace solenoid valve due to insufficient Ex information	Replace solenoid with certified solenoid
	Inspect JB gasket, however suggest removal and direct termination at new solenoid	Review as per description
KK0005-OFI-46 Valve Limit Switch (Closed) KK0005-ZSC-51	Equipment ID required	Provide equipment ID
	Cable support and blue sheath required	Provide blue cable sheath and cable support
KK0005-OFI-47 Valve Limit Switch (Open) KK0005-ZSO-51	Equipment ID required	Provide equipment ID
	Cable support and blue sheath required	Provide blue cable sheath and cable support
KK0005-OFI-48 Low Pressure Switch/Alarm KK0005-PSL/PAL-54	Provide blue sheath and support to cabling	Provide blue cable sheath and cable support
	Recommend replacement of device due to illegible label	Replace solenoid with certified solenoid
KK0005-OFI-49 Pressure Transmitter KK0005-PT-48	Replace blue cable sheath and provide cable support	Provide blue cable sheath and cable support
	Instrument does not legibly appear to have Australian certification is FM approved only. Suggest replacement with certified instrument	Review as per description
KK0005-OFI-50	Replace blue cable sheath	Provide blue cable sheath
	Provide cable support	Provide cable support
Flow Transmitter	Provide cable ID	Provide cable ID
KK0005-FT-48A	Re-terminate due to exposed armour at gland	Reterminate



OFI No.	Description	Proposed Remedy
	Replace blue sheath and provide cable support	Provide blue cable sheath and cable support
KK0005-OFI-51 Flow Transmitter KK0005-FT-48	Re-terminate cable due to exposed armour	Review as per description
	Visible evidence of corrosion at instrument, internal inspection recommended asap	Review as per description
KK0005-OFI-52 Temperature Indicator Transmitter KK0005-TIT-48	Replace blue cable sheath and provide support to cable	Review as per description
	Equipment and cable ID required	Provide equipment and cable ID
KK0005-OFI-53 Pressure Transmitter KK0005-PT-58	Provide cable label and replace blue sheath	Provide blue cable sheath and cable ID
	Provide cable support and reterminate due to exposed armour	Provide cable support and reterminate
KK0005-OFI-54	Replace blue sheath and provide cable support	Provide blue cable sheath and cable support
Flow Transmitter	Provide cable label	Review as per description
KK0005-FT-58A	Corrosion evident, internal inspection required	Review as per description
KK0005-OFI-55 Flow Transmitter KK0005-FT-58	Equipment and cable label required	Provide equipment and cable ID
	Replace blue sheath and provide cable support	Provide blue cable sheath and cable support
	Corrosion evident; internal inspection required	Review as per description
KK0005-OFI-56 Temperature Indicator Transmitter KK0005-TIT-58	Replace blue sheath and provide support to cable	Provide blue cable sheath and cable support
	Equipment and cable I.D required	Provide equipment and cable ID
KK0005-OFI-57 Low Pressure Switch KK0005-PSL-72	Equipment and cable ID required	Provide equipment and cable ID
	Provide blue sheath and cable support	Provide blue cable sheath and cable support
	Recommend replacement of device due to illegible label	Review as per description



OFI No.	Description	Proposed Remedy Provide blue cable sheath and cable support				
KK0005-OFI-58 High Pressure Switch KK0005-PSH-69A	Provide blue sheath and cable support					
KK0005-OFI-59 High Pressure Switch	Provide blue sheath and cable support	Provide blue cable sheath and cable support				
KK0005-PSH-69B	Cable ID required	Provide cable ID				
KK0005-OFI-60 Temperature	Element ID required	Provide element ID				
Element/Transmitter KK0005-TT/TE-66	Replace blue sheath and provide cable support	Provide blue cable sheath and cable support				
	Equipment ID required	Provide element ID				
KK0005-OFI-61 Low Temperature Switch/Alarm	Replace blue sheath and provide support to cable	Provide blue cable sheath and cable support				
KK0005-TSL/TAL-67	Suggest support be provided to capillary	Review as per description				
KK0005-OFI-62	Replace blue sheath and provide cable support	Provide blue cable sheath and cable support				
Pressure Transmitter KK0005-PT-71	Corrosion evident, internal inspection required	Review as per description				
	Equipment ID required	Provide equipment ID				
KK0005-OFI-63 Low Pressure Switch	Replace blue sheath and provide support to cable	Provide blue cable sheath and cable support				
KK0005-PSL-68	Recommend replacement of device due to illegible label	Review as per description				
	Equipment and cable ID required	Provide equipment and cable ID				
	Illegible labels to solenoids, unable to verify certification	Verify certification and labels				
KK0005-OFI-64 Solenoid Valve	Uncertified adaptors and JB nameplate details covered	Provide certification on adaptors and uncover /replace nameplate on JB				
KK0005-SV-1	Cables installed through structural member without bushing	Review as per description remedy according to current standards				
	Remediate UV damaged cable	Repair as per description				



OFI No.	Description	Proposed Remedy				
	JB label required	Review as per description				
	Replace uncertified plugs x 2	Review as per description				
KK0005-OFI-65	Replace cable sheath with UV damage	Review as per description				
Station Inlet Valve J/Box KK0005-JB-	Provide equi-potential band to instrument stand	Review as per description				
	Verify flame path obstruction adjacent flanged joint	Review as per description				
	Evidence of insect/vermin infestation, provide I.P. To MLV JB	Review as per description				
KK0005-OFI-66	Equipment ID and cable ID required	Provide equipment and cable ID				
Pressure Switch KK0005-MLV	Equipment earth required	Provide equipment earth apparatus				
	Verify flameproof gland certification	Review as per description				
KK0005-OFI-67	Replace cable sheath and provide cable support	Provide cable sheath and cable support				
J/Box KK0005-JB	Seal conduit surrounding cable to prevent gas transmission	Review as per description				
	Replace cable sheath and support cable	Provide cable sheath and cable support				
KK0005-OFI-68 N/A	Equipment ID required	Provide equipment ID				
	Seal conduit surrounding cable	Review as per description				



OFI No.	Description	Proposed Remedy				
	Tighten loose cable glands	Review as per description				
	Equipment label required	Provide equipment label				
	Replace uncertified plugs	Review as per description				
	Provide bolt missing x 1	Review as per description				
	Identify and label all cables (in/out)	Review as per description				
KK0005-OFI-69 JBox	JB certified with 24V D/C marking, however 110V A/C label applied. Further investigation required	Review as per description				
	Confirm TIT-32 is connected to JB. If so, further I.S. labelling conditions/inspections apply	Review as per description				
	Provide conduit seal below JB	Review as per description				
	Repair/replace UV damaged cabling	Review as per description				
	Remove JB and connect cable directly to new solenoid valve	Reconfigure installation				
KK0005-OFI-70 JB for Solenoid, SV1+?	Equipment and cable ID required	Provide equipment and cable ID				
	Nil evidence of Ex rating/certs to flammable gas environments	Find Ex rating/certification for flammable gas environments				
	Equipment and cable ID required	Review as per description				
	Certification detail to solenoids unavailable	Obtain certification detail to solenoids if available				
KK0005-OFI-71 Solenoid Valves	Adaptors/JB not certified	Certify adaptors/JB to standards				
KK0005-PILOT GAS VALVES	Cabling has UV damage	Replace cabling with UV resistant cabling				
	Suggest to replace cable and install new solenoids only	Review as per description				



OFI No.	Description	Proposed Remedy				
	Equipment and cable ID required	Provide equipment and cable ID				
KK0005-OFI-72	Nil hazardous area certification legible for I/P, IB and associated adaptors, to Aus. Stand	Replace hazardous area certification to Australian Standards				
I/P Inverter/J Box KK0005-(I/P 1)	Web detail - FM approved explosion proof CL GR C,D DIV3 T6 refer to cert red C5- E/FD-A	Review as per description				
	Recommend replacement with Aus certified equipment	Review as per description				
	Equipment and cable labels required	Provide equipment and cable labels				
	Loose cable glands	Check glands and tighten as required				
	Verify blanking plugs and replace with certified as required	Review as per description				
KK0005-OFI-73 JB KK0005-(JB Main)	JB certified with 24V D/C however 110V A/C label applied (further investigation required)	Replace solenoid				
	Repair/replace damaged (U.V.) cabling	Replace cable				
	Provide conduit seal below JB	Seal conduit				
	Confirm TIT-34 is connected to JB. If so, further I.S labelling and conditions/inspections apply	Review as per description				



OFI No.	Description	Proposed Remedy				
	Equipment and cable ID required	Provide equipment and cable ID				
	1 x solenoid illegible (however is ASCO), suggest replacement	Replace solenoid				
	Ex 'd' conduit system is severely perished and requires replacing	Replace Ex 'd' conduit system				
KK0005-OFI-74 Solenoid Valve	Provide mechanical support to solenoid valves and remove cable tie and packer	Provide mechanical support				
	Suggest new cabling from JB and new solenoids	Review as per description				
	JB detail not available, label requires removal to verify rating and further assessment required	Review as per description				
	Cable label to JB required	Review as per description				
	Equipment and cable ID required	Provide equipment and cable ID				
	Both solenoids illegible, suggest replacement	Review as per description				
KK0005-OFI-75 Solenoid Valves KK0005-PILOT GAS VALVES	Conduit system is severely perished requiring replacement (suggest new cable to new solenoids from JB)	Review as per description				
	JB detail illegible (due to 110V AC label) hence further assessments required	Review as per description				
	Cable to JB required	Review as per description				



OFI No.	Description	Proposed Remedy				
	Equipment and cable ID required	Provide equipment and cable ID				
	Remediate cable sheath	Provide new cable sheath				
KK0005-OFI-76 I/P Converter	Nil hazardous area certification to Aus. Stand available	Provide certification (where possible) to Australian Standards				
	Suggest to replace I/P, JB and adaptors with new I/P certified Aus Ex	Replace equipment				
	Identify cables to ensure 'all' I.S circuits	Review as per description				
KK0005-OFI-77 JB	Provide I.S label to front door	Attach label				
KK0005-15B JB3	Replace JB door seal	Replace seal				
	Support cables via covered cable tray below JB	Review as per description				
	Provide I.S label to front door	Review as per description				
KK0005-OFI-78	Replace JB door seal	Review as per description				
Junction Box KK0005-IS JB4	Re-sheath cables and provide 'tray' type covered support below JB	Review as per description				
	Corrosion exists at gland/plate	Mitigate corrosion at gland/plate				
KK0005-OFI-79	Various non compliance issues in accordance with	Replace slop tank with double skinned tank (self bunded tank)				
Slops Tank	AS 1692, AS 1940 and AS 1597. Refer additional details below	Add restriction orifice to liquid drain line from filter vessels				
KK0005-OFI-80	Fuel gas PSV	Replace with carbon steel				
Fuel gas PSV	Refer additional information	PSV with discharge point in safe location				
		Provide lock on PSV and lock in open position.				
KK0005-OFI-81	Pig launcher PSV isolation	Or,				
Pig Launcher	valve not locked open	Remove PSV as per other stations				



OFI No.	Description	Proposed Remedy				
KK0005-OFI-82 Vent Height	Local vent discharge height Refer additional information	Modify vent discharge piping to terminate 2.4 m above grade or access platforms				
KK0005-OFI-83	Pressure gauge support	Provide support for				
Vent holes	Refer additional information	pressure gauge				
KK0005-OFI-84 Temperature element cable	Refer additional information	Provide cable support				
KK0005-OFI-85 Vent holes	Refer additional information	Remove caps on local vents and add canvas caps to avoid rain ingress				
		Confirm installation in power generation plant.				
KK0005-OFI-86 Outlet flange	The outlet flange is not fitted with an insulation gasket or a surge diverter. Refer additional information.	APA to investigate requirements for insulation gasket and surge protection as appropriate at a power generation site. Findings should be repeated at Pine Creek meter station				
KK0005-OFI-87 Water bath heater stack	The stack on the water bath heater does not have personnel protection insulation or guarding	Install protective guarding				
KK0005-OFI-88	P&IDs are not up to date	As build drawings and revise P&IDs				
KK0005-OFI-89 Data manuals	Data manuals are not current with the equipment installed at site. The manuals appear to be generic and include information for all sites.	Review manuals and update to reflect current equipment at that site.				



OFI No.	Description	Proposed Remedy				
KK0005-OFI-90 Pyrophoric iron	Pipeline corrosion products collected in the filter elements can spontaneously combust on exposure to the atmosphere. This can be rectified by immersing the elements in water as they are removed from the filter vessel	Install a water trough close to the filter vessels with drain point and update filter change out procedures				
KK0005-OFI-91 Scraper PSV	The scraper PSV is manufactured from tubing and is directed to discharge vertically downwards.	Modify the discharge piping to discharge vertically upwards. Install a canvas cap to provide weather protection				

Additional Information

KK0005-OFI-77 Slops tank



The slops tank receives liquids collected from the filter separators the tank is elevated to allow emptying under gravity for disposal. At the time of the site visit the tank was approximately 20% full. The liquids could be condensate, compressor oil or water and therefore the tank should be designed as a storage tank for flammable liquids which is covered by Australian standards AS 1940 "The storage and handling of flammable and combustible liquids" and AS 1692 "Steel tanks for flammable and combustible liquids" and AS 1692 "Steel tanks for flammable and combustible liquids". Additionally there is an access ladder to the top of the tank that should comply with AS 1657 "Fixed platforms, walkways, stairways and ladders - Design, construction and installation". Some deficiencies identified in the tank arrangement include:



- Slops tank not included on PandIDs
- No spill containment bund.
- No flame arrestor on the tank.
- Evidence that the tank had been over pressured by bulging of the lid, suggesting that the currently installed vent is not adequately sized.
- No evidence that the liquid inlet to the tank included a drop pipe and a liquid seal
- No obvious earthing of tank.
- No obvious earth connection point for vehicle / container during draining of the tank.
- The tank was fitted with a plastic hose and a "petrol pump" nozzle for emptying the tank. There is a potential for static generation in the hose.
- No restriction orifices in the drain lines from the filter separators to minimise gas break through.
- The tank vent is pointing vertically downwards that increases the size of the hazardous area.
- No explosion / fire over pressure protection (explosion hatch).
- Any liquid leakage from the tank could be projected outside of the compound.
- Access ladder at incorrect angle, first step too high, rung spacing too great, base of ladder obstructed by tank support leg, insufficient strength in the materials of construction, rungs round steel that present a fall / slip potential, requirement for a cage on the ladder, inadequate hand grips and no platform for operators to work from.

The tank should be replaced with a properly designed tank that meets the requirements of the Australian standard and environmental (EPA) requirements.

The requirement for an elevated tank should be evaluated. Fyfe's recommendation would be to install a double skinned fibreglass tank at grade. The tank should include an orifice on the inlet line from the filter vessels (the location would be dependent on the pressure rating of the line), flame arrestor and explosion hatch. The vents should be sized in accordance with AS 1940 and API 2000 "Venting atmospheric and low-pressure storage tanks: non-refrigerated and refrigerated".

APA should consider the addition of an orifice in the liquid drain line to minimise the gas flow rate if the control valve fails open. Calculations should be performed on the maximum gas rate through the level control valves and the associated capacity of the vent points. It is recommended that plume dispersion is performed on the vent point of the tank to determine the extent of the hazardous area.

The integrity of the underground drain pipe work between the filter vessels and the slops tank should be investigated.

The generation of static in the emptying connection should conform to velocity requirements in AS/NZS 1020 "The control of undesirable static electricity". It is recommended that the hose is replaced with one with an integral earth.

KK0005-OFI-78 Heater fuel gas PSV



PSVs are provided on the fuel gas conditioning lines for the indirect fired heaters. The PSVs are Fisher / Farris PSVs that are constructed from brass and the discharge point is approximately 500 mm from grade. The integrity of brass in a fire is questionable and carbon steel is preferable. Any personnel working on the platform above the discharge point would be exposed to the gas. It is recommended that a carbon steel PSV steel is installed with a discharge point 2,400 mm above the platform, above head height. The new PSV should comply with AS 1271 "Safety valves, other valves, liquid level gauges, and other fittings for boilers and unfired pressure vessels".



KK0005-OFI-80 Vent height

The vent at the station outlet is approximately 1,500 mm above grade. The vent pipe should be extended to above head height (2,400 mm). In general a majority of the vent pipes were between 1,900 and 2,000 mm above grade and should be extended to above head height.



KK0005-OFI-81 Pressure indicator support

PI-055 is not fitted with any support, support is provided by the tubing connection and a pressure switch also connected to the same pipe off take. It appears that the indicator is a replacement instrument and the previous instrument was bolted to the instrument stand and sun shade.

It is recommended that suitable support is provided for the pressure gauge.



KK0005-OFI-82 Temperature element cable support

The temperature element is not adequately supported. It is recommended that suitable support is provided.





KK0005-OFI-83 Vent Holes

A majority of the vents are installed with a threaded cap and a 6 mm holes drilled in the vent pipe, refer photograph below. The hole provides a potential weep point.



KK0005-OFI-84 Insulation gasket at station outlet

The last flange on the Katherine meter station contains a flange with a cable installed across the flange to ensure electrical continuity. An insulation gasket and surge arrestor may have been installed at the flange previously, but have been removed. Outside of the APA compound in the power generation site, the pipe work passes underground and there appears to be an insulation gasket and surge arrestor installed. This should be confirmed with Power and Water operators at the power generation site. Similarly the last flange at the Pine Creek meter station before the pipe work passes underground is fitted with an insulation gasket but no surge arrestor.

APA should undertake an engineering assessment on the requirement of insulation gasket at the flange. In addition the assessment should consider the installation of a surge arrestor and/or a polarisation cell across the insulation gasket. The assessment should consider the dissipation of current caused by a lightning strike on the station or power station pipe work as well as high voltage currents caused by a fault in the power generation site. High voltages caused by a fault at the power station may pass to the station pipe work or through to the pipeline if surge arrestors are installed.





Fyfe has utilised the services of Daryl McCormick and Gail Courtney of Corrosion Control Engineering in the past to provide solutions for insulation gaskets and surge arrestors. The contact details are as below:

for the NTCorrosion Control EngineeringCorrosion Control Engineering9j International Square, TullamarineUnit 2 / 7 Luke StTullamarineLyttonVIC 3042QLD 4178Phone: +61 3 9338 4900Phone: + 61 7 3393 3200Fax: +61 3 9310 3344Fax: + 61 7 3393 3199E-Mail: contactvic@cceng.com.au	Regional Office responsible	Head Office
Unit 2 / 7 Luke St Tullamarine Lytton VIC 3042 QLD 4178 Phone: +61 7 3393 3200 Fax: + 61 7 3393 3199 Fax: +61 3 9310 3344	for the NT	Corrosion Control Engineering
Unit 2 / 7 Luke St Tullamarine Lytton VIC 3042 QLD 4178 Phone: +61 3 9338 4900 Phone: + 61 7 3393 3200 Fax: +61 3 9310 3344 Fax: + 61 7 3393 3199 E-Mail: contactvic@cceng.com.au	Corrosion Control Engineering	9i International Square.
QLD 4178Phone: +61 3 9338 4900Phone: + 61 7 3393 3200Fax: +61 3 9310 3344Fax: + 61 7 3393 3199E-Mail: contactvic@cceng.com.au		Tullamarine
Fax: + 61 7 3393 3199 E-Mail: contactvic@cceng.com.au		
	Phone: + 61 7 3393 3200	Fax: +61 3 9310 3344
E-Mail: contactqld@cceng.com.au	E-Mail:	E-Mail: contactvic@cceng.com.au

KK0005-OFI-85 Water Bath Heater Stack

The stacks on the water bath heaters are not provided with any personnel protection or insulation.

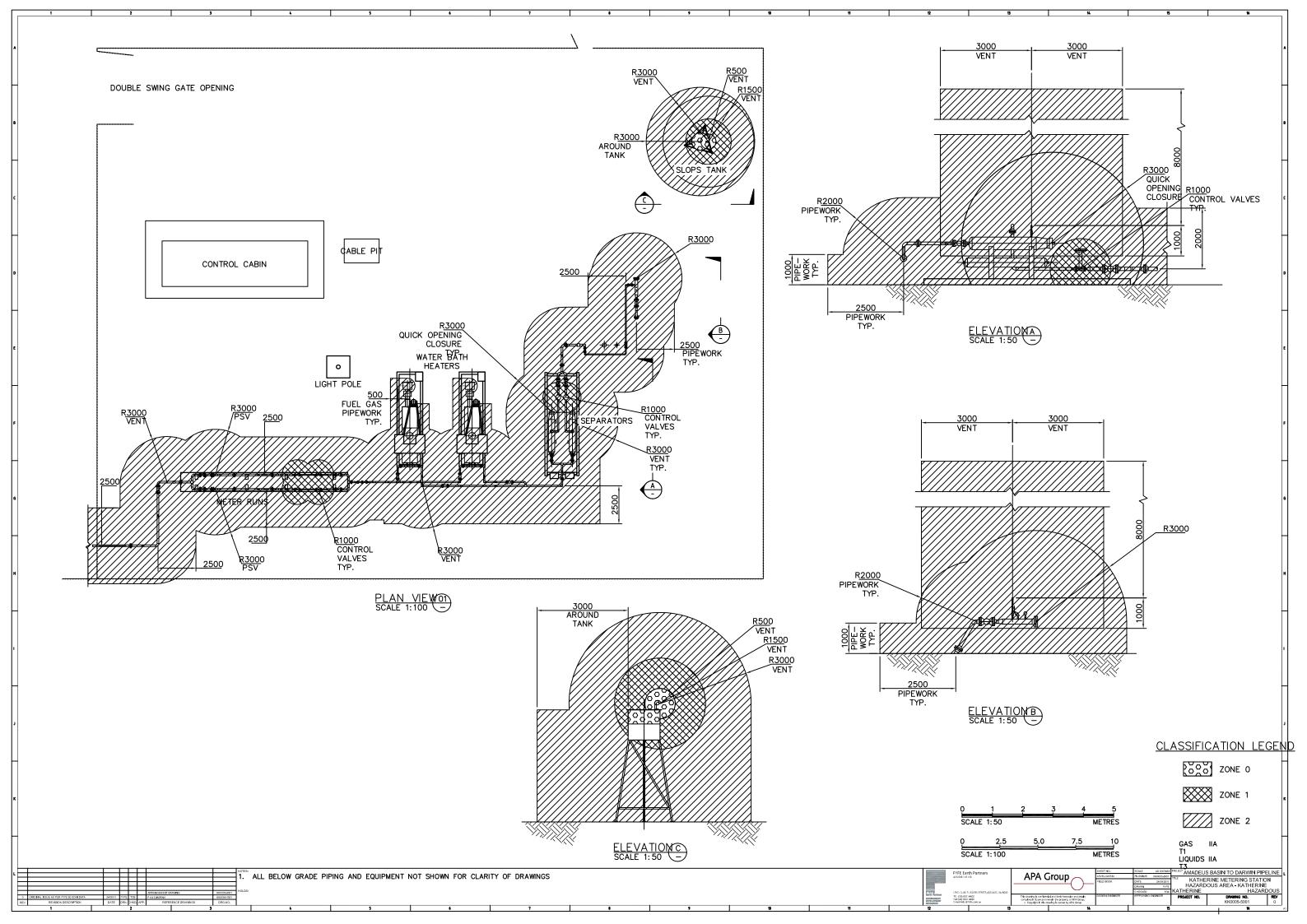




4 Hazardous Area Mapping Drawings

This section contains the hazardous area mapping drawings.

Drawing Number	Description	Revision
KK 0005-5001	Katherine Meter Station Hazardous Area	0





5 Hazardous Area Equipment Register and Certificates of Conformity

This section contains the hazardous area equipment register and associated certificates of conformity.

		Color Code Notes:	
		The equipment label was illegible at site and information is based on similar equipment.	
		The equipment label was illegible at site.	
	Katherine Meter Station	The equipment certification is not Australian and not available	APA Group
FYFE	Hazardous Area Equipment Register		
Earth Partners		Doc No.: 18756-5-70-002	
ENVIRONMENT DEVELOPMENT		Rev: 0	
RESOURCES		Date: 01-Nov-2011	

							Hazard Area	Haz A	Area Classific	ation		
Tag	P&ID No.	Location	Instrument Type	Manufacturer	Model	Serial No.	Drawing No.		Gas Group		Ex Protection	Certification
KATHERINE METER STATION		1 102-0)					1 ° 1	20110	Ous Oroup	Temp.		
KK0005-PT-9		Upstream of Main Line Valve KK0005-MLV-11	Pressure Transmitter	Rosemount	3051T94A2B21B4K7M5T1	01472746	KK 0005-5001	2	IIA	T1	Ex ia IIC T5 (40 deg C)	Aus Ex 1249X
KK0005-JB	KK0005-7002-0	MLV within cabinet - station inlet valve	Junction Box	Govan	F7	0	KK 0005-5001	2	IIA	T1	Ex d IIA, IIB T6	AUS Ex 401
KK0005-PS	KK0005-7002-0	Upstream of Main Line Valve KK0005-MLV-11	Pressure switch	Ascomation	SC12872	M0030	KK 0005-5001	2	IIA	T1	Ex d IIB T6	AUS Ex 267(1981)
KK0005-SVC-11	KK0005-7002-0	Main Line Valve KK0005-MLV-11	Solenoid Valve (Closed)	Herion	SG4 0270 9311800	657307	KK 0005-5001	2	IIA	T1	Ex d lib ro	AUS Ex 198-DID (unavailable)
KK0005-SVO-11	KK0005-7002-0	Main Line Valve KK0005-MLV-11	Solenoid Valve (Open)	Herion	SG4 0270 9311800	657306	KK 0005-5001	2	IIA	T1	Ex s G (special protection)	AUS Ex 198-DID (unavailable)
KK0005-ZSC-11	KK0005-7002-0	Main Line Valve KK0005-MLV-11	Valve Limit Switch (Closed)	Bettis	4R 041 AFC		KK 0005-5001	2	IIA	T1	Ex d IIB T6	BAS Ex 77241
KK0005-ZSO-11	KK0005-7002-0	Main Line Valve KK0005-MLV-11	Valve Limit Switch (Open)	Bettis	4R 041 AFC		KK 0005-5001	2	IIA	T1	Ex d IIB T6	Ex 95 AS C98 (?)
KATHERINE METER STATION				Bottio			KK 0003-3001	2	IIA		Exterior To	EX 93 A3 C98 (?)
KK0005-ZSC-19	KK0005-7003-1	Upstream of Filter Separator KK0005-FS-2	Valve Limit Switch (Closed)	Fisher	304	9644626	KK 0005-5001	2	IIA	T1	ls class I GR C, D	
KK0005-PY-19	KK0005-7003-1	Upstream of Filter Separator KK0005-FS-2	I/P Tranducer	Fisher	3590 S	9880155		2	IIA	T3	Ex ia IIC T4 'X'	AUS Ex 64-1
KK0005-ZSC-17	KK0005-7003-1	Upstream of Filter Separator KK0005-FS-1	Valve Limit Switch (Closed)	Fisher	304	9644632	KK 0005-5001	2			CLICRC,D	AUS EX 64-1
KK0005-PY-17	KK0005-7003-1	Upstream of Filter Separator KK0005-FS-1	I/P Tranducer	Fisher	3590 S	9880 156	KK 0005-5001	1	IIA	T3 T0	Ex ia IIC T4	
KK0005-DPT-20	KK0005-7003-1	Filter Separator KK0005-FS-2	Differential Pressure Transmitter	Yokogawa	EJX110A-EM54G-914EB/S02/X2	91GB49586748	KK 0005-5001	1	IIA	T3 T1		AUS Ex 64-1
KK0005-LSH-18	KK0005-7003-1	Filter Separator KK0005-FS-1	High Level Switch (Left side)	Frank W. Murphy	L1200 DPPT	3100433000140	KK 0005-5001	2	IIA		Ex ia, n IIC T4	IECEx CSA05.0005
KK0005-LSH-18A	KK0005-7003-1	Filter Separator KK0005-FS-1		Frank W. Murphy	L1200		KK 0005-5001	2	IIA	T3 T0	Ex d CL1 Zone 1 IIB T6	AUS Ex 609
KK0005-LSHH-20	KK0005-7003-1	Filter Separator KK0005-FS-2	High Level Switch (Right side)		L1200 DPDT		KK 0005-5001	2	IIA	T3	CL1 GR C,D	AUS Ex 609 ?
			High High Level Switch	Frank W. Murphy		010040571748	KK 0005-5001	2	IIA	T3	Ex d CL1 Zone 1 IIB T6	AUS Ex 609
KK0005-DPT-18	KK0005-7003-1	Filter Separator KK0005-FS-1	Differential Pressure Transmitter	Yokogawa	EXT11DAEMS4G 914 E8/S02/X2	919B49571748	KK 0005-5001	1	IIA	T3	Ex ia n I/d IIC T4	IECEx CSA05.0005
KK0005-LSH-18A?	KK0005-7003-1	Filter Separator KK0005-FS-2	High Level Switch (Right side?)	Frank W. Murphy	L1200 DPDT		KK 0005-5001	2	IIA	T3		AUS Ex 609 ?
KK0005-LSH-18	KK0005-7003-1	Filter Separator KK0005-FS-1	High Level Switch (Left side)	Frank W. Murphy	L1200 DPPT		KK 0005-5001	2	IIA	Т3	Ex d IIB T6	AUS Ex 609
KK0005-LSHH-18	KK0005-7003-1	Filter Separator KK0005-FS-1	High High Level Switch	Frank W. Murphy		4500050	KK 0005-5001	2	IIA	Т3	Ex d IIB T6	AUS Ex 609
KK0005-PT-24	KK0005-7003-1	Upstream of Waterbath Heaters	Pressure Transmitter	Rosemount	3051TG4A2B21BB4K7M5T1	1509653	KK 0005-5001	2	IIA	T1	Ex ia IIC T5 (40 deg C)	AUS Ex 1249x
KK0005-PT-24A	KK0005-7003-1	Upstream of Waterbath Heaters	Pressure Transmitter	Rosemount	3051TG4A2B21BB4K7M5T1	01509654	KK 0005-5001	2	IIA	T1	Ex ia IIC T5 (40 deg C)	AUS Ex 1249x
KK0005-PSL-26	KK0005-7003-1	Upstream of Waterbath Heaters	Pressure Level Switch	Ashcroft	B4(?) [ILLEGIBLE]	33392	KK 0005-5001	2	IIA	T1		NIL
KK0005-TE-22	KK0005-7003-1	Upstream of Waterbath Heaters	Temperature Transmitter/Element				KK 0005-5001	2	IIA	T1		
KK0005-TE-22A	KK0005-7003-1	Upstream of Waterbath Heaters	Temperature Transmitter/Element				KK 0005-5001	2	IIA	T1		
KK0005-SVC-31	KK0005-7003-1	Upstream of Waterbath Heater KK0005-H-1	Solenoid Valve (Closed)		FA80163	FA832064M0	KK 0005-5001	2	IIA	T1		
KK0005-SVO-31	KK0005-7003-1	Upstream of Waterbath Heater KK0005-H-1	Solenoid Valve (Open)		A133A	FA832064M0	KK 0005-5001	2	IIA	T1		
KK0005-JB	KK0005-7003-1	AOV 31 Solenoid J/Box -WB Heater #1	Junction Box	SAE (Crouse Hinds)	FNJ1/FNJ2		KK 0005-5001				CL1,2 DIV 1,2 IIB T6	FLP 693 (?) (AUS EX242)
KK0005-JB	KK0005-7003-1	AOV 33 Solenoid J/Box Water Bath Heater #2	Junction Box	SAE	FNJ1/FNJ2		KK 0005-5001				CL1,2 DIV 1,2 IIB T6	FLP 693 (?) (AUS EX242)
KK0005-SVC-33	KK0005-7003-1	Upstream of Waterbath Heater KK0005-H-2	Solenoid Valve (Closed)		FAS0163	FA832064M0	KK 0005-5001	2	IIA	T1		
KK0005-SVO-33	KK0005-7003-1	Upstream of Waterbath Heater KK0005-H-2	Solenoid Valve (Open)		A133A	FA832064M0	KK 0005-5001	2	IIA	T1		
KK0005-ZSO-31	KK0005-7003-1	Upstream of Waterbath Heater KK0005-H-1	Valve Limit Switch (Open)	Bettis	IR 022 AFC		KK 0005-5001	2	IIA	T1		BAS EX 77241
KK0005-ZSC-31	KK0005-7003-1	Upstream of Waterbath Heater KK0005-H-1	Valve Limit Switch (Closed)	Bettis	IR 022 AFC		KK 0005-5001	2	IIA	T1		BAS EX 77241
KK0005-ZSO-33	KK0005-7003-1	Upstream of Waterbath Heater KK0005-H-2	Valve Limit Switch (Open)	Bettis	IR 022 AFC		KK 0005-5001	2	IIA	T1		BAS EX 77241
KK0005-ZSC-33	KK0005-7003-1	Upstream of Waterbath Heater KK0005-H-2	Valve Limit Switch (Closed)	Bettis	IR 022 AFC		KK 0005-5001	2	IIA	T1		BAS EX 77241
KK0005-JB	KK0005-7003-1	WB Heater #1 Skid	Junction Box	Crouse Hinds	EJBA161608 N4 S598		KK 0005-5001				Ex d	
KK0005-JB	KK0005-7003-1	WB Heater #1 Fuel Gas	Junction Box	Crouse Hinds			KK 0005-5001	2	IIA	T1		
KK0005-TIT-32	KK0005-7003-1	Waterbath Heater KK0005-H-1	Temperature Indicator Transmitter	Rosemount	3144PD2A1I7M5F5	1145708	KK 0005-5001	2	IIA	T1	Ex ia IIC T6 (60 deg C)	AUS Ex 02.3794X
KK0005-LSL-32	KK0005-7003-1	Waterbath Heater KK0005-H-1	Low Level Switch	Frank W. Murphy	L1200A		KK 0005-5001	2	IIA	T1	Ex d CL1 GR C,D IIB T6	AUS Ex 609
KK0005-TSH-32	KK0005-7003-1	Waterbath Heater KK0005-H-1	High Temperature Switch	United Electric	C120 1886		KK 0005-5001	2	IIA	T1	Ex d IIB T6	AUS Ex 542X
KK0005-SV 1 + ?	KK0005-7003-1	WB Heater #1 Rear RHS Shell	Solenoid valves x 2	Ascomation	İ	EA801692	KK 0005-5001	2	IIA	T1	Ex m, T3	
KK0005-JB (for SV 1 + ?)	KK0005-7003-1	WB Heater #1 Fuel Gas	Junction Box	Crouse Hinds	İ	1	KK 0005-5001	2	IIA	T1	,	
KK0005-PILOT GAS VALVES	KK0005-7003-1	WB Heater #1 rear RHS	Solenoid Valves x 2	Ascomation	K302-022	EA801691 / EA801690	KK 0005-5001	2	IIA	T1	Ex m	
KK0005-(I/P 1)	KK0005-7003-1	WB Heater Fuel Gas I/P RHS Shell HE	I/P Inverter/Jbox	Foxboro	(M40 G) E69F-TI2	N/A	KK 0005-5001	2	IIA	T1		
KK0005 (JB Main)	KK0005-7003-1	WB Heater #2 Skid	Junction Box	Crouse Hinds	EJBA161608 N4 S598	N/A	KK 0005-5001	-			Ex d	
KK0005-JB	KK0005-7003-1	Waterbath Heater KK0005-H-2 HE LHS Shell	Junction Box	Govan	FN4W		KK 0005-5001	2	IIA	T1	Ex d IIB T6	AUS Ex 157
KK0005-TIT-34	KK0005-7003-1	Waterbath Heater KK0005-H-2	Temperature Indicator Transmitter	Rosemount	(3144)?? "DITIM5F5"	0185485 (?)	KK 0005-5001	2	IIA	T1		02. 3794X ?
KK0005-LSL-34	KK0005-7003-1	Waterbath Heater KK0005-H-2	Low Level Switch	Frank W. Murphy	LI100	\ /	KK 0005-5001	2	IIA	T1	Ex d IIB T6	AUS Ex 609
KK0005-TSH-34	KK0005-7003-1	Waterbath Heater KK0005-H-2	High Temperature Switch	United Electric	C120 120		KK 0005-5001	2	IIA	T1	Ex d IIC T6	AUS EX 609 AUS Ex 542-2
KK0005-SVs	KK0005-7003-1	WB Heater #2 Fuel Gas	Solenoid valve x2	Asco	EA8O16G1 / ?	90244A-1 / ?	KK 0005-5001	2	IIA	T1	Ex m IIC T4 / ?	AUS Ex 342-2 AUS Ex 3032 / ?
KK0005-SVs (Pilot gas valves)		WB Heater #2 RHS	Solenoid Valves x 2	Ascomation				2				AUG LA 3032 / !
RRUUUD-DVS (PIIOT gas valves)	KKUUUD-7003-1	WD HEALER #2 KHS	Solenola valves x 2	ASCOMATION			KK 0005-5001	2	IIA	T1	Ex m	

		Color Code Notes:	
		The equipment label was illegible at site and information is based on similar equipment.	
		The equipment label was illegible at site.	
	Katherine Meter Station	The equipment certification is not Australian and not available	APA Group
FYFE	Hazardous Area Equipment Register		
Earth Partners		Doc No.: 18756-5-70-002	
ENVIRONMENT DEVELOPMENT		Rev: 0	
RESOURCES		Date: 01-Nov-2011	

_							Hazard Area	Haz	Area Classification			0 110 11
Тад	P&ID No.	Location	Instrument Type	Manufacturer	Model	Serial No.	Drawing No.	Zone	Gas Group	Temp.	Ex Protection	Certification
KK0005-I/P	KK0005-7003-1	WB Heater #2 Fuel Gas	I/P Convertor	Foxboro			KK 0005-5001	2	IIA	T1		
KK0005-TSH-38	KK0005-7003-1	Downstream of Waterbath Heaters	High Temperature Switch	Ashcroft	T42OTO5O30	G7OO1669	KK 0005-5001	2	IIA	T1		
KATHERINE METER STAT	ON P&ID (KK0005-7	004-1)	-			-						
KK0005-ZSC/ZSO-39A		Upstream of Regulators	Valve Limit Switch (Closed/Open)	Norbro	40R	35RKA401SG1 00B NC (Actuator) 42RK0ES - ISJ4C29 (Light switch)	KK 0005-5001	2	IIA	T1		0707 S136 133/23-1 / ATEX 94/9/ EC
KK0005-ZSC/ZSO-39B	KK0005-7004-1	Upstream of Regulators	Valve Limit Switch (Closed/Open)	Norbro J-Switch	40R	35RKA 401SG100BMN (Actuator) 42RK0ES - ISJ4C29 (Light switch)	KK 0005-5001	2	IIA	T1		0707 S136 133/23-1 / ATEX 94/9/ EC ?
KK0005-SVO-39	KK0005-7004-1	Upstream of Regulators	Solenoid Valve (Open)	ASCO/SAE	FA80 163 / FNJ1	FA320A20 / -	KK 0005-5001	2	IIA	T1	Flame Prep IIB T6	FLP 693
KK0005-SVC-41	KK0005-7004-1	Regulator-1	Solenoid Valve / Junction Box	ASCO/SAE	FA80163 / FNJ1	S39791-4 / -	KK 0005-5001	2	IIA	T1	? / IIB Class I & 11 DIV 1&2	FLP 693
KK0005-ZSC-41	KK0005-7004-1	Regulator-1	Valve Limit Switch (Closed)	Bettis	IR 042 AFC		KK 0005-5001	2	IIA	T1		
KK0005-ZSO-41	KK0005-7004-1	Regulator-1	Valve Limit Switch (Open)	Bettis	IR 042 AFC		KK 0005-5001	2	IIA	T1		
KK0005-PSL-44	KK0005-7004-1	Regulator-1	Low Pressure Switch	Ashcroft	3424B XJL	72842	KK 0005-5001	2	IIA	T1		
KK0005-ISB JB3	KK0005-7004-1	Meter Run 1	Junction Box				KK 0005-5001	2	IIA	T1	Exi	Ex 8331290
KK0005-FT-48	KK0005-7004-1	Meter Run No.1	Flow Transmitter	Rosemount	30S1PD2A22A1AM517L404	0459792	KK 0005-5001	2	IIA	T1	Ex ia IIC T6	AUS Ex 1249x
KK0005-FT-48A		Meter Run No.1	Flow Transmitter	Rosemount	3051PD2A22A1AM517L404	0459793	KK 0005-5001	2	IIA	T1	Ex ia IIC T6	AUS Ex 1249x
KK0005-PT-48	KK0005-7004-1	Meter Run No.1	Pressure Transmitter	Rosemount	3051PG5A22A1AM517L404	0459807	KK 0005-5001	2	IIA	T1		AUS Ex 1249x?
KK0005-TIT-48		Meter Run No.1	Temperature Indicator Transmitter	Rosemount	3144PD2A1L7M5 F5	01170769	KK 0005-5001	2	IIA	T1	Ex ia IIC T6 (50 deg C)	02. 3794X
KK0005-ZSO-51	KK0005-7004-1	Meter Run No.2	Valve Limit Switch (Open)	Bettis	TR 022 AFC		KK 0005-5001	2	IIA	T1	Ex d IIB T6	Ex 95
KK0005-ZSC-51	KK0005-7004-1	Meter Run No.2	Valve Limit Switch (Closed)	Bettis	TR 022 AFC		KK 0005-5001	2	IIA	T1	Ex d IIB T6	Ex 95
KK0005-SVC-51	KK0005-7004-1	Meter Run No.2	Solenoid Valve / Junction Box	ASCO/SAE	FA80163 / FNJ1	S39791-4 / -	KK 0005-5001	2	IIA	T1		FLP 693 (JB)
KK0005-PSL-54	KK0005-7004-1	Meter Run No.2	Low Pressure Switch	Ashcroft			KK 0005-5001	2	IIA	T1		FEF 093 (JD)
KK0005-IS JB 4	KK0005-7004-1	Meter Run No.2	Junction Box	Asheron			KK 0005-5001	2	IIA	T1		Ev 0224200
KK0005-PT-58	KK0005-7004-1	Meter Run No.2	Pressure Transmitter	Rosemount	3051 PTG4A2B29BK7M5T9P9040855	02043197						Ex 8331290
KK0005-FT-58A	KK0005-7004-1	Meter Run No.2	Flow Transmitter	Rosemount	3051PD2A22A1AM517L404	0459791	KK 0005-5001	2	IIA	T1	Ex ia IIC T5 (40 deg C)	AUS Ex 1249x
KK0005-FT-58A		Meter Run No.2	Flow Transmitter	Rosemount	3051PD2A22A1AM517L404	0459790	KK 0005-5001	2	IIA	T1	Ex ia IIC T6	AUS Ex 1249x
KK0005-TIT-58	KK0005-7004-1	Meter Run No.2	Temperature Indicator Transmitter	Rosemount	3144PD2A117M5F5	01170777	KK 0005-5001	2	IIA	T1	Ex ia IIC T6	AUS Ex 1249x
KK0005-TTSL-67	KK0005-7004-1	Downstream of Meter Runs / station outlet	Low Temperature Switch	UE	E117 2BSB S061	01170777	KK 0005-5001	2	IIA	T1	Ex ia IIC T6 (50 deg C)	Aus Ex 02.3794X
				-	E117 2838 3001		KK 0005-5001	2	IIA	T1	CL2 DIV II Gr G	UL 796A / LR7814
KK0005-PSL-68 KK0005-PT-71	KK0005-7004-1	Downstream of Meter Runs	Low Pressure Switch	Ashcroft		D0000057	KK 0005-5001	2	IIA	T1	N/A (Instrinsic Safe)	
	KK0005-7004-1	Downstream of Meter Runs	Pressure Transmitter	Rosemount	3051TG4A2B21BB4M5T1	RS0686957	KK 0005-5001	2	IIA	T1		AUS Ex 1249x?
KK0005-TE-66	KK0005-7004-1	Downstream of Meter Runs	Temperature Element/Transmitter				KK 0005-5001	2	IIA	T1		
KK0005-PSL-72	KK0005-7004-1	Downstream of Meter Runs	Low Pressure Switch	Allen Bradley	836 T-T256J		KK 0005-5001	2	IIA	T1		IEC 337-1
KK0005-PSH-69A	KK0005-7004-1	Downstream of Meter Runs	High Pressure Switch	Allen Bradley	836T-T256J	-	KK 0005-5001	2	IIA	T1		IEC 377-1
KK0005-PSH-69B	KK0005-7004-1	Downstream of Meter Runs	High Pressure Switch	Allen Bradley	836T-T256J		KK 0005-5001	2	IIA	T1		IEC 337-1
						+		ļ		ļ		
						+						
						+						
						+						
					<u> </u>							
				1						1		

FYFE Earth Partners	Katherine Meter Station Hazardous Area Equipment Register	Color Code Notes: The equipment label was illegible at site and information is based on similar equipment. The equipment label was illegible at site. The equipment certification is not Australian and not available Doc No.: 18756-5-70-002	APA Group
Earth Partners		Doc No.: 18756-5-70-002	
ENVIRONMENT DEVELOPMENT		Rev: 0	
RESOURCES		Date: 01-Nov-2011	

-			1 <i>i</i> 				Hazard Area	Haz	Haz Area Classification			Certification
Tag	P&ID No.	Location	Instrument Type	Manufacturer	Model	Serial No.	Drawing No.		Gas Group		Ex Protection	Certification
		1		1		1		1	1			
					1	1		<u> </u>				
						1						
				+			+	<u> </u>				
				ł					ļ			
									-			
							_					
								1	1			
				1				l				
					1	1		<u> </u>				
				ł		+	+					
		l										
						ļ		ļ				
								1	1			
				1		1	1	1				
							-					
								I	1	1		

FYFE	Katherine Meter Station Hazardous Area Equipment Register	Color Code Notes: The equipment label was illegible at site and information is based on similar equipment. The equipment label was illegible at site. The equipment certification is not Australian and not available		APA Group
FYFE Earth Partners	Hazardous Area Equipment Register	Doc No.: 18756-5-70-002	-	
ENVIRONMENT DEVELOPMENT RESOURCES		Rev: 0 Date: 01-Nov-2011		

-			1 <i>i</i> 				Hazard Area	Haz	Haz Area Classification			Certification
Tag	P&ID No.	Location	Instrument Type	Manufacturer	Model	Serial No.	Drawing No.		Gas Group		Ex Protection	Certification
		1		1		1		1	1			
					1	1		<u> </u>				
						1						
				+			+	<u> </u>				
									ļ			
									-			
							_					
								1	1			
				1				l				
					1	1		<u> </u>				
				ł		+	+					
		l										
						ļ		ļ				
								1	1			
				1		1	1	1				
							-					
								I	1	1		

FYFE Earth Partners	Katherine Meter Station Hazardous Area Equipment Register	Color Code Notes: The equipment label was illegible at site and information is based on similar equipment. The equipment label was illegible at site. The equipment certification is not Australian and not available Doc No.: 18756-5-70-002	APA Group
Earth Partners		Doc No.: 18756-5-70-002	
ENVIRONMENT DEVELOPMENT		Rev: 0	
RESOURCES		Date: 01-Nov-2011	

-			1 <i>i</i> 				Hazard Area	Haz	Haz Area Classification			Certification
Tag	P&ID No.	Location	Instrument Type	Manufacturer	Model	Serial No.	Drawing No.		Gas Group		Ex Protection	Certification
		1		1		1		1	1			
					1	1		<u> </u>				
						1						
				+			+	<u> </u>				
									ļ			
									-			
							_					
								1	1			
				1				l				
					1	1		<u> </u>				
				ł		+	+					
						ļ		ļ				
								1	1			
				1		1	1	1				
							-					
								I	1	1		

FYFE Earth Partners	Katherine Meter Station Hazardous Area Equipment Register	Color Code Notes: The equipment label was illegible at site and information is based on similar equipment. The equipment label was illegible at site. The equipment certification is not Australian and not available Doc No.: 18756-5-70-002	APA Group
Earth Partners		Doc No.: 18756-5-70-002	
ENVIRONMENT DEVELOPMENT		Rev: 0	
RESOURCES		Date: 01-Nov-2011	

_							Hazard Area	Haz	Area Classific	cation		
Tag	P&ID No.	Location	Instrument Type	Manufacturer	Model	Serial No.	Drawing No.		Gas Group		Ex Protection	Certification
				İ						İ. İ.		
				ļ			ļ					
				ļ			ļ					
				ļ			ļ					
				ļ			ļ					

EXPLOSION PROTECTED ELECTRICAL EQUIPMENT

Administered by: Standards Australia Quality Assurance Services

Certificate of Conformity-

Certificate No:	AUS Ex 1249X	Issue 0: Issue 5:	Original Issue 17/7/1 30/05/2003 (Revalida	
Date of Expiry:	30/05/2013			
Certificate Holder:	Fisher-Rosemount Pty Ltd 471 Mountain Highway BAYSWATER Victoria 3	153		· · · · · ·
Electrical Equipment:	Model 3051-series Pressure Transmitter, including option protection Terminal Board.			
Type of Protection:	Ex ia Ex n			
Marking Code:	Ex ia IIC T4 ($T_{amb} = 70 \text{ °C}$) / Ex ia IIC T4 ($T_{amb} = 60 \text{ °C}$) / Ex n IIC T4($T_{amb} = 70 \text{ °C}$) / AUS Ex 1249X	T5 IP66 (for		rofībus)
Manufactured By: Issued by:	Rosemount Inc 8200 Market Boulevard Chanhassen MN 55317 U	SA	لہ - 705 PDC No Customer:	con Process Management Document Control SSSC/- SC Rev:O. Date.2//2/03 ORDER NUMBERS 2.6.973 053856/
	919 Londonderry Roa Phone: (02) 4724 4		2	JAS-ANZ Accreditation by the Joint Accreditation System of Australia and New Zealand, Acc No. Z2221100AS
	STANDA	rds aus		9 Page 1 of

EXPLOSION PROTECTED ELECTRICAL EQUIPMENT

Administered by: Standards Australia Quality Assurance Services

This certificate is granted subject to the conditions as set out in Standards Australia Miscellaneous Publication MP 69 and the Procedures (Doc Q7134) of the scheme.

The electrical equipment and any acceptable variation to it specified in the schedule to this certificate and the identified documents, was found to comply with the following standards:

AS 2380.1-1989 Electrical equipment for explosive atmospheres - Explosion-protection techniques - General requirements (incorporating Amendment 1)

AS 2380.7-1987 Electrical Equipment for explosive atmospheres - Explosion-protection techniques - Intrinsic safety 'i'

AS 2380.9-1991 Electrical Equipment for Explosive atmospheres - Explosion-protection Techniques - Non-sparking Apparatus -Type of protection 'n'

AS 1939-1990 Degrees of protection provided by enclosures of electrical equipment (IP Code)

This certificate does not ensure compliance with electrical safety requirements and performance other than those included in the Standards listed above.

The equipment listed has successfully met the examination and test requirements as recorded in

Test Report No: LOSC 11812; 16864; 16910 and TestSafe 20320, 21599 and 22468

File Reference: TestSafe 94/5985-TSA 0007

Signed for and on behalf of issuing authority Laboratory Systems Manager TestSafe Australia

Position 30/05/2003

Date of issue

Ex 1249X-5

This certificate and schedule may not be reproduced except in full.

This certificate is not transferable and remains the property of Standards Australia Quality Assurance Services and must be returned in the event of its being revoked or not renewed.

Issued by:



919 Londonderry Road Londonderry NSW 2753 Phone: (02) 4724 4900 Fax: (02) 4724 4999



Accreditation by the Joint Accreditation System of Australia and New Zealand, Acc No. Z2221100AS



9

EXPLOSION PROTECTED ELECTRICAL EQUIPMENT

Administered by: Standards Australia Quality Assurance Services

Schedule-

5

Certificate No: AUS Ex 1249X

Issue:

 \mathbf{D}

Date of Issue: 30/05/2003

Certified Equipment:

The range of transmitters is designed to convert signals from a pressure transducer into an electrical signal. The electronics provide an analogue 4-20 mA output with HART, or optionally a d.c. output for low power applications or Foundation Fieldbus, or Profibus output for Fieldbus applications. The transmitter is intended for connection to separately certified apparatus having a source of potential not exceeding 30 Volts d.c. and a short circuit current not exceeding 200 mA for the low power and analog/HART output or 300 mA for the Fieldbus output.

The equipment may be manufactured in a number of combinations from the ranges of optional boards according to the configurations, and they are tabulated in the following tables.

	a) Foundation Fieldbus/Profibus Transmitter Confi				
Ref.	Description	Drawing No.			
Any one of the	e following terminal boards:				
Ter.e	Standard 3051 Fieldbus	03031-0467			
Ter.f	Transient Protection 3051 Fieldbus (T1 Option)	03031-0486			
Micro-board a	ssembly:				
Micro.a1	3051 Fieldbus Analog	03031-0477			
Micro.a2	3051 Fieldbus Digital	03031-0481			
Optional LCD	Indicator assembly:				
Dis.c	CCA, Vortex Shrouded, LCD Board, 2 Line	08800-7611			
Any one of the sensor boards can be used: (Refer to Sensor Board List below)					

Issned by:



919 Londonderry Road Londonderry NSW 2753 Phone: (02) 4724 4900 Fax: (02) 4724 4999

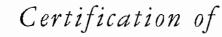


Accreditation by the Joint Accreditation System of Australia and New Zealand, Acc No. Z2221100AS

STANDARDS AUSTRA

Standards Australia Quality Assurance Services Pty Limited A.B.N. 67 050 611 642

9



Administered by: Standards Australia Quality Assurance Services

-Certified Equipment: (Continued)-

Ex 1249X-5

	(b) Low Power Transmitter Configuration	
Ref.	Description	Drawing No.
Any one of the	e following terminal boards can be used:	
Ter.a	Potted Low Power Terminal Block Assembly	03031-0607
Ter.b	Transient Protection Terminal Brd, 3-Wire (T1 Option)	03031-0506
Microboard as	sembly:	
Micro.b	Low Power Microboard Conformal Coated	03031-0275
Optional LCD	Indicator assembly:	
Dis.a	Coated CCA Meter/LCD Board	03031-0162
Any one of the	e sensor boards can be used: (Refer to Sensor Board List be	low)

	(c) Analog/HART Transmitter Configuration	
Ref. 15	Description	Drawing No.
Any one of the	following terminal boards can be used:	
Ter.c	4-20mA Standard Terminal Block Assembly	03031-0657
Ter.d	Standard Transient Protection Terminal Block Assembly	03031-0665
	(T1 Option)	
Microboard As	ssembly:	
Micro.c	Micro Brd 5, Coated & Spot Potted, 3051/3001 & Probar	03031-0584
Optional LCD	Indicator assembly:	
Dis.b	Shrouded/Spot-Potted/Labelled LCD Board, 2 Line	03031-0591
Any one of the	e sensor boards can be used: (Refer to Sensor Board List belo	w)

	Sensor Boards List	
Ref.	Description	Drawing No.
Sen.a	Low Cost Sensor Card Conformal Coated	03031-0283
Sen.b	Sensor Board 3, Uncoated, 3051C	03031-0587
Sen.c	Sensor Board IV Coated, 3051C	03031-0817
Sen.d	AP Sensor Card Conformal Coated	03031-2011
Sen.e	Sensor Board, Coated, 3051T	03031-0923
Sen.f	Sensor Taconite, Coated, 3051/2088	03031-0929

Issued by:

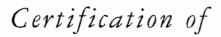


919 Londonderry Road Londonderry NSW 2753 Phone: (02) 4724 4900 Fax: (02) 4724 4999



Accreditation by the Joint Accreditation System of Australia and New Zealand, Acc No. 22221100AS





Administered by: Standards Australia Quality Assurance Services

Variations Permitted By Issue 5:

Addendum to Certificate No....Ex 1249X-5

1. The complete range of the equipment has been classified as documented in the Certified Equipment.

Conditions of Certification relating to Variations Permitted by Issue 5:

- 1. It is a condition of manufacture that the 3051 or 3001 pressure transmitters that do not include the transient protection on the terminal board assembly must be capable of withstanding a test voltage of not less than 500 Volts, 48 Hz to 62 Hz applied between input terminals and case for a period not less than 1 minute.
- 2. It is a condition of safe use that the following parameters are to be taken into account for Intrinsic Safety applications:

(a)	Foundation Fieldbus/Profibus Transmitter Configuration
Entity Parameters	With or without transient protected T1 option
Ui	30 V
Ii	300 mA
Pi	1.3 W
Ci	0 µF
Li	0 μΗ

×	(b) Low Power Transmitter Config	uration
Entity Parameters	Without transient protected T1 option	With transient protected T1 option
Ui	30 V	30 V
li	200 mA	200 mA
Pi	0.9 W	0.9 W
Ci	0.042 μF	0.042 µF
Li	10 µH	0.75 mH

	(c) Analog/HART Transmitter Confi	guration
Entity Parameters	Without transient protected T1 option	With transient protected T1 option
Ui	30 V	30 V
Ii	200 mA	160 mA
Pi	0.9 W	0.9 W
Ci	0.01 µF	0.01 μF
Li	10 µH	1.05 mH

Issued by:



919 Londonderry Road Londonderry NSW 2753 Phone: (02) 4724 4900 Fax: (02) 4724 4999



Accreditation by the Joint Accreditation System of Australia and New Zcaland, Acc No. Z2221100AS



Certification of

Administered by: Standards Australia Quality Assurance Services

Conditions of Certification relating to Variations Permitted by Issue 5: (continued)

- 3. It is a condition of safe use that the apparatus may only be used with a passive current limited power source for Intrinsic Safety applications. The power source parameters must be such that $Po \le (Uo \times Io) / 4$.
- 4. It is a condition of safe use that for models using transient protection in the terminal assembly (T1 transient protection models) the apparatus enclosure is to be electrically bonded to the protective earth. The conductor used for the connection shall be equivalent to a copper conductor of 4 mm² minimum cross-sectional area.
- 5. It is a condition of safe use that the Fieldbus option is to be supplied from a voltage source not exceeding 35.0 V dc for Non-Sparking applications. The Low Power and Analog/HART options are to be supplied from a voltage source not exceeding 55 V dc for Non-sparking applications
- 6. It is a condition of safe use that where the equipment is installed such that there is an unused conduit entry, the entry must be sealed with a suitable blanking plug to maintain the minimum degree of protection of IP66 for Non-Sparking applications.
- 7. It is a condition of safe use that upon completion of commissioning the apparatus with a label plate with more than one marking on it, the irrelevant marking code(s) shall be permanently scribed off.

Issued by:



919 Londonderry Road Londonderry NSW 2753 Phone: (02) 4724 4900 Fax: (02) 4724 4999



Addendum to Certificate No....Ex 1249X-5

Accreditation by the Joint Accreditation System of Australia and New Zealand, Acc No. Z2221100AS



EXPLOSION PROTECTED ELECTRICAL EQUIPMENT

Administered by: Standards Australia Quality Assurance Services

Addendum to Certificate No....Ex 1249X-5

Document	Document Title	Sheets .	Issue	Date
00268-0031	Index of I.S. Barrier System for MOD.268 Smart Family	1 to 7	M	08/04/1993
00200-0051	Interface	1 10 /		00/01/1990
03031-0059	Label, Nameplate / Customer Tag	1 to 16	AY	17/12/2001
03031-0060	Label, Approvals, 3051C	1 to 8	BG	04/04/2002
03031-0087	Schematic Diagram, 3051/3001 CENELEC I.S. Approval	1 of 1	AC	10/10/1997
03031-0160	Schematic Diagram, Meter/LCD Board	1 of 1	Н	07/05/1990
03031-0161	Printed Wiring Board LCD/Meter Board	1 to 4	U	05/08/1996
03031-0162	Coated CCA Meter/LCD Board	1 of 1	AC	22/11/1999
03031-0272	Schematic Diagram 3051C Low Power	1 of 2	AA	17/02/1999
03031-0273	Printed Wiring Board Low Power Microboard	1 to 4	J	06/08/1996
03031-0275	Circuit Card Assy Low Power Microboard Conformal Coated	1 to 3	AB	10/11/1999
03031-0280	Schematic Diagram Low Cost Sensor BRD	1 of 1	F	12/01/1995
03031-0281	Printed Wiring Board Low Cost Sensor Card	1 to 4	G	06/08/1996
03031-0283	Circuit Card Assy Low Cost Sensor Card Conformal Coated	1 of 1	F	21/03/1991
03031-0464	Schematic Drawing Standard Terminal Block, 3051 Fieldbus	1 of 1	AA	20/03/1998
03031-0467	Terminal Block Assy, Standard 3051 Fieldbus	1 to 2	AC	12/1998
03031-0475	3051 Fieldbus Analog Electronics	1 to 2	AC	12/1998
03031-0476	Printed Wiring Board - Fieldbus Analog	1 to 3	AC	10/06/1998
03031-0477	Circuit Card Assy 3051 Fieldbus Analog	1 to 2	AH	29/05/2001
03031-0479	3051 Fieldbus Digital Electronics	1 of 1	AB .	12/1998
03031-0480	Printed Wiring Board - 3051 Fieldbus Digital	1 to 3	AC	12/1998
03031-0481	Circuit Card Assy - 3051 Fieldbus Digital	1 to 3	AD	01/2000
03031-0483	Schematic Drawing Transient Terminal Block, 3051 Fieldbus	1 of 1	AB	22/02/2001
03031-0484	Printed Wiring Board Transient Protection 3051 Fieldbus	1 to 3	AC	22/02/2001
03031-0486	Terminal Block Assy, Transient Protection, 3051 Fieldbus	1 to 2	AC	12/1998
03031-0488	Ass'y Output Electronics, Fieldbus	1 of 1	AG	29/05/2001
03031-0504	Schematic Diagram Terminal Block 3-wire Configuration	1 of 1	C	21/05/1991
03031-0505	Printed Wiring Board Terminal Board, 3-Wire Configuration	1 to 2	E	23/06/1995
03031-0506	Circuit Card Assy, Transient Protection Terminal BRD, 3-Wire	1 to 3	AA	24/08/1998

Drawings Relating to Variations Permitted by Issue 5

lssued by:



919 Londonderry Road Londonderry NSW 2753 Phone: (02) 4724 4900 Fax: (02) 4724 4999



Accreditation by the Joint Accreditation System of Australia and New Zealand, Acc No. Z2221100AS



EXPLOSION PROTECTED ELECTRICAL EQUIPMENT

Administered by: Standards Australia Quality Assurance Services

Addendum to Certificate No....Ex 1249X-5

Drawings Relating to Variations Permitted by Issue 5 (Continued)

Document	Document Title	Sheets	Issue	Date
03031-0519	3051P Label, Nameplate / Customer Tag	1 to 8	AG	10/08/2001
03031-0520	Label, Approvals, 3051P	1 to 8	AJ	06/01/2000
03031-0521	Label, Nameplate / Customer Tag 3051C-Low Power	1 to 7	AH	15/02/2001
03031-0535	Label, Nameplate / Customer Tag 3051P-Low Power	1 to 3	F	19/05/1995
03031-0581	Schematic Drawing Micro Board #5 3051C	1 to 3	AD	01/03/2002
03031-0582	Printed Wiring Board, Micro BRD 5, 3051C	1 to 3	AD	17/07/2000
03031-0584	Shrouded Assembly Micro BRD 5, Coated & Spot Potted, 3051/3001 & Probar	1 to 4	AK	04/03/2002
03031-0585	Schematic Sensor Board 3	1 to 2	В	13/11/1995
03031-0586	Printed Wiring Board Sensor Board 3 3051C	1 to 4	AA	08/10/1997
03031-0587	Circuit Card Assy Sensor Board 3, Uncoated, 3051C	1 to 2	AC	25/06/1998
03031-0589	Schematic Diagram 160 Segment LCD Board	1 to 1	A	31/01/1995
03031-0590	Printed Wiring Board LCD Board, 2 Line	1 to 4	AA	30/11/1998
03031-0591	Circuit Card Assembly Shrouded/Spot-Potted/labeled LCD Board, 2 Line	1 to 3	AF	19/06/2000
03031-0604	Schematic Diagram 3051C Low Power Terminal Block	1 of 1	A	12/02/1996
03031-0605	Printed Wiring Board, Low Power, Terminal, Block, 3051C	1 to 3	A	12/02/1996
03031-0607	Potted Low Power Terminal Block Assembly	1 of 1	AC	15/11/2001
03031-0655	Schematic Diagram 4-20mA Standard Terminal Block	1 of 1	AB	15/10/2001
03031-0656	Printed Wiring Board, Standard 4-20mA, Terminal Block, 3051C	1 to 3	AD	20/06/2000
03031-0657	4-20mA Standard Terminal Block Assembly	1 to 2	AF	15/11/2001
03031-0663	Schematic Diagram Standard Trans. Protection Terminal Block	1 of 1	AB	10/2001
03031-0664	Printed Wiring Board, Transient Protection Standard, Term. Block, 3051C	1 to 3	AC	07/08/1997
03031-0665	Standard Transient Protection Terminal Block Assembly	1 to 2	AD	15/11/2001
03031-0687	Schematic Diagram, 3051 Fieldbus CENELEC I.S. Approval	1 of 1	AB	16/08/2001
03031-0815	Schematic Sensor Board IV	1 to 2	AE	13/01/1999
03031-0816	Printed Wiring Board Sensor Board IV, 3051C	1 to 3	AE	11/06/1998

Issued by:



919 Londonderry Road Londonderry NSW 2753 Phone: (02) 4724 4900 Fax: (02) 4724 4999



Accreditation by the Joint Accreditation System of Australia and New Zealand, Acc No. Z2221100AS



Certification of

Administered by: Standards Australia Quality Assurance Services

Addendum to Certificate No... Ex 1249X-5

Drawings Relating to Variations Permitted by Issue 5 (Continued)

Document No.	Document Title	Sheets	Issue	Date
03031-0817	Circuit Card Assy Sensor Board IV Coated, 3051C	1 to 2	AH	13/01/1999
03031-0920	Schematic Sensor, 3051T	1 to 2	G	13/12/1995
03031-0921	Printed Wiring Board, Sensor Board 3051T	1 to 3	C	25/02/1997
03031-0923	Circuit Card Assy Sensor Board Coated, 3051T	1 of 1	AA	07/10/1997
03031-0926	Schematic Sensor, 3051TAC	1 to 3	AE	01/04/2001
03031-0927	Printed Wiring Board Sensor Taconite, 3051/2088	1 to 3	AF	25/05/2001
03031-0929	Circuit Card Assembly Sensor Taconite, Coated, 3051/2088	1 of 1	AJ	01/04/2001
03031-1017	Approval Drawing For Module Housing Ass'y, Intrinsically Safe	1 to 6	AH	30/11/2000
03031-1022	Model 3051C/L/P/H, 3001C/S Intrinsically Safe and Type N Configuration, SAA	1 to 10	AG	28/05/2003
03031-1026	SAA I.S. Index For 3051 and 3001	1 to 4	AB	26/04/1999
03031-2008	Schematic Diagram AP Sensor Brd	1 of 1	L	23/09/1996
03031-2009	Printed Wiring Board AP Sensor Card	1 to 4	K	23/09/1996
03031-2011	Circuit Card Assy AP Sensor Card Conformal Coated	1 of 1	AA	07/10/1997
03031-2041	3051T Sensor Board Standoff	1 of 1	AC	05/09/2000
08800-7609	Schematic Diagram, Vortex LCD Board	1 of 1	AA	15/10/1997
08800-7610	Printed Wiring Board, LCD 2 Line	1 to 3	AA	15/10/1997
08800-7611	CCA, Vortex, Shrouded, LCD Board, 2 Line	1 to 2	AE	06/07/2000

Issued by:



919 Londonderry Road Londonderry NSW 2753 Phone: (02) 4724 4900 Fax: (02) 4724 4999



Accreditation by the Joint Accreditation System of Australia and New Zealand, Acc No. Z2221100AS

STANDARDS AUSTRALIA

CONFIDENTIAL AND P	ROPRIETARY			VISIONS			
CONFIDENTIAL AND P INFORMATION IS C HEREIN AND MU HANDLED ACCOR		1	DESCRIPTION	V1510N5	CHG, NO.	APP'D	DATE
HANDLED ACCOR	RDINGLY AA	UPDAT		ETERC	RTC1002910	J.D.J.	
	AB		FIELDBUS AN		RTC1006448	J.D.J.	4/26/9
· · · ·			IBUS	U		J.D.J.	4/26/
	TPUT CODE A DUTPUT CODE CODE F / W	3051C 3051L 3051P 3051H 9051CA 3051T (4-20 M (LOW	NCEPT APPROVAL 3001CL 3001CL 3001CH 3001S mA HART) SEE POWER) SEE SH BUS, PROFIBUS)	SHEET [.] HEETS		drawing Iments u	Tast 7 Sole Antonimentaria Cupplementary
SAFE WHEN THE LIST TO ASSL MUST BE V	N USED IN THE (ENTITY PERAMET JRE AN INTRINSI WIRED IN ACCORE	CURCUIT ERS. Cally S Dance WI	SMITTERS LISTED WITH SAA APPROV AFE SYSTEM, THE TH THE BARRIER E CIRCUIT DIAGRAN	ED BAR TRANSM	RIERS WHICH I	MEET	ING
SAFE WHEN THE LIST TO ASSL MUST BE V	N USED IN THE (ENTITY PERAMET JRE AN INTRINSI WIRED IN ACCORE	CURCUIT ERS. Cally S Dance WI	WITH SAA APPROV AFE SYSTEM, THE Th the barrier	ED BAR TRANSM MANUFA M.	RIERS WHICH Itter and ba Cturer's fieu	MEET Arrier _d Wir:	
SAFE WHEN THE LIST TO ASSL MUST BE V	N USED IN THE (ENTITY PERAMET JRE AN INTRINSI WIRED IN ACCORE ONS AND THE AP	CURCUIT ERS. Cally S Dance WI	WITH SAA APPROV AFE SYSTEM, THE TH THE BARRIER E CIRCUIT DIAGRAN	ED BAR TRANSM MANUFA M. CAD M	RIERS WHICH ITTER AND BA CTURER'S FIEL	MEET ARRIER _D WIR:	
SAFE WHEN THE LIST TO ASSL MUST BE V INSTRUCTIO	N USED IN THE (ENTITY PERAMET JRE AN INTRINSI WIRED IN ACCORE	CURCUIT ERS. Cally S Dance WI	WITH SAA APPROV AFE SYSTEM, THE Th the barrier	ED BAR TRANSM MANUFA M. CAD M	RIERS WHICH ITTER AND BA CTURER'S FIEL Idintained, (Mi EMENT Rosemo 12001 Te	MEET ARRIER _D WIR:	TION)
SAFE WHEN THE LIST TO ASSL MUST BE V INSTRUCTIO	N USED IN THE (ENTITY PERAMET JRE AN INTRINSI WIRED IN ACCORE ONS AND THE AP	CALLY S DANCE WI PLICABL	WITH SAA APPROV AFE SYSTEM, THE TH THE BARRIER E CIRCUIT DIAGRAN FISHER-ROSEMOUN	ED BAR TRANSM MANUFA M. CAD M EASUR	RIERS WHICH ITTER AND BA CTURER'S FIEL Adintained, (Mi EMENT Rosemo 12001 Te Eden Pr	MEET ARRIER _D WIR: _D WIR: _D WIR: 	TION) 44 USA
UNLESS OTHERWISE SPECIFIED UNLESS OTHERWISE SPECIFIED DIMENSIONS IN INCHES [mm]. REMOVE ALL BURRS AND SHARP EDGES, MACHINE SURFACE FINISH 125 -TOLERANCE-	USED IN THE (ENTITY PERAMET JRE AN INTRINSI WIRED IN ACCORE ONS AND THE AP	CALLY S DANCE WI PLICABL	WITH SAA APPROV	ED BAR TRANSM MANUFA M. EASUR T	RIERS WHICH ITTER AND BA CTURER'S FIEL Adintained, (Mi EMENT Rosemo 12001 Te Eden Pr	CROSTA	TION) e 44 USA
UNLESS OTHERWISE SPECIFIED DIMENSIONS IN INCHES [mm]. REMOVE ALL BURRS AND SHARP EDGES, MACHINE SURFACE FINISH 125 -TOLERANCE- .X ± .1 [2,5] .XX ± .02 [0,5]	DR. Mike Do	CALLY S CALLY S DANCE WI PLICABL	WITH SAA APPROV AFE SYSTEM, THE TH THE BARRIER E CIRCUIT DIAGRAN FISHER-ROSEMOUN	ED BAR TRANSM MANUFA M. EASUR T	RIERS WHICH ITTER AND BA CTURER'S FIEL Adintained, (Mi EMENT Rosemo 12001 Te Eden Pr	CROSTA	TION) e 44 USA
UNLESS OTHERWISE SPECIFIED UNLESS OTHERWISE SPECIFIED DIMENSIONS IN INCHES [mm]. REMOVE ALL BURRS AND SHARP EDGES, MACHINE SURFACE FINISH 125 -TOLERANCE- .X ± .1 [2,5]	DR. Mike Do	CALLY S CALLY S DANCE WI PLICABL	WITH SAA APPROV AFE SYSTEM, THE TH THE BARRIER E CIRCUIT DIAGRAN FISHER-ROSEMOUN	ED BAR TRANSM MANUFA M. EASUR T	RIERS WHICH ITTER AND BA CTURER'S FIEL Adintained, (Mi EMENT Rosemo 12001 Te Eden Pr 5, INDEX	CROSTA	TION) 6 44 USA

Electronic Master - PRINTED COPIES ARE ONCONTROLLED - Rosemount Proprietary

			REVI	SIDNS		
	. RE	V	DESCRIPTION	CHG. NO.	APP'D	DAT
	A	3		RTC1006448		
				· · · · · · · · · · · · · · · · · · ·		
			"A" (4-20MA / HA	-		
	SAA E	ENTITY C	ONCEPT APPROVA	ALS		
THE ROSEMOUNT	PRESSURE TRAN	ISMITTERS L	ISTED BELOW ARE INT WHICH MEET THE LIST	TRINSICALLY SAFE WHEN TED ENTITY PARAMETER	I USED I S.	N
	ED TRANSMITTERS					
3051C 30	051H 3001C	3001S		r		
	051T 3001CL 051CA 3001CH					
ENTITY PARAMETE	ER FOR Ex la IIC	T5 CLASS I,	ZONE 0 PROTECTION:			
APPARATUS P	ARAMETER		BARRIER PARAMETER			
Vmax = 3	0V -		IS LESS THAN OR EQU			
lmax = 20 Pmax = 0			S LESS THAN OR EQU			
$C_{i} = 0.01 \mu$		1	<u>* Isc</u> IS LESS THAN OF 4 S GREATER THAN 0.01			
$\begin{array}{c} \text{Gr} = & 0.01 \mu \\ \text{Li} = & 10 \mu \text{H} \end{array}$			S GREATER THAN 10 M			
FOR TI OPTIO						
lmax = 16 Li = 1.05m		lsc La I	S LESS THAN OR EQU, S GREATER THAN 1.05	AL TO 160mA MILLIHENRIES		
	CEPT ALLOWS INT		TON OF INTRINSICALLY	SAFE APPARATUS NOT		
SPECIFICALLY EXA						
TO ASSURE AN I	INTRINSICALLY SA	FE SYSTEM	THE TRANSMITTER AN	D BARRIER MUST BE W G INSTRUCTIONS AND T	/IRED HF	
	SHOWN BELOW					
				,		
	HAZ	ZARDOUS A	REA	NON-HAZARDOU	S AREA	
	S S	لح	1	+_SAA APPRO	OVED	
	-100)			BARRIE		
		1	1			
			· 1		DARATUS	
			TestSafe Au	ASSOCIATED API	PARATUS	
			This drawing for	istralia ms part of certification	PARATUS	
			This drawing for documents unde	istralia ms part of certification	PARATUS	
			This drawing for documents under AUS Ex	stralia	PARATUS	
	Rosemount Inc.		This drawing for documents under AUS Ex	Istralia ms part of certification r Certificate Number 4945 guire Supplementary		
	Rosemount Inc. 12001 Technology Eden Prairie, MN		This drawing for documents under AUS Ex	nstralia ms part of certification r Certificate Number 49455	ICROST	

Electronic Master - PRINTED COPIES ARE INCONTROLLED - Rosemount Proprietary

			\forall	0511				
		[SIONS	 CHG. NO.	APP'D	DATE
	REV		DESCRIPTIO					DATE
	AB				KI	C1006448		
APPROVED AS IN WHICH MEET THE	OUTPUT SAA EN LOW POWER COI TRINSICALLY SAFE LISTED ENTITY PA TRANSMITTERS WI	ITITY CO NFIGURED I WHEN USE ARAMETERS	NCEPT API PRESSURE TRA D IN THE CIRC	PROVA NSMITTE CUIT WIT	LS RS LISTED B TH SAA APP	BELOW AR		
3051C 3051L 3051P 3051H	3051⊤ 3051CA							
ENTITY PARAMETE	R FOR Ex ia IIC T5	CLASS I, Z	ONE O PROTEC	CTION:				
APPARATUS PA	ARAMETER		BARRIER PAR	AMETER				
Vmax = 30 $Imax = 20$ $Pmax = 0$	0mA	Isc IS	LESS THAN LESS THAN C Isc IS LESS T	R EQUA	L TO 200m			
Ci = 0.042 $Li = 10\mu H$	μ ⊢		GREATER THA GREATER THA					
FOR TI OPTION						_		
Li = 0.75m	1H	La IS	GREATER THA	N 0.75	MILLIHENRIES	<u> </u>		
TO ASSURE AN IN ACCORDANCE	EPT ALLOWS INTEF MINED IN COMBIN NTRINSICALLY SAFE WITH THE BARRIEF SHOWN BELOW.	ATION AS	a system. The transmit	TER ANI) BARRIER I	MUST BE V		
2</td <td>S</td> <td>HAZARDOL</td> <td>US AREA</td> <td>1</td> <td>_</td> <td>AZARDOUS</td> <td></td> <td></td>	S	HAZARDOL	US AREA	1	_	AZARDOUS		
				<u> </u>		BARRIER		
				ł	40500		ADATUS	
				1	ASSUL	IATED APP	ANATOS	
			Tes	l tSafe /	i Talanci za na katali za na katali		414103	
	Rosemount Inc. 12001 Technology D Eden Prairie MN 5		Tast - Bain AUS	s drawing i suments ur S Ex	Austoniia forms part of c ader Certificate N 2 4 9 X require Supplen - CAD - Main	ertification Jumber		TION)
	12001 Technology D Eden Prairie, MN 5		Tast - Bain AUS	a drawing suments ur S Ex lendments tillcation	Australia forms part of c der Certificate M 2 4 9 X require Supplem	ertification Jumber	11CROST A	

Electronic Master - PRINTED COPIES ARE ONCONTROLLED - Rosemount Proprietary

			∇	סבעז				
		REVISIONS					1	
	, REV		DESCRIPTIO	N		CHG. NO.	APP'D	DAT
	AB				R	TC1006448		
· -								
· · · · ·								
	T PRESSURE TRANSM	TITY COI 1ITTERS LIST	NCÈPT API ted below	PRÔVA are int	ALS FRINSICALLY	Y SAFE WHEN		N
THE CIRCUIT WIT	TH SAA APPROVED I	BARRIERS V	HICH MEET T	THE LIST	TED ENTITY	PARAMETERS	S.	
3051C 3 3051L 3	ED TRANSMITTERS 051H 3001C 30 051T 3001CL 051CA 3001CH	015						
ENTITY PARAMET	ER FOR Ex is IIC T5	CLASS I, ZO	NE O PROTEC	CTION:				
APPARATUS P	ARAMETER		BARRIER PARA	AMETER				
Vmax = 3		Voc IS	LESS THAN			1	-	
lmax = 3	00mA	lsc IS	LESS THAN C					
Prnax = 1	I.3W		<u>Isc</u> IS LESS T	HAN OF	R EQUAL T	O 1.3W		
Ci = 0 μF	:		GREATER THA					
$Li = 0\mu H$		La IS	GREATER THA	N 0 MK	CROHENRIE	S		
SPECIFICALLY EX TO ASSURE AN IN ACCORDANCE	CEPT ALLOWS INTER AMINED IN COMBIN/ INTRINSICALLY SAFE WITH THE BARRIER 4 SHOWN BELOW.	ATION AS A SYSTEM T	N SYSTEM. HE TRANSMIT	TER AN	D BARRIER	NUST BE W		
					N10	N-HAZARDOUS		
$\sqrt{7}$	S S	DOUS ARE	*	}				
V	TOTAL					SAA APPRO		
				1	-			
50				1	AS	SOCIATED APP	ARATUS	
		7	festSafe Ai	ustrali		7	,	
	Land Weyned		This drawing for	ALC: N THE PERSON PERSON AND A DESCRIPTION OF A DESCRIPTI		n		
			documents und					
		Just FSala			_			
	Deserved have	T. I. W. W. T. W.	Amendments re	quire Supp	plementary			
	Rosemount Inc.	ive	Certification					TION
	12001 Technology Dr							
	12001 Technology Dr Eden Prairie, MN 55	5344 USA 🛓			CAD Ma			
	Eden Prairie, MN 55	5344 USA 🛓	SIZE FSCM NO)	CAD Ma	Ø3Ø31		

Electronic Master - PRINTED COPIES ARE INCONTROLLED - Rosemount Proprietary

STANDARDS ASSOCIATION OF AUSTRALIA

Incorporated by Royal Charter

STANDARDS HOUSE, 80 ARTHUR STREET, NORTH SYDNEY, N.S.W.

CERTIFICATE FOR EXPLOSION PROTECTED ELECTRICAL EQUIPMENT

No. Ex 401

This certifies that the equipment described hereunder has been examined and tested in accordance with the requirements of the Australian standard(s) specified herein, and such equipment has been found to comply with these requirements. This certificate may be withdrawn at any time if in the opinion of SAA Committee P/S, Cartification of Electrical Equipment for Hazardous Locations, the relevant standard has been altered or revised to a degree that the equipment is no longer considered suitable for installation in the hazardous location stated, or if the certificate holder has breached any of the terms or conditions under which this certificate was issued.

Description of Equipment	Hazardous Location			
"Goven" Junction Box Cat. No. F?	Class I Zone 1 Type of Protection Ex d IIB T6 1P65			
	Certificate Holder Govan Drewburn Pty Ltd 156 Bamfield Road WEST HEIDELBERG VIC 3081			
Drawing No(s)	Manufacturer			
3135; 1373 Rev. 4.11.81; 3214; 3076; 3137	Govan Drewburn Pty Ltd 156 Banfield Road WEST HEIDELBERG VIC 3081			
Certification Conditions	Test Report No(s) SCC TR No. 56970			
	Australian Standard(s)			
	A8 2480-1981			
	SAA File Reference			
Remarks	P/3: 81243/M108			
	Effective Date 1983-02-03			
	Date of Issue 1983.05.13			

This document shall not be reproduced except in full.

This certificate is not transferable and remains the property of the Standarda Association of Australia and must be returned to the Association in the event of it being revoked.

your. ill. Director-Administration & Approvals Standards Association of Australia

Certification of

EXPLOSION PROTECTED ELECTRICAL EQUIPMENT

AUSEx Scheme

Certificate of Conformity

Certificate No: AUS Ex 267

Issue 0: Issue 3: Original Issue 2/11/1993 6/10/2004 (Revalidation)

Date of Expiry: 6/10/2006

Certificate Holder: Ascomation Pty Limited 12/25 Frenchs Forest Road East FRENCHS FOREST NSW 2086

Electrical Equipment: "ASCO" Tripoint Flameproof Switch Assemblies

Type of Protection: Ex d IIB T6 IP65

Marking Code: Ex d IIB T6 IP65 AUS Ex 267

Manufactured By: Ascomation Pty Limited 12/25 Frenchs Forest Road East FRENCHS FOREST NSW 2086

Issued by:



919 Londonderry Road Londonderry NSW 2753 Australia



Phone: +61 2 4724 4900

Fax: +61 2 4724 4999

Accreditation by the Joint Accreditation System of Australia and New Zealand, Acc No. Z2221100AS

Certification of

EXPLOSION PROTECTED ELECTRICAL EQUIPMENT

AUSEx Scheme

This certificate is granted subject to the conditions as set out in Standards Australia Miscellaneous Publication MP69 and the Procedure (Doc Q7134) of the scheme.

The electrical equipment and any acceptable variation to it specified in the schedule to this certificate and the identified documents, was found to comply with the following standards:

AS 2380.1-1989 Electrical equipment for explosive atmospheres - Explosion-protection techniques Part 1: General requirements (incorporating Amendment 1)

AS 2380.2-1991 Electrical equipment for explosive atmospheres - Explosion-protection techniques Part 2: Flameproof enclosure d (incorporating Amendment 1)

AS 1939-1990 Degrees of protection provided by enclosures of electrical equipment (IP Code)

This certificate does not ensure compliance with electrical safety requirements and performance other than those included in the Standards listed above.

The equipment listed successfully met the examination and test requirements as recorded in

Test Report No: LOSC 9954; TestSafe 25643

ال م

File Reference: TestSafe 92/4791; 2004/005643

Signed for and on behalf of issuing authority

Quality & Certification Manager Position

6/10/2004

Date of Issue

Ex 267-3

This certificate and schedule may not be reproduced except in full.

This certificate is not transferable and remains the property of the issuing body to whom it must be returned in the event of it being revoked or not renewed.

Issued by:



919 Londonderry Road Londonderry NSW 2753 Australia



Accreditation by the Joint Accreditation System of Australia and New Zealand, Acc No. Z2221100AS

Phone: +61 2 4724 4900

Fax: +61 2 4724 4999



EXPLOSION PROTECTED ELECTRICAL EQUIPMENT

AUSEx Scheme Schedule

Certificate No: AUS Ex	267	Issue:	3	Date of Issue: 6/10/2004
Certified Equipment:	a screw on lid. T forming a flame range of both pr which includes a	This body he path with th essure and the n operator p "O" ring bet	buses a le base temper assing tween	Switch Assemblies consists of a robust aluminium body wit a switch that is actuated by a push rod passing through an e of the body. This push rod is acted upon externally by ature transducers. Models SD and SE have a manual rese through and forming a flamepath with the top of the lid. Th the lid and the body to prevent ingress of dust and moisture ude:
	SA42D7 • Fixed D SB42D7 • Two Sta and SC4	2. Peadband S 2. ge Fixed De 2D72.	witch eadban	tch Units, Cat. Nos. SA12D72, SA22D72, SA32D72 an Units, Cat. Nos. SB12D72, SB22D72, SB32D72 an d Switch Units, Cat. Nos. SC12D72, SC22D72, SC32D7 Pressure) Switch Units Cat. Nos. SD12D72, SD22D7

- Manual Reset (Descending Pressure) Switch Units, Cat. Nos. SD12D72, SD22D72 SD32D72 and SD42D72.
- Manual Reset (Increasing Pressure) Switch Units, Cat. Nos. SE12D72, SE22D72 SE32D72 and SE42D72.

Conditions of Certification:

Nil.

Drawings Schedule				
Drawing No	Drawing Title	Issue	Date	
110709	General Assembly & Flamepath Details, Pressure	A	14/09/93	
& Temperature Switches Type SA Flameproof				
110013	No Title	В	14/09/93	

Additional Information:

This supplementary certificate supersedes and replaces the original issue of the Certificate of Conformity dated 02/11/1993. This certificate also replaces all previous supplementary issues.

Issued by:



919 Londonderry Road Londonderry NSW 2753 Australia



Accreditation by the Joint Accreditation System of Australia and New Zealand, Acc No. Z2221100AS

Phone: +61 2 4724 4900

Fax: +61 2 4724 4999



Ex 198-5

Certificate of Compliance

This is to certify that Standards Australia Certificate Nos. Ex 198, Ex 198-1, Ex 198-2, Ex 198-3 and Ex 198-4 issued to:

Frank Puddick Industries Pty Ltd 242 Burns Bay Road Lance Cove NSW 2066

for the <u>"Herion" Solenoid Valve Coils</u> are hereby extended to include changes as detailed in the following schedule.

SCHEDULE

Description of Changes:

- 1. Revalidation of Certificate.
- 2. Inclusion of increased safety in certification.
- 3. Exclusion of valve coils which do not incorporate a safety fuse.
- Addition of classification for degree of protection IP65.

The following valve coil types are now covered by this certificate:

- a _Coils rated for supply voltage 12 to 250V, d.c:
 i 0270, 0272, 0770, 0772, 0780, 0782, 0788, 0790 and 0792 all for armature dia. 13mm,
 0870, 0872, 0880, 0882, 0888, 0890 and 0892, all for armature dia. 16m,
- b Coils rated for supply voltage 24 to 380 V, 40 to 60 Hz: 0271, 0273, 0771, 0773, 0781, 0783, 0789, 0791 and 0793, all for armature dia. 13mm, 0871, 0873, 0881, 0883, 0889, 0891 and 0893, all for armature dia. 16mm.

Drawings: 027.TD 0271 0278 0278 parts list Pages 1 & 2 0570027 0570219

Original Issue E Issue D Original Original Original

9 December 1983 22 July 1988 10 October 1985 13 November 1985 12 January 1983 13 January 1983

Page 1 of 2

Ĺ

Signed for and on behalf of Standards Australia

Quality Assurance Se

This cartificate is not transferable and remains the property of Standards Australia and must be returned in the event of its being revaked or not renewed



PR

(N



Continuation of SUPPLEMENTARY Continuation No

Ex 198-5

Certificate of Compliance

ECTED

Issue A	24 September 1975
Issue G	5 July 1989
Issue D	1 September 1988
Issue B	2 August 1988
Issue D	16 August 1988
Issue B	2 August 1988
Original	9 May 1977
Issue C	11 November 1988
Issue F	6 April 1987
Original	11 January 1982
Original	14 January 1983
Original	17 March 1983
Original	21 January 1983
Original	24 January 1983
Issue C	6 April 1987
Original	25 January 1983
Issue C	27 March 1991
Issue B	8 August 1989
Original	1 March 1983
Issue C	29 December 1988
Issue A	10 August 1988
Issue A	28 July 1988
Issue A	ll August 1988
Issue B	11 November 1988
Issue A	8 October 1990
Original	6 August 1970
	Issue G Issue D Issue D Issue B Issue D Issue B Original Issue C Issue F Original Original Original Issue C Original Issue C Issue B Original Issue C Issue A Issue A Issue A Issue A

TYPE OF PROTECTION: Ex e s IIC T5 IP65 Class I Zone 1

Test Report No: LOSC 4429 to AS 2380.1-1989, AS 2380.6-1988, AS 1826-1983 and AS 1939-1990.

File: P/3: 90006. M157

Date of Issue: 10 July 1991

Date of Expiry of Validity: 10 July 2001

Page 2 of 2

()

7

1

۲,

Signed for and on behalf of Standards Australia

Quality Assurance Serv

This certificate is not transferable and remains the property of Standards Australia and must be returned in the event of its being revoked or not renewed



INCORPORATED BY ROYAL CHARTER

STANDARDS HOUSE. 80 ARTHUR STREET, NORTH SYDNEY, N.S.W.

CERTIFICATE FOR EXPLOSION PROOF ELECTRICAL EQUIPMENT

This certifies that the equipment described hereunder has been examined and tested in regard to its explosion proof properties and inherent safety and no objection is raised to the use of the equipment in the hazardous location(s) defined below in the manner intended in the industry concerned.

This Certificate applies only to the explosion proof features of the equipment described herein and does not purport, nor is it intended to certify compliance with the relevant electrical safety requirements of the SAA Wiring Rules, AS 3000 Parts I and II.

DETAILS OF EQUIPMENT:

'Bettiawitch' switch enclosures Types 3R and 4R

TYPE OF PROTECTION:

E d 118 16

DRAWING NUMBER:

HAZARDOUS LOCATION-CLASSIFICATION:

APPLICANT:

MANUFACTURER:

TESTING STATION AND REPORT No:

REMARKS:

A1/2136/Rev A, A2/2137, A3/2138/Rev C, A4/1034

Class I Zone 1

Bottis Actuators & Controls Ltd 20-36 Express Road SOUTHANPTON SO2 OLU UK

Bettis Astustors & Controle Ltd 20-36 Express Road SOLTHANPTON SO2 Q.U. UK

BSI-THE T/ALS 56

The following models are envered by this cortificate:

~ 39-021-4FB	- 9R-021-AFC
- 39-321-AFB	-9R-321-AFC
-30-022-AFA	
- 38-322-AFA	-48-341-AFC
- 38-041-AFB	-99-022-AFC
~ 39-341-AFB	- 38-322-AFC
~4R-DA1-AFB	- AR-OA2-AFC
-4R-341-AFB	4R-342-AFC

.

Chairman of Committee EL/29

W. J. SE

Director, Standards Association of Australia

EL/29: 76035 Date: 1979-04-12 S/LF: #42/1979-04-18

Incorporated by Royal Charter

STANDARDS HOUSE, 80 ARTHUR STREET, NORTH SYDNEY, N.S.W.

SUPPLEMENTARY CERTIFICATE FOR EXPLOSION PROTECTED ELECTRICAL EQUIPMENT

No. Ex 64-1 (Sheet 1 of 9

This certifies that the equipment described hereunder has been examined and lested in accordance with the requirements of the Australian standard(s) specified herein, and such equipment has been found to comply with these requirements. This certificate may be withdrawn at any time if in the opinion of SAA Committee P/3, Certification of Electrical Equipment for Hazardous Locations, the relevant standard has been altered or revised to a degree that the equipment is no longer considered suitable for installation in the hazardous location stated, or if the certificate holder has breached any of the terms or approximately the suitable for metallation in the hazardous location stated, or if the certificate holder has breached any of the terms or conditions under which this certificate was issued.

	Description of Modification	Hazardous Location
	"Fisher" Electronic Transmitters, Transducers	Refer Schedule l
	and Positioners.	Type of Protection
)	This supplementary certificate relates to the following items:	Refer Schedule 1 Certificate Holder
	(i) (a) "Fisher" Electronic Transmitters, Types 2340SB and 2341;	Fisher Controls Pty Limited 102 Hassall Street
	(b) "Fisher" Electronic Transducers, Types 5463 and 5465G-4;	Wetherill Park NSW 2184 Telephone (02) 604 0333; Telex 74780
		Manufacturer
	<pre>(c) "Fisher" Electronic Positioner, Type 3590S;</pre>	Refer Schedule 1
	(ii) Change in names of the Certificate Holder and the Manufacturer.	
		Test Report No(s)
)	Drawing No(s) Refer Schedule 1	SCC TR Nos. 57381, 51796, 51433, 51440 and 51432
		Australian Standard(s)
	Remarks	NA321322213281132
	This certificate supersedes the information given in Certificate No Ex 54,	SAA File Reference
	dated 1373-05-25.	P/3: 32211/M107
		Effective Date
		17:2.11.16
		Date of Issue 1983-05-19

This document shall not be reproduced except in full

This certilicate is not transferable and remains the procerty of the Association in the event of it being revolved

JInu-Director-Administration & pprovals

Standards Association of Australia

١

1

Incorporated by Royal Charter

STANDARDS HOUSE, 80 ARTHUR STREET, NORTH SYDNEY, N.S.W.

CERTIFICATE FOR EXPLOSION PROTECTED ELECTRICAL EQUIPMENT

Continuation of Certificate No. Ex 64-1 (Sheet 2 of 9)

SCHEDULE 1 Certification Conditions

)

1. "Fisher" Electronic Transmitters, Types 2340SB and 2341

The transmitters must be used in conjunction with the equipment detailed in (a) \underline{or} (b) below:

 (a) (i) The above transmitters must be used in conjunction with the following converters or shunt diode safety barriers:

> Converters - "Foxboro" Types 2AI-I2V-AGA and 3A2-I2D-CS-E/AGA-A

Shunt Diode Safety Barriers - "MTL" Types 128 or 128H;

- (ii) The converter, type 2AI-I2V-AGA, incorporated in the nest assembly, type 2ANU-D-AGA, must be supplied from a DP10-AGA power distribution component. The foregoing equipment must be installed inside a safe area in accordance with the requirements of SAA Certificate No Ex 17.
- (iii) The converter, type 3A2-I2D CS-E/AGA-A, incorporated in the nest assembly, types KO113AF CS-E/AGA-A or 3ANU-D CS-E/AGA-A, must be supplied from a 2AX+DP10-AGA power distribution component. The foregoing equipment must be installed inside a safe area in accordance with the requirements of SAA Certificate No Ex 291;
- (iv) The barriers, types 128 and 128H, must be installed inside a safe area in accordance with the requirements of SAA Certificate Nos INS 61 and Ex 84 respectively;
- (v) The Type of Protection and the Hazardous Location connected with the above transmitters when used with the converters and barriers referred to in 1 (a) (i) above are as follows:

Type of Protection	-	Ex ia IIC	
Hazardous Location	-	Class I	Zone 0

vi) The above apparatus must be installed in accordance with the drawing, No. 2B10308 Rev. A, and the manufacturer's instruction manual, Form 21480B April 1976, Form 2148 April 1974 and Form 5127 June 1979.

This document shall not be reproduced except in full. This certificate is not transferable and remains the property of the Standards Association of Australia and must be returned to the Association in the event of it being revoked.

Director-Administration & Approvals Standards Association of Australia

新

Ţ])

Incorporated by Royal Charter

STANDARDS HOUSE, 80 ARTHUR STREET, NORTH SYDNEY, N.S.W.

CERTIFICATE FOR EXPLOSION PROTECTED ELECTRICAL EQUIPMENT

Continuation of Certificate No: Ex 64-1 (Sheet 3 of 9)

SCHEDULE 1 Certification Conditions (Continued)

- 1 "Fisher" Electronic Transmitters, Types 2340SB and 2341 (continued)
 - (b) (i) The above transmitters must be used in conjunction with the following converters:

"Foxboro", Types 2AI-I3V-AGA and 3A2-I3D CS-E/AGB-A;

- (ii) The converter, Type 2AI-I3V-AGA, incorporated in the nest assembly, Type 2ANU-D-AGA, must be supplied from a DP10-AGA power distribution component. The foregoing equipment must be installed inside a safe area in accordance with the requirements of SAA Certificate No. Ex 17;
- (iii) The converter, Type 3A2-I3D CS-E/AGB-A, incorporated in the nest assembly, Types KO118AF CS-E/AGA-A or 3ANU-D CS-E/AGA-A, must be supplied from a 2AX+DP10-AGA power distribution component. The foregoing equipment must be installed inside a safe area in accordance with the requirements of SAA Certificate No. Ex 291;
- (iv) The Type of Protection and the Hazardous Location connected with the above transmitters when used with the converters referred to in 1 (b) (i) above are as follows:

Type of Protection Ex ib IIC

Hazardous Location

Class I Zone 1

(v) The above apparatus must be installed in accordance with the Drawing, No. 2B10308 Rev. A, and the manufacturer's instruction manuals, Form 2143GB April 1976, Form 2148 April 1974 and Form 5127 June 1979;

This document shall not be reproduced except in full

This certificate is not transferable and remains the property of the Standards Association of Australia and must be returned to the Association in the event of it being revoked

John John

Director-Administration & Approvals Standards Association of Australia

Incorporated by Royal Charter

STANDARDS HOUSE, 80 ARTHUR STREET, NORTH SYDNEY, N.S.W.

CERTIFICATE FOR EXPLOSION PROTECTED ELECTRICAL EQUIPMENT

Continuation of Certificate No: Ex 64-1 (Sheet 4 of 9)

- SCHEDULE 1 Certification Conditions (Continued)
 - 2. "Fisher" Electronic Transducers, Types 546S and 546SG-4

The transducers must be used in conjunction with the equipment detailed in (a) or (b) below:

 (a) (i) The above transducers must be used in conjunction with the following converters or shunt diode safety barriers:

> Converters - "Foxboro" Types 2AO-V2I-AGA, 2AT-SBU-AGA and 2AO-VAI-AGA

Shunt Diode Safety Barriers - "MTL" Types 128 or 128H and 187 or 187H;

- (ii) The converters, Types 2AO-V2I-AGA, 2AT-SBU-AGA or 2AO-VAI-AGA, incorporated in the nest assembly, Type 2ANU-D-AGA, must be supplied from a DP1O-AGA power distribution component. The foregoing equipment must be installed inside a safe area in accordance with the requirements of SAA Certificate No. Ex 17
- (iii) The barriers, Types 128, 128H, 137 and 187H, must be installed inside a safe area in accordance with the requirements of SAA Certificate Nos. INS 61, Ex 84, Ex 29 and Ex 29 respectively;
- (iv) The Type of Protection and the Hazardous Location connected with the above transducers when used with the converters and barriers referred to in 2 (a) (i) above as follows:

Type of Protection

Ex ia IIC

Hazardous Location

Class I Zone O

(v) The above apparatus must be installed in accordance with the Drawing No. 2B10306 Rev. A, and the manufacturer's instruction manual, Form 1783 May 1982 and Form Y27714-GB 1972.

This document shall not be reproduced except in full

This certificate is not transferable and remains the property of the Standards Association of Australia and must be returned to the Association in the event of it being revoked.

YIA Director-Administration & Approvals Standards Association of Australia

Incorporated by Royal Charter

STANDARDS HOUSE, 80 ARTHUR STREET, NORTH SYDNEY, N.S.W.

CERTIFICATE FOR EXPLOSION PROTECTED ELECTRICAL EQUIPMENT

Continuation of Certificate No: Ex 64-1 (Sheet 5 of 9)

SCHEDULE 1 Certification Conditions (Continued)

.)

- 2. "Fisher" Electonic Transducers, Types 546S and 546SG-4 (Continued)
 - (b) (i) The above transducers must be used in conjunction with the following converters:

"Foxboro", Types 2AO-V3I-AGB and 3A2-D3I CS-E/AGB-A

- (ii) The converters, Type 2AO-V3I-AGB, incorporated in the nest assembly, Type 2ANU-D-AGA, must be supplied from a DP1O-AGA power distribution component. The foregoing equipment must be installed inside a safe area in accordance with the requirements of SAA Certificate No. Ex 17;
- (iii) The converter, Type 3Á2-D3I CS-E/AGB-A in the nest assembly, Types KO118AF CS-E/AGA-A or 3ANU-D CS-E/AGA-A, must be supplied from a 2AX+DP10-AGA power distribution component. The foregoing equipment must be installed inside a safe area in accordance with the requirements of SAA Certificate No. Ex 291;
 - iv) The Type of Protection and the Hazardous Location connected with the above transducers when used with the converters referred to in 2 (b) (i) above are as follows:

Type of Protection - Ex ib IIC

Hazardous Location Class I Zone 1

(v) The above apparatus must be installed in accordance with the Drawing No. 2B10306 Rev. A, and the manufacturer's instruction manual, Form 1783 May 1982 and Form Y27714-GB 1972.

This document shall not be reproduced except in full. This certificate is not transferable and remains the property of the Standards Association of Australia and must be returned to the Association in the event of it being revoked.

JIN Director-Administration & Approvals

Standards Association of Australia

Incorporated by Royal Charter

STANDARDS HOUSE, 80 ARTHUR STREET, NORTH SYDNEY, N.S.W.

CERTIFICATE FOR EXPLOSION PROTECTED ELECTRICAL EQUIPMENT

Continuation of Certificate No: Ex 64-1 (Sheet 6 of 9)

SCHEDULE 1 Certification Conditions (Continued)

ŧ

3. "Fisher" Electronic Positioner, Type 3590S

The positioner must be used in conjunction with the equipment detailed in (a) or (b) below:

 (a) (i) The above positioners must be used in conjunction with the following converters or shunt diode safety barriers:

> Converters - 'Foxboro' Types 2AO-V2I-AGA, 2AT-SBU-AGA and 2AO-VAI-AGA

Shunt Diode Safety Barriers - "MTL" Types 128 or 128H and 187 or 187H;

- (ii) The converters, Types 2AO-V2I-AGA, 2AT-SBU-AGA or 2AO-VAI-AGA, incorporated in the nest assembly, Type 2ANU-D-AGA, must be supplied from a DP10-AGA power distribution component. The foregoing equipment must be installed inside a safe area in accordance with the requirements of SAA Certificate No. Ex 17;
- (iii) The barriers, Types 128, 128H, 187 and 187H, must be installed inside a safe area in accordance with the requirements of SAA Certificate Nos. INS 61, Ex 84, Ex 29 and Ex 29 respectively;
- (iv) The Type of Protection and the Hazardous Location connected with the above positioners when used with the converters and barriers referred to in 3 (a) (i) above are as follows:

Type of Protection Ex ia IIC

Hazardous Location

Class I Zone O

(v) The above apparatus must be installed in accordance with the Drawing No. 2B10307 Rev. A, and the manufacturer's instruction manual, Form 2403 January 1976.

This document shall not be reproduced except in full

This certificate is not transferable and remains the property of the Standards Association of Australia and must be returned to the Association in the event of it being revoked.

Ingray

Director-Administration & Approvals Standards Association of Australia

Incorporated by Royal Charter

STANDARDS HOUSE, 80 ARTHUR STREET, NORTH SYDNEY, N.S.W.

CERTIFICATE FOR EXPLOSION PROTECTED ELECTRICAL EQUIPMENT

Continuation of Certificate No: Ex 64-1 (Sheet 7 of 9

- SCHEDULE 1 Certification Conditions (Continued)
 - 3. "Fisher" Electronic Positioner, Type 3590S (Continued)
 - (b) (i) The positioners must be used in conjunction with the following converters:

"Foxboro", Types 2AO-V3I-AGB and 3A2-D3I CS-E/AGB-A;

- (ii) The converter, Type 2AO-V3I-AGB, incorporated in the nest assembly, Type 2ANU-D-AGA, must be supplied from a DP10-AGA power distribution component. The foregoing equipment must be installed inside a safe area in accordance with the requirements of SAA Certificate No. Ex 17;
- (iii) The converter, Type, 3A2-D3I CS-E/AGB-A, incorporated in the nest assembly, Types KO118AF CS-E/AGA-A or 3ANU-D CS-E/AGA-A, must be supplied from a 2AX+DP10-AGA power distribution component. The foregoing equipment must be installed inside a safe area in accordance with the requirements of SAA Certificate No. Ex 291;
- (iv) The Type of Protection and the Hazardous Location connected with the above positioners when used with the converters referred to in 3 (b) (i) above are as follows:

Type of Protection Ex ib IIC

Hazardous Location Class I Zone 1

(v) The above apparatus must be installed in accordance with the Drawing No. 2B10307 Rev. A, and the manufacturer's instruction manual, Form 2403 January 1976.

This document shall not be reproduced except in full.

)

This certificate is not-transferable and remains the property of the Standards Association of Australia and must be returned to the Association in the event of it being revoked.

1tru Director-Administration & Approvals

Standards Association of Australia

Incorporated by Royal Charter

STANDARDS HOUSE, 80 ARTHUR STREET, NORTH SYDNEY, N.S.W.

CERTIFICATE FOR EXPLOSION PROTECTED ELECTRICAL EQUIPMENT

Continuation of Certificate No: Ex 64-1 (Sheet 8 of 9

SCHEDULE 1 Certification Conditions (Continued)

4. The combined capacitance and inductance of the cable interconnecting the transmitter, transducer or positioner above and the converter or the barrier above must not exceed the following values:

Apparatus Group	Converter or Barrier	Capacitance nF	Inductance mH
IIC	2AD-V2I-AGA 2AO-V3I-AGB 2AT-SBU-AGA 2AO-VAI-AGA 2AI-I2V-AGA 2AI-I3V-AGA 3A2-I2D CS-E/AGA-A 3A2-I3D CS-E/AGA-A 3A2-D3I CS-E/AGB-A	130 130 130 130 130 130 130 130 100 95 220	4.2 4.2 4.2 3.7 3.7 10.5 12 6
· . · .	MTL 128 MTL 128H MTL 187 MTL 187H	130 130 130 130	4.2 4.2 0.08 0.08

)

)

The values for Groups IIB and IIA are 3 times and 8 times the values for Group IIC respectively.

- 5. Any safe area apparatus to be connected to the input terminals of the above power distribution component, or those 'safe area) of the barrier must comply with the following requirements:
 - (i) The apparatus is supplied from the secondary winding of a double-wound isolating transformer whose primary winding is protected by an appropriately rated fuse of adequate breaking capacity;

This document shall not be reproduced except in full. This certificate is not transferable and remains the property of the Standards Association of Australia and must be returned to the Association in the event of it being revoked.

Youna 12..... Director-Administration & Approvals

Standards Association of Australia

Incorporated by Royal Charter

STANDARDS HOUSE, 80 ARTHUR STREET, NORTH SYDNEY, N.S.W.

CERTIFICATE FOR EXPLOSION PROTECTED ELECTRICAL EQUIPMENT

Continuation of Certificate No: Ex 64-1 (Sheet 9 of 9)

SCHEDULE 1 Certification Conditions (Continued)

(

- (ii) The apparatus must not be supplied from nor contain a source of potential with respect to earth in excess of 250 V r.m.s. or 250 V d.c. under normal or abnormal conditions.
- 6. The meter, types 65FS-AA-JG and 65FS-AA-JB-A, B, C or D certified under SAA Certificate No Ex 388 may be used with the above transmitters, transducers or positioners as detailed in Drawing Nos. 2B10308 Rev. A, 2B10306 Rev. A and 2B10307 Rev. A respectively.

Drawing No(s)

2B 10306 Issue A; 2B 10308 Issue A; 4Y 30792 Issue C; 2Y 40344 Issue B; 47A 9716 Issue A; 46A 0049 Issue C; 1R 6527 Issue C; 1R 6524 Issue D; 1R 6525 Issue F; 2R 6530 Issue H; 3Y 4C406 Issue B; 1Y 30392 Issue D; 1Y 30395 Issue D; 3Y 20712 Issue G; 1W 1353 Issue A; 20A 5183 Issue D; 20A 5189 Issue C; 10A 5190 Issue C; 1H 3100 Issue C 1B 10057 Issue B;

2B 10307 Issue A;
5Y 30796 Issue D;
4Y 30790 Issue B;
4Y 30791 Issue C;
47A 9714 Issue B;
2U 8902 Issue D;
2R 6529 Issue E;
1P 4210 Issue E;
35A 9959 Issue B;
3P 4213 Issue F;
4W 1308 Issue B;
1W 1306 Issue A;
2W 1305 Issue A;
1B 10001 Issue B;
30A 8076 Issue D;
3V 4106 Issue F;
3U 8819 Issue F;
EM 3590x1 Page A issue S;
EM 359Cx1 Page A.1 Issue C;
10A 5185 Issue B

This document shall not be reproduced except in full

This certificate is not transferable and remains the property of the Standards Association of Australia and must be returned to the Association in the event of it being revoked.

yorg Director-Administration & Approvals Standards Association of Approvals

Incorporated by Royal Charter

STANDARDS HOUSE, 80 ARTHUR STREET, NORTH SYDNEY, N.S.W.

SUPPLEMENTARY CERTIFICATE FOR EXPLOSION PROTECTED ELECTRICAL EQUIPMENT

No. Ex 64-2

(Sheet 1 of 3)

This certifies that the equipment described hereunder has been examined and tested in accordance with the requirements of the Australian standard(s) specified herein, and such equipment has been found to comply with these requirements. This certificate may be withdrawn at any time it in the opinion of SAA Committee P/3; Certification of Electrical Equipment for Hazardous Locations, the relevant standard has been altered or revised to a degree that the equipment is no longer considered suitable for installation in the hazardous location stated, or if the certificate holder has breached any of the terms or conditions under which this certificate was issued.

Description of Modification	Hazardous Location
'Fisher' Electroic Transmitters, Transducers	Class I Zone O
and Positioners.	Type of Protection
This supplementary certificate relates to the following items:	Ex 1a IIC T4
 (a) The equipment previously certified under SAA Certificate Nos Ex 64 and Ex 64-1, which may be used in conjunction with alternative barrier devices, as detailed in Schedule 1. 	Certificate Holder Fisher Controls Pty Ltd 102 Hassall Street WETHERILL PARK NSW 2164.
(b) Change of address of Certificate Holder.	Manufacturer
	Fisher Controls Marshalltown IOWA USA.
Drawing No(s). 2B10306 Rev B; 2B10307 Rev B and 2B10308 Rev B	Test Report No(s) SCC TR NO: 59957
2B10306 Rev B; 2B10307 Rev B and	
2B10306 Rev B; 2B10307 Rev B and	SCC TR NO: 59957
2B10306 Rev B; 2B10307 Rev B and	SCC TR NO: 59957 Australian Standard(s)
2B10306 Rev B; 2B10307 Rev B and	SCC TR NO: 59957 Australian Standard(s) AS 1829-1981
2B10306 Rev B; 2B10307 Rev B and	SCC TR NO: 59957 Australian Standard(s) AS 1829–1981 SAA File Reference

This document shall not be reproduced except in full. This certificate is not transferable and remains the property of the Standards Association of Australia and must be returned to the Association in the event of it being revoked.

)

)

I her man

大学生をある

Incorporated by Royal Charter

STANDARDS HOUSE; 80 ARTHUR STREET, NORTH SYDNEY, N.S.W.

CERTIFICATE FOR EXPLOSION PROTECTED ELECTRICAL EQUIPMENT

Continuation of Certificate No: Ex 64-2 (Sheet 2 of 3)

SCHEDULE 1/ - Description of Modification (cont'd).

'Fisher' Electronic Transmitters, Transducers and Positioners.

The above equipment, as previously certified under SAA Certificate Nos Ex 64 and Ex 64-1, may be used in conjunction with the following barrier devices.

(a) Transmitters, Types 2340SB and 2341.

(1)	Barrier, Type	SAA Certificate No
	MTL 122	Ex 470
	MTL 188 and 188R	Ex 470
	MTL 322	Ex 83
	MTL 722	Ex 562
(+)	MTL 768	Ex 562
	MTL 788 and 788R	Ex 562
	MTL 2441	Ex 268

(11 Any SAA certified passive barrier, with or without repeater amplifier, Category (Ex ia), Group IIC, having the following nominal parameters:

Output voltage not greater than	28V
Output/input resistance not less than	300 ohms,
or	
Output voltage not greater than	22V
Output/input resistance not less than	150 ohms.

(111 Any SAA certified barrier, category (Ex ia), Group IIC, incorporating active components which affect the output characteristics, having the following nominal parameters:

Output voltage not greater than32VOutput current not greater than100 mA

(b) Transducers Types 546S and 546SG-4 and Positioner Type 3590S.

Barrier , Type		SAA Certificate No
MTL 122		Ex 470
MTL 722		Ex 562
MTL 728		Ex 562
MTL 787		Ex 562
MTL 2442		Ex 268
	MTL 122 MTL 722 MTL 728 MTL 787	MTL 122 MTL 722 MTL 728 MTL 787

(11) Any SAA certified barrier, with or without repeater amplifier, Category (Ex 1a), Group IIC, having the following nominal parameters:

This document shall not be reproduced except in full. This certificate is not transferable and remains the property of the Standards Association of Australia and must be returned to the Association in the event of it being revoked.

Director-Administration & Approvals Standards Association of Australia

家山橋のあ

ないない

)

)

Incorporated by Royal Charter

STANDARDS HOUSE, 80 ARTHUR STREET, NORTH SYDNEY, N.S.W.

CERTIFICATE FOR EXPLOSION PROTECTED ELECTRICAL EQUIPMENT

Continuation of Cert	ificate No: Ex 64-2 (Sheet 3 of 3)
Output voltage not greater t	:han : 28V
Output/input resistance not	
or	
Output voltage not greater t Output/input resistance not	
Any SAA certified barrier, category (incorporating active components which characteristics, having the following	affect the output

Output	voltage	not	greater	than	:	32V
Output	current	not	greater	than	:	100 mA

This document shall not be reproduced except in full.

(111

)

)

This certificate is not transferable and remains the property of the Standards Association of Australia and must be returned to the Association in the event of it being revoked.

J Luca Approvals Director-Administration & Approvals Standards Association of Australia

10

					ома. но. 2B10306
HAZARDOUS LOCATIONS - NONHAZA LOCATION SAA APPROVED SAA APPROVED		BARRIER TYPE	MANUE / SAA	SCHEM N°	SYSTEM CATEGORY
INSTRUMENT BARRIER Ex 64 -/ (SEE CHART)	FOXBORO	2A0-V2I-AGA	MI 200 / Ex 17	2	Exja
	FOXBORO	2AO-V3I-AGB	MI 200 / Ex 17	2	Exjb
	FOXBORO	2AT-SBU-AGA	MI 200 / Ex 17	2	Exja
SCHEMATIC Nº 1'	FOXBORO	2AO -VAI -AGA	MI 200 / Ex 17	2	Exua
546S OR 546SG-4	-O F0XB0R0	3A2-D3I CS-E/AGB-A	IS-88 / Ex 291	2	Ex بان
(OPTIONAL)	MTL	128 OR 128H	PS 300 / INS61 Ex 84	1	Exia
	MTL	187 OR 187H	P5 300 / Ex 29	2	Exja
SCHEMATIC Nº 2 +	ATTL	122	PS 300-15 14561 E+29 6	1	Ex Ja
546S (+) 0 0+	-0 MTL	722	PS 700-1 PENDING	1.	Exja
	-0	24.4.2	PS 2442-4 Fx 268	2	ExJa
10PTIONAL)	MTL	728, 787	PS700-1 PENDING	2	ExJa
EARTH	GROUND THE LOOP	S MUST BE CONNECTED A	CCORDING TO THE BARRIER	MANUFACTI	URER'S INSTRUCTIONS
OPTIONAL METER	UNLESS DTHERWISE SPECIFIED OSITIONAL : / # URFACE FINISH EMOVE BURRS AND HARP CORNERS OR CHAM MAX		LOOP FISHER		SAFE TIC WITH 46S OR 546SG-4
	HREAD LENGTH FULL THREAD NIT OF MEASURE O NOT SCALS THIS DWG.	B AGC 2 10 B4	Сонко	DWGL NC	10306 <i>B</i>

SAFE ATIC WITH 35905				255 014684435 356044	ПТВОА марие Вание Смая См
57 7J	2	5410N30 1-00650	LØL 'Ø2L	2.111	
\$~*3	8	892 3 /0-2002 50	5445	2.IN	
P('2	1	5410430 /1-00550	221	2,244	
ودم	/	\$ 62 " 3 \$ 62 " 3 51-005 50 175 NI	155	2447	SCHEMATIC Nº 2 +
Exia		62×300 \ E×38	H CBI 20 781	<u>)</u> ТМ —	
Exia	- 1		158 OB 158H	 118	
ExJr	2	162×3 / 88-51	3v2-031 C2-E \v08-v	€0×8040	
Ex نام	Z	WI 500 / EX 11	200 · VAT · ACA	E0X8060	
EXJE	z	. 41 ×3 / 002 1W	ADA-UB2-TAS	0908×0-1	
EXJA	Z	WI 500 / Ex 13	80 4- 15V-045	FDX BORO	
ב אטֿאַ	z	/I ×∋ / 00Z 1₩	A0A-15V-0AS	FOXBORO	1457R04647 (1457R184) (17841) 3321 (
ZASTEM CATEGORY	No 2CHEM	MANUF ' SAA' NAS' MANUF ' SAA'	1777 Barrfier	СЕЯТІЄІЕО СЕЯТІЄІЕО 6∧яяіея	

341 OR 234058 TIC WITH SAFE	SICALLY SCHEMA 3 TYPE 2 088404					OPTIONAL METER TYPE SAY Ex
		SWICHJAN 1-00L SC	8882 '882'892			
و د م م	2	1-E8 ×3 8-225 5d	355	7.111		
و ۲ م	1	SNICHIG /1-00L 50	155)	7.1 <i>W</i>		850762 80 1762
EX JU	2	DO 544/-4 Ex 50	5991	7_1/1		SCHEMATIC Nº 2
EXJa	2	E02 * 3 \$ 62 * 3 195N/ SI-OOESd	8881 '881	7.111		
<u>בא</u> קש	1	E02 +3 #62 +3 195NI SI-00E5d		7.1.14		(DANOITGO)
Ex ja	L	78×3 / 008 Sd	128 06 128H	MTL		85076
ηr x∃	2	- 162×3 / 88-SI	3A2-13D CS-E/AGB-A	F0XB0R0		80 1762
Exna	2	18.88 / E×201	3A2-I2D CSE/AGA-A	E O X BOBO	+	SCHEMATIC Nº1
Ϋ́Ε× ΊΥ	~ ح	WI 500 522 / E× 12	2A1 - I3V-AGA	EOXBOB0		
Exia	z	WI 500-522 / E×12	201-ISV-AGA	EOXBOR0	(TRAHD EEC	/-79 ×3
SYSTEM CATEGORY	N₀ RCHEW	MANUF / SAA	EA RRIER BA RRIER	СЕВТІРІЕD ВАЯВІЕВ	APPROVED ABIRAAB	SAA APPROVED INSTRUMENT
SB10308	1	1				SUDGRAZAH

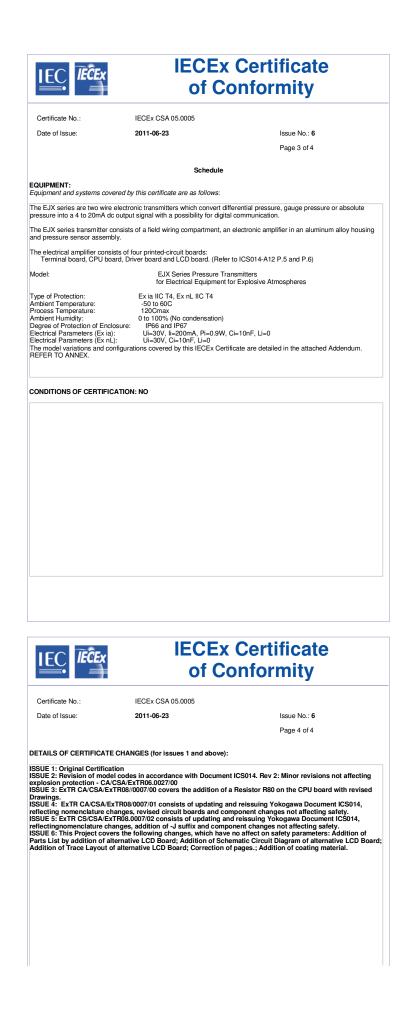
	K	IECEx Cer of Confo		
	INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification Scheme for Explosive Atmospheres for rules and details of the IECEx Scheme visit www.iecex.com			
Certificate No .:	IECEx CSA 05.0005	issue No.:	6 Certificate history: Issue No. 6 (2011-6-	
Status:	Current		Issue No. 5 (2010-5 Issue No. 4 (2009-7-	
Date of Issue:	2011-06-23	Page 1 of 4	Issue No. 3 (2008-6 Issue No. 2 (2006-1 15)	
Applicant:	Yokogawa Electric 2-9-32 Naka-cho, Mu Tokyo 180-8750 Japan		13)	
Electrical Apparatus: Optional accessory:	Pressure Transmitte	ers, Series EJX		
Type of Protection:	Ex i; Ex n			
Marking:	IECEx CSA 05.0005 Ex ia IIC T4, Ex nL II IP66, IP67 (Refer to Schedule)	C T4		
Approved for issue on L Certification Body:	behalf of the IECEx	D R Stubbings BA MIET		
Position:		Technical Manager		
Signature:				
(for printed version) Date:				
This certificate is not		roduced in full. s the property of the issuing bo nay be verified by visiting the C		
Certificate issued by:				
178 Toro	CSA International 3 Rexdale Boulevard nito, Ontario MSW IR3 Canada and 1707 - 94th Street monton, AB T6N 1E6 Canada		CSA INTERNATIONAL	
178 Toro	3 Rexdale Boulevard nto, Ontario MSW IR3 canada and 1707 - 94th Street monton, AB T6N 1E6 Canada	IECEx Cer of Confo	tificate	
178 Toro	3 Rexdale Boulevard nto, Ontario MSW IR3 canada and 1707 - 94th Street monton, AB T6N 1E6 Canada	of Confo	tificate	
	3 Rexdale Boulevard into, Ontario M9W IR3 Canada and 1707 - 94th Street monton, AB T6N 1E6 Canada	of Confo	tificate	
Edu Edu Certificate No.:	3 Rexdale Boulevard into, Ontario MSW IR3 canada and 1707 - 94th Street monton, AB T6N 1E6 Canada IECEx CSA 0 2011-06-23 Yokogaw	of Confo 5.0005 a Electric Corporation a-cho, Musashino-shi	rtificate ormity	
Edd Edd Edd Edd Edd Edd Edd Edd Edd Edd	3 Rexdale Boulevard into, Ontario MSW IR3 Canada and 1707 - 94th Street monton, AB T6N 1E6 Canada IECEx CSA 0 2011-06-23 Yokogaw 2-9-32 Nak Tokyo 180- Japan (s): ofu-shi 3558 Id as verification that a si the IEC Standard list belo ate, was assessed and fi ubject to the conditions a us and any acceptable ve	of Confo 5.0005 a Electric Corporation a-cho, Musashino-shi 8750 ample(s), representative of proc w and that the manufacture's c bound to comply with the IECEx s set out in IECEx Scheme Rul riations to it specified in the sol	tificate ormity Issue No.: 6 Page 2 of 4 Auction, was assessed and tested quality system, relating to the Ex. Quality system requirements. Th es, IECEx 02 and Operational Do	
Edd Edd Edd Edd Edd Edd Edd Edd Edd Edd	3 Rexdale Boulevard Into, Ontario MSW IR3 Canada and 1707 - 94th Street monton, AB T6N 1E6 Canada IECEx CSA 0 2011-06-23 Vokogaw 2-9-32 Nak Tokyo 180 Japan (s): ofu-shi 3558 d as verification that a si te IEC Standard list belo ate, was assessed and fubject to the conditions a us and any acceptable va to comply with the follow	of Confo 5.0005 a Electric Corporation a-cho, Musashino-shi 8750 ample(s), representative of proc w and that the manufacture's c s set out in IECEx Scheme Rul riations to it specified in the sch ing standards:	trifficate printy Issue No.: 6 Page 2 of 4	
Edd Edd Edd Edd Edd Edd Edd Edd Edd Edd	3 Rexdale Boulevard into, Ontario MSW IR3 canada and 1707 - 94th Street monton, AB T6N 1E6 Canada IECEx CSA 0 2011-06-23 Yokogaw 2-9-32 Nak Tokyo 180 Japan a(s): ofu-shi 3558 d as verification that a si te IEC Standard list belo ate, was assessed and fi ubject to the conditions a is and any acceptable ve I o comply with the follow Electrical apparat	of Confo 5.0005 a Electric Corporation a-cho, Musashino-shi 8750 ample(s), representative of proc w and that the manufacture's c s set out in IECEx Scheme Rul riations to it specified in the sch ing standards:	tificate prmity Issue No.: 6 Page 2 of 4 Auction, was assessed and tested quality system, relating to the Ex q Quality system requirements. The es, IECEX 02 and Operational Do redule of this certificate and the id res - Part 0: General requirement	

This Certificate **does not** indicate compliance with electrical safety and performance requirements other than those expressly included in the Standards listed above.

TEST & ASSESSMENT REPORTS: A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in

IECEx ATR: CA/CSA/ExTR08/0007/01 CA/CSA/ExTR08.0007/02 CA/CSA/ExTR08.0007/03

File Reference: 172608-2136152 (1626032) 172608-2267020 (1626032) 172608-2380376(1626032)





Incorporated by Royal Charter

STANDARDS HOUSE, 80 ARTHUR STREET. NORTH SYDNEY. N.S.W.

CERTIFICATE FOR EXPLOSION PROTECTED ELECTRICAL EQUIPMENT

No. Ex 609

This certifies that the equipment described hereunder has been examined and tested in accordance with the requirements of the Australian standard(s) specified herein, and such equipment has been found to comply with these requirements.

This certificate may be withdrawn at any time if in the opinion of SAA Committee P/3, Certification of Electrical Equipment for Hazardous Locations, the relevant standard has been altered or revised to a degree that the equipment is no longer considered suitable for installation in the hazardous location stated, or if the certificate holder has breached any of the terms or conditions under which this certificate was issued.

Description of Equipment	Hazardous Location
'Murphy' Liquid Level Switches,	Class I Zone l
Series L-1100 and L-1200	Type of Protection
	Ex d IIB T6
	Certificate Holder
	Murphek Pty Ltd
	215 Parramatta Road AUBURN NSW 2144
	Manufacturer
Drawing No(s) 15-00-0197; 15-00-0195; 15-00-0155; 15-00-0154; 15-01-0082 Rev C;	Frank W Murphy Manufacturer
15-05-344 Rev P; 15-05-345 Rev J; 15-05-346	Inc
Rev G; 15-05-348 Rev G; 15-05-349 Rev A; 15-05-376 Rev R; 15-05-474; 15-05-497 Rev E;	3131 South Sheridan Tulsa
15-05-650 Rev A; 15-05-0466 Rev D; 65.05.403	OKLAHOMA 74145 USA
Rev D; Bulletin LL7434; 15-01-0090 Rev 1; 15-05-0462 Sheets 1 & 2 Rev R; Sketch	
No L1100/L1200	Test Report No(s)
	SCC TR NO: 60015
Certification Conditions	
	Australian Standard(s)
	AS 2480-1981
	SAA File Reference
	P/3: 84122/M121
Remarks	1/2. 04122/1121
	Effective Date
	1985-09-05
	Date of Issue
	1985-09-06

This document shall not be reproduced except in full.

This certificate is not transferable and remains the property of the Standards Association of Australia and must be returned to the Association in the event of it being revoked.

Director-Administration & Approvals Standards Association of Australia

sheat of Sheet 2

STANDARDS HOUSE, 80 ARTHUR STREET, NORTH SYDNEY, N.S.W.

CERTIFICATE FOR FLAMEPECOF ENCLOSURE

No. FW. 693

This certifies that the flameproof enclosure described hereunder has been EXAMINED and TESTED and has been found to comply with the requirements for a flameproof enclosure in accordance with AS C98- Flameproof Enclosure of Flactrical Equipment, including Amendment No.(s).....

This Certificate applies only to the flameproof faatures of the equipment described herein and does not purport, nor is it intended to certify compliance with the relevant electrical safety requirements of the SAA Wiring Rules, AS CCI Parts 1 and 11.

DETAILS OF EQUIPMENT:

"S.A.E." Flamoproof Enclocurec, Cert. Nos, FIU1, FIJ2, FIIS51, FIL11 and FNP1L

See Sheet 2 of 2 for a description of enclosures.

DRAWING	NUMDER:
manufacture and a second second second second	785- Same party production and provide the second

1483 GA5-1, 1433 GA4-1, 148328-2, 148330-3, 148330-1, 140319-2, 053917-1, 148322-1, 148321-1, 0107127-2, 148327-1, "Retainer Clip" information shoet, EO/211/2.

GROUP IIE Enclosures; Temperature Classification T6

GROUPING AND CLASSIFICATION:

APPLICANT:

MANUFACTURER:

Safe Appliance and Equipment Co. Pty. Ltd., 26-28 Kert Road, MASCOT N.S.W. 2060 Netalcraft Engineering Co. Pty.Ltd.,

2060

TESTING STATION AND REPORT No.:

REMARKS:

SCC TR. 10,46601

26-28 Kert Road, MASCOT. N.S.W.

DETAILS OF ENCLOSED ELECTRICAL COMPONENTS

Cat. No. FNJ1 - Four-way terminal block "Siemens BK4" Cat. No. FNJ2 - Four-way terminal block "Siemens BK4" Cat. No. FNS1 - Une "Federal" 3 pole 15 A switch Cat. No. FNL11 - Two "Klockner-Hoeller" Lampholders 2.5%, Two B.S.9.S. size Lamps Cat. No. FNF1L - Two "Klockner-Hoeller" push button switches

Chairman of Committee EL/29

F. Director, Standards Association of Australia

EL/ 29

Date 13, 6,74

•¥

lieet 2 of Sheet 2 INCORPORATED BY BOYAL CHARTER

STANDARDS HOUSE, 80 ARTHUR STREET, NORTH SYDNEY. NSW

CERTIFICATE FOR FLAMEPROOF ENCLOSURE

No. FLP 693

REMARKS:

CAST ALUMINIUM ENCLOSURES

Cat. No FNJ1, Junction Box - One bore and spigot joint, four 3 in. conduit entries 16 T.P.I.

Cat. No.FNJ2, Junction Box - One bore and spigot joint Four 1" conduit entries 16 T.P.I.

Cat, No.FNS51, Isolating Switch - One bore and spigot joint, Four ‡ in. or 1 in, conduit entries 16 T.P.I. One operating spindle.

Cat, No.FNL11, Pilot Lamp Station - One bore and spigot joints, Four 7 in, or 1 in, conduit entries 16 I.P.I. Iwo indicator Lamp inspection windows.

Cat. No.FNP1L, Push Button Station - One bore and spigot joint, Four ‡ in, or 1 in, conduit entries 16 T.P.I. Two operating rods.

b

Chairman of Opmmittee BL/29

Director, Standards Association of Australia

E1/29 Date 3.6.74

۹[.] λ

EXPLOSION PROTECTED ELECTRICAL EQUIPMENT

Administered by: Standards Australia Quality Assurance Services

Certificate of Conformity

Certificate No:	AUS Ex 02.3794X	Issue 0:	Original Issue:	29/05/2002
Date of Expiry:	29/05/2012			
Certificate Holder:	Fisher Rosemount Pty Ltd 471 Mountain Highway Bayswater Victoria 3153			•
Electrical Equipment:	Model 3144P Smart Temperat and/or indicator	ture Transmitt	er, with optional	l integral temperature assembly
Type of Protection:	Ex ia Ex n			
Marking Code:	Ex n IIC IP66 T5 (Tamb= -60 Ex ia IIC IP66 T5 (Tamb= -60 AUS Ex 02.3794X			
Manufactured By:	Rosemount, Inc. Minncapolis, Mn U.S.A			

Issued by:



 919 Londonderry Road Londonderry NSW 2753

 Phone: (02) 4724 4900
 Fax: (02) 4724 4999

STANDARDS AUSTRALIA

Standards Australia Quality Assurance Services Pty Limited A.B.N. 67 050 611 642

EXPLOSION PROTECTED ELECTRICAL EQUIPMENT

Administered by: Standards Australia Quality Assurance Services

The electrical equipment and any acceptable variation to it specified in the schedule to this certificate and the identified documents, was found to comply with the following standards:

AS 2380.1:1989	Electrical equipment for explosive atmospheres - Part 1 - General requirements
AS 2380.9:1991	Electrical equipment for explosive almospheres - Part 9 - Type of protection n - Non-sparking.
AS 1939:1990	Degrees of protection provided by enclosures for electrical equipment (IP Code)
AS/NZS 60079.0:2000	Electrical apparatus for explosive gas atmospheres – Part 0: General requirements (including Amendment 1)
AS/NZS 60079.11;2000	Electrical apparatus for explosive gas atmospheres – Part 11: Intrinsic safety 'i' (including Amendment 1)

This certificate does not ensure compliance with electrical safety requirements and performance other than those included in the Standards listed above.

The equipment listed has successfully met the examination and test requirements as recorded in

Test Report No: TestSafe 22328

File Reference: TestSafe 2002/001006

Signed for and on behalf of issuing authority Director TestSafe Australia

Position

29/05/2002

Date of issue

Ex 02.3794X

This certificate and schedule may not be reproduced except in full.

This certificate is not transferable and remains the property of Standards Australia Quality Assurance Services and must be returned in the event of its being revoked or not renewed.

Issued by:



919 Londonderry Road Londonderry NSW 2753 Phone: (02) 4724 4900 Fax: (02) 4724 4999



Scientiale Australia Quality Assurance Services Ptv Lamited A.B.N. 67 050 611 612

EXPLOSION PROTECTED ELECTRICAL EQUIPMENT

Administered by: Standards Australia Quality Assurance Services

Schedule

Certificate No: AUS Ex 02.3794X Issue: 0 D

Date of Issue: 29/05/2002

Certified Equipment:

The Model 3144P Smart Temperature Transmitter is designed to convert the input from a temperature sensor into a 4-20 mA signal for measurement purposes. It contains printed circuit boards housed in a cylindrical metallic enclosure with a central partition that forms two compartments, each fitted with screw-on covers. The electronics compartment contains a transition printed circuit board, a main printed circuit board which is completely encapsulated, and an optional meter/LCD board. External connections are made via a terminal assembly in the terminal compartment. The terminal assembly consists of terminals mounted on a printed circuit board. The board itself is potted in a plastic enclosure. An encapsulated transient protection block may be fitted as an option in the terminal compartment. The metallic enclosure is polyurethane coated aluminum alloy, or optionally stainless steel.

Conditions of Certification:

1 Conditions of Safe Use

The following conditions shall be adhered to during installation:

- 1.1 For the option using the lightning protection board, the apparatus should be bonded to earth with a copper conductor of 4 mm² or greater.
- **1.2** For the label plate with more than one type of marking on it, on completion of commissioning the apparatus, the irrelevant marking code(s) shall be permanently scribed off.
- 1.3 Input/Output parameters for non-sparking protection model: Ex n

Input Parameters	Power / Loop Terminals J2B (Pins "+","-" & "T")
Maximum Input Voltage U_n	55 V
Maximum Input Power P_n	1.3 W

Issued by:



919 Londonderry Road Londonderry NSW 2753 Phone: (02) 4724 4900 Fax: (02) 4724 4999

STANDARDS AUSTRALIA

-Standards Australia Quality Assurance Services Pty Limited A B.N. 67(080)614 - 62

EXPLOSION PROTECTED ELECTRICAL EQUIPMENT

Administered by: Standards Australia Quality Assurance Services

Conditions of Certification continued:

Ex 02.3794X Addendum to Certificate No.....

1.4 Input/Output parameters for intrinsically safe model: Ex ia

I.S. Inputs/Outputs Parameters	Power / Loop Terminals J2B Pins "+","-" and "T"	Sensor Terminals J1B Pins "1" to "5"
Maximum Input Voltage U_i	30 V	
Maximum Input Current I_i	300 mA	
Maximum Input Power P _i	1.0 W	
Maximum Internal Capacitance C_i	0.005 μF	
Maximum Internal Inductance L _i	20 µH	
Maximum Output Voltage U_{o}		13.6 V
Maximum Output Current Io		100 mA
Maximum Output Power P _o		80 mW
Maximum External Capacitance Co		0.66 μF
Maximum External Inductance L_{o}		1.9 mH

Drawing No	Drawing Title	Sheets	Issue	Date
00644-4250	Transformer	1 of 1	AB	11/02/2000
00644-4253	Opto Coupler	1 to 5	AA	04/10/1999
03144-0140	Label, Nameplate	1 to 2	AD	21/01/2002
03144-0164	Label, Approvals for 3144P	1 to 2	AC	22/05/2002
03144-0308	Approval DWG. 3144P Hart/Analog SAA I.S. & Type n	1 to 3	AA	17/08/2001
3144-2004	Schematic Diagram Transition Board	l of l	B ·	10/04/1995
03144-1015	Filter Plate Assembly	1 to 3	AC	14/01/2002
03144-2005	PWB Drill Drawing Transition Board	1 to 2	D	03/05/1996
3144-2006	Circuit Card Assembly 3144 Transition Board Uncoated	1 of 1	В	05/1996
03144-2007	Schematic Diagram 3144 Terminal Block	1 of 1	В	10/04/1995
03144-2008	PWB Drill Drawing Terminal Block	1 to 2	E	04/11/1996
03144-2009	Circuit Card Assembly 3144 Terminal Block	1 of 1	AA	10/04/1997
03144-2017	Schematic, 3144/3244 Transient Protection Block, Hart	1 of 1	В	19/11/1996

Issued by:



 919 Londonderry Road Londonderry NSW 2753

 Phone: (02) 4724 4900
 Fax: (02) 4724 4999

STANDARDS AUSTRALIA

Standards Australia Quality Assurance Services Pty Limited A.B.N. 67 (050-614-642)

4 5 Page of . ..

EXPLOSION PROTECTED ELECTRICAL EQUIPMENT

Administered by: Standards Australia Quality Assurance Services

Ex 02.3794X Addendum_to Certificate No.....

Drawing Schedule continued:								
Drawing No	ring No Drawing Title		Issue	Date				
03144-2018	PWB, 3144/3244 Transient Protection Block, Hart	1 to 3	А	19/11/1996				
03144-2019	CCA, Transient	1 to 2	AA	16/01/1998				
03144-2108	Schematic, 3144P Electronics Board Fieldmount	1 to 3	AE	23/04/2002				
03144-2109	Printed Wiring Board, Electronics Field Mount	1 to 3	AC	24/04/2002				
03144-2110	CCA, Electronics Board Coated	1 to 2	AF	24/04/2002				
3144-2111	Schematic, 3144 LCD Adapter Board	l of l	AA	21/06/01				
3144-2112	PWB, Fabrication Drawing Interconnect Board	1 to 2	01	12/2000				
3144-2113	CCA Interconnect Board	l of l	01	07/2001				
03144-2354	Coated LCD/Meter Assembly 3144/3244	1 to 3	AE	19/07/2001				
03144-2357	Schematic Diagram FB/ADV Meter/LCD Board	l of l	AA	29/04/1999				
03144-2358	PWB FB/ADV Meter/LCD Board	.1 to 3	AA	29/04/1999				
03144-3040	Final Assy, Transient Protector	1 of 1	AB	16/06/1998				

Issued by:



919 Londonderry Road Londonderry NSW 2753 Phone: (02) 4724 4900 Fax: (02) 4724 4999

STANDARDS AUSTRALIA

Standards Australia Quality Assurance Services Pty Limited A.B.N. 67 050 611 612

5 5 Page . ut .



Head Office 286 Sussex Street Sydney NSW 2000 Australia Postal Address GPO Box 5420 Sydney NSW 2001 Australia Phone (61-2) 8206 6060 Fax (61-2) 8206 6061 Email assurance®sai-global.com training@sai-global.com

Our Ref: AUS Ex 542X Contact: N.Baker Phone: 61-2 8206 6614 Fax. 61-2 8206 6032 Email:noel.baker@sai-global.com

10 February 2003

United Electric Controls (Aust) Pty Ltd 615 Warrigal Road Ashburton Victoria 3147

Attention: Mr. Peter Edgar

RE: Extension of Expiry Date for Certificate AUS Ex 542X

Dear Sir,

I am pleased to inform you that your request for a further extension of the expiry date for the above Certificate of Conformity is granted on the basis that SIMTARS has confirmed that an application for revalidation of the apparatus has been submitted and that the contract is being finalised.

I confirm that the expiry date for the AUS Ex Certificate of Conformity No. 542X is now 31 July 2003.

Yours sincerely,

11tales

Noel Baker Project Coordinator Electrotechnology





Head Office 286 Sussex Street Sydney NSW 2000 Australia Postal Address GPO Box 5420 Sydney NSW 2001 Australia Phone (61-2) 8206 6060 Fax (61-2) 8206 6061 Email assurance@sai-global.com training@sai-global.com

Our Ref: AUS Ex 542X Contact: N.Baken Phone: 61-2 8206 6614 Fax. 61-2 8206 6032 Email:noel.baker@sai-global.com

30 October 2002

United Electric Controls (Aust) Pty Ltd 615 Warrigal Road Ashburton Victoria 3147

Attention: Mr. Peter Edgar

RE: Extension of Expiry Date for Certificate AUS Ex 542X

Dear Sir,

I am pleased to inform you that your request for an extension of the expiry date for the above Certificate of Conformity is granted on the basis that SIMTARS confirmed that an application for revalidation of the apparatus has been submitted.

I confirm that the expiry date for the AUS Ex Certificate of Conformity No. 542X is now 31 January 2003.

Yours sincerely,

1Bal/

Noel Baker Project Coordinator Electrotechnology



1 KOV 2332



EXPLOSION PROTECTED ELECTRICAL EQUIPMENT

Administered by. Standards Australia Quality Assurance Services

Certificate of Conformity

Certificate No.:	Ex 542X	Issue (0:	30 October 1984	Original issue
		Issue	1:	28 July 1987	Additions to Range
		Issue	2:	21 April 1992	Revalidation
		Issue	3:	21 December 1992	Change of Address
		issue -	4:	31 May 1996	Additions to Range

Date of expiry: 21 April 2002

Certificate Holder: United Electric Controls (Aust) Pty Ltd 2/615 Warrigal Road, Ashburton, Victoria. 3147

Electrical Equipment: 120 Series Pressure and Temperature Switches (See Appandix A for model numbers)

Type of Protection and Marking Code: Ex d IIC T6 IP66 AUS Ex 542X Class I Zone 1

Manufactured by: United Electric Controls (Aust) Pty Ltd

Issued by:



Engineering, Testing and Certification Centre



2 Smith Street, REDBANK, QLD 4301, Australia Postal Address: PO Box 467, GOODNA, QLD 4300, Australia Phone: (07) 3810 6370 Fax: (617) 3810 6366



Quality System Certified to AS3902/IS/09602 Registration No 6039

Standards Australia Quality Assarcance Services Pty Limited A.C.N. 050 611 64.

EXPLOSION PROTECTED ELECTRICAL EQUIPMENT

Administered by: Standards Australia Quality Assurance Services

This certificate is granted subject to the conditions as set out in Standards Australia Miscellaneous Publication MP 69 and the Procedures (Doc. Q7134) of the scheme.

The electrical equipment and any acceptable variation to it specified in the schedule to this certificate and the identified documents, was found to comply with the following standards:

AS 2380.1 - 1989	Electrical equipment for explosive atmospheres - Explosion-protection techniques - Part 1 : General Requirements
AS 2380.2 - 1991	Electrical equipment for explosive atmospheres - Explosion-protection techniques - Part 2 : Flameproof Enclosure d (Amdt 1 - 13 July 1992)
AS 1939 - 1990	Degrees of protection provided by enclosures for electrical equipment (IP Code)

The equipment listed has successfully met the examination and test requirements as recorded in

Test Report No: File Reference:

(P80145)

on behalf of issuing authority Signed for

Signa for the on tenan of issuing antitority

Manager - Engineering, Testing and Certification Centre

Pastion

31 May 1996

Date of usur

Certificate No.: Ex 542X

This certificate and schedule may not be reproduced except in full.

NE95/0036

95/0129

This certificate is not transferable and remains the property of Standards Australia Quality Assurance Services and must be returned in the event of its being revoked or not renewed.

Issued by:



Engineering, Testing and Certification Centre

2 Smith Street, REDBANK, QLD 4301, Australia Postal Address: PO Box 467, GOODNA, QLD 4300, Australia Phone: (07) 3810 6370 Fax: (617) 3810 6366



Page 2 of 7

Quality System Certified to AS3902/ISO9002 Registration No 6039

Issue: 4

STANDARDS AUSTRALIA

Stanslards Australia Quality Assurance Services Pty Limited A.C.N. 050 611 642



EXPLOSION PROTECTED ELECTRICAL EQUIPMENT

Administered by: Standards Australia Quality Assurance Services

Schedule

Equipment

The 120 Series Flameproof Temperature and Pressure Switches are housed in die-cast enclosures manufactured from American Die-Casting Institute Aluminium Alloy #360 and incorporate a threaded cover with a threaded conduit entry on the base. The enclosures are fitted with a limit switch which is operated by means of bellows by external pressure for pressure switches and a capillary expansion tube for the temperature switches. This supplementary certificate includes modified cover and sealing arrangements for models as listed in Appendix A. The particular models as listed in Table 1 below have a different internal switch/sensor.

ENCLOSURE TYPE	MODELS
J120	520 to 525
J120	530 to 535



Drawings:

DRAWING NO.	DRAWING TITLE	REVISION NO.	DRAWN REVISION DATE
A-60121-1	121 Enclosure	G	11/15/95
A-6262-242	Plunger Guide	В	12/11/95
UEA-0029	SAA Cert 120	1	16/1-96
A-12962	.7120	c	23/4.96
A-12958	J120	D	23/4/96

(DRAWINGS CONTINUED NEXT PAGE)

Engineering, Testing and Certification Centre

issued by:

Certificate No.: Ex 542X Issue: 4 Date of Issue: 31 May 1996



2 Smith Street, REDBANK, QLD 4301, Australia Postal Address: PO Box 467, GOCONA, QLD 4300, Australia Phone: (07) 3810 6370 Pax: (617) 3810 6366



Quality System Certified to A\$3902/ISO9002 Registration No 6039



Standards Australia Quality Assurance Services Pty Limited A.C.N. 050-611-64

Page 3 of 7

EXPLOSION PROTECTED ELECTRICAL EQUIPMENT

Administered by: Standards Australia Quality Assurance Services

Addendum to Certificate No. : Ex 542X

4

Surger Section		e or issue.	31 May 1996	
DRAWING NO.	DRAWING TIPLI.	REVISION NO.	DRAWN REVISION DATE	
UEA-1200L	120 Name Plate	5	16/1/96	
UEA-1209G	120 Series Gaskets	D	15/3/96	
E12267	SAA Cortified E122 Temperature Swis	E	21/5/96	
E-12266	SAA Certified B122 Temperature Swt	c	4/16/96	
E-12261	SAA Certified C120 Temperature Swt's	c	4/16/96	
E-12260	SAA Certified F120 Temperature Swt	Ð	13/5/96	
F-12265 Sheet 1of 2	SAA Certified H122 & H122K Temperature Swt's	E	13/5/96	
E12264	SAA Certilied B121 Temperature Swt's	с	4/16/96	
E-12263	SAA Certified E121 Temperature Swis	D	13/5/96	
E-12259 Sheet 1of 2	J120 & J120K Pressure Swis	F	21/5/96	
E-6296-279	General Construction, Flamepath details, wiring and optional features of 122 series calibrated dual switch controls with	D	4/16/96	
E-6296-278 Sheet 2 of 2	General Construc E, B & H121 Control Head Ass'y (1010 Option)	¢	4/16/96	
E-6296-278 Sheet 1 of 2	General Construction Flameputh details wiring and optional features of 121 Series calibrated single switch control	D	4/16/96	
E-6296-277 Sheet 2 of 2	General Construe G.F & J120 Control Head Ass'y (1010 Option)	D	4/16/96	
E-6296-277 Sheet 1 of 2	General construction, flamepath details, wiring and optional features of 120 series unculibrated single switch controls	E	4/16/96	
M-12962	J120 530 through 535	в	6/23/94	

Date of Issue: 31 May 1996

Issue:

(DRAWINGS CONTINUED NEXT PAGE)

J120 520 through 575

issued by:



31-12958

Engineering, Testing and Certification Centre

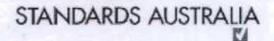
2 Smith Street, REDBANK, QLD 4301, Australia Postal Address: PO Box 467, GOODNA, QLD 4300, Australia Phone: (07) 3810 6370 Fax: (617) 3810 6366



Quality System Certified to AS3902/IS09002 Registration No 6039

6/23/94

c



netaods Australia Quality Assurance Services Pty Limited A.C.N. 050 611 642



EXPLOSION PROTECTED ELECTRICAL EQUIPMENT

Administered by: Standards Australia Quality Assurance Services

Addendum to Certificate No....: Ex 542X Issue: 4

Date of Issue: 31 May 1996

DRAWING NO.	DRAWING TITLE	REVISION NO.	DRAWN/ REVISION DATE
C-61120-1	C-61120-1 Explosion-proof cover 120 series Page 1 of 2		11/15/95
C-61120-1	#120 Series Cover Specifications	P	11/15/95
Page 2 of 2			
C-60122-1	121 & 122 Series Enclosure Specifications	AG	12/11/95
Page 2 of 2			
D-60122-1	No. 122 Enclosure	AG	12/11/95
Page 1 of 2		10000	
D-60120-13	Explosion Proof Enclosure 120 series	U	12/7/95
Page 1 of 2			
C-60120-13	#120 series Enclosure Specifications	U	12/8/95
Puge 2 of 2			1996, 19
E-12265	Flameproof Pressure Switch	E	13/5/96
Sheet 2 of 2	H122 & H122k		
E-12259	Flumeproof Pressure Switch	G	21/5/96
Sheer 2 of 2	J120 & J120K		
E-12262	II121 & II121K	F	13/5/96
Sheet 1 of 2	Pressure Swf's		
E-12262	Flameproof Pressure Switch	E	13/5/96
Sheet 2 of 2	H121 & H121K		

Conditions of Certification:

Only approved flameproof threaded adaptors are to be used with the NPT threaded entry

Issued by:



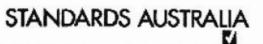
Engineering, Testing and Certification Centre

MATA

AS3902/ISO9002 Registration No 6039

Quality System Cartified to

2 Smith Street, REDUANIX, QLD 4301, Australia Postal Address: PO Box 467, GOODNA, QLD 4300, Australia Phone: (07) 3810 6370 Fax: (617) 3810 6366



Standards Australia Quality Assurance Services Pty Limited A.C.N. 030 611 642

5 7

EXPLOSION PROTECTED ELECTRICAL EQUIPMENT

Administered by: Standards Australia Quality Assurance Services

Addendum to Certificate No....: Ex 542X Issue: 4 Date of Issue: 31 May 1996

Additional Information:

Appendix A

UNUED FLECTRIC 120 SERIES - PRESSURE SWITCHES			
INCLOSURE TYPE	MODEL NUMBERS IN THE RANGE		
DESCRIPTION	NON-VENTED	NINTYII	
J120 - One SPDT; internal adjustment with Internal scule J120K - One SPDT; Internal set point adjustment, no dial	S126B, S134B, S137B, S144B, S152B, S156B, S164B, 126 134, 137, 144, 152, 156, 164.	50, 51, 52, 53, 54, 55, 850B, 851B, 852B, 853B, 854B, 855B, 171, 172, 173, 174, 471, 472, 473, 474, 183, 184, 185, 186, 188, 189, 483, 484, 485, 486, 488, 489, 190, 191, 192, 193, 194, 490, 491, 492, 493, 494, 270, 274, 356, 358, 364, 376, 520, 521, 522, 523, 524, 525, 530, 531, 532, 533, 534, 535, 560, 561, 562, 563, 564, 565, 566, 567, 612, 616, 680, 701, 702, 703, 704, 705, 706, 450, 451, 452, 453, 454, 550, 551, 552, 553, 554, 555, 147, 157, 8147B, 8157B, 367, 36, 37, 38, 39, 455, 456, 457, 559	
H121 - One SPDT: Top external reference dial, and tamper resistant cover H121K - One SPDT: External reference dial, and tamper resistant cover	126, 134, 137, 144, 146, 156, 164, 5126R, 5134R, 5137R, 5144B, 5146B, 5156B, 5164B	270, 274, 358, 361, 376, 450, 452, 453, 454, 550, 552, 553, 554, 555, 612, 614, 701, 702, 703, 704, 705, 147, 8147B, 157, 8157B, 456, 457, 559.	
11122 - Two SPDT; Top external reference dials, and tamper resistant cover; dual switch separation of up to 100% of range H122K - Two SPDT; External reference dials, and tamper resistant cover	126, 134, 144, 146, 156, 164, S126B, S134B, S144B, S146B, S156B, S164B	270, 274, 358, 361, 376, 450, 452, 453, 454, 550, 552, 553, 554, 555, 612, 614, 701, 702, 703, 704, 705, 147, S147B, 157, S157B, 456, 457, 559	

Table A1 - Pressure Switches

Issued by:



Engineering, Testing and Certification Centre 2 Smith Street, REDBANK, QLD 4301, Australia Postal Address: PO Box 467, GOODNA, QLD 4300, Australia

Phone: (07) 3810 6370



Ounity System Certified to AS3902/1509002 Registration No 6039



Fax: (617) 3810 6366

Standards Australia Quality Assurance Services Pty Limited A.C.N. 650 611 64.

6 7 Page

EXPLOSION PROTECTED ELECTRICAL EQUIPMENT

Administered by: Standards Australia Quality Assurance Services

Addendum to Certificate No. : Ex 542X

Issue: 4

Date of Issue: 31 May 1996

UNITED ELECTRIC 120 SERIES - TEMPLEATURE, SWITCHES		
ENCLOSURE TYPE DESCRIPTION	MODEL NIMBERS IN THE RANGE	
B121 - One SPDT; immersion stem; external calibrated dial and tamper resistant cover B122 - Two SPDT; immersion stem; external calibrated dial and tamper resistant cover C120 - One SPDT; immersion stem; no reference scale; internal set point adjustment	119, 120, 121	
E121 - One SPDT: Bulb and capillary; external calibrated dial and tamper resistant cover E122 - Two SPDT; Bulb and capillary; external calibrated dial and tamper resistant cover	2RSA, 2BNB, 3RS, 4RS, 5BS, 8BS, M9BB	
F120 - One SPDT; Bulb and capillary; no reference scale; internal set point adjustment	e 1185, 288, 3185, 488, 5185, 608, 7185, 8085, M918	

Table A2 - Temperature Switches

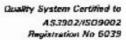
Issued by.



Engineering, Testing and Certification Centre

MATA

2 Smith Street, REDBANK, QLD 4301, Australia Postal Address: PO Box 467, GOODNA, QLD 4300, Australia Phone: (07) 3810 6370 Fax: (617) 3810 6366







Standards Australia Quality Assarance Services Pty Limited A.C.N. 050 611 642

EXPLOSION PROTECTED ELECTRICAL EQUIPMENT

Administered by: Standards Australia Quality Assurance Services

Certificate of Conformity

. .

Certificate No.	Ex 542X	Issue	0: 1:	30 October 1984 28 July 1987	Original Issue Additions to Range
		Issue	2:		Revalidation
		issue	3:	21 April 1992 21 December 1992	
		Issue	4:		Change of Address
		Issue	5:	31 May 1996 9 July 1999	Additions to Range
		Issue	0.	9 July 1999	Additions to Range
Date of expiry:	21 April 2002				
	Linited El	e strie Controle	(
Certificate Holder:		ectric Controls	(Aus	tralla) Pty Ltd	
	2/615 Warri				
	ASHBURTO	ON VIC 3147			
	120 Saria	s Pressure Swi	tohor		
Electrical Equipment:			tenes	•	
	(See Table 1 f	or model numbers)			
Type of Protection and	Marking Code:	Ex d IIC T6 IP66	Class	I Zone 1	
		AUS Ex 542X			
	United El	actric Controle	(1)	tralia) Dty I td	
Manufactured by:	United El	ectric Controls	(Aus	trana) Fly Llu	

Issued by:

O. C. M.



Engineering, Testing and Certification Centre 2 Smith Street, REDBANK, QLD 4301, Australia

2 Smith Street, REDBANK, QLD 4307, Australia Postal Address: PO Box 467, GOODNA, QLD 4300, Australia Phone: (07) 3810 6370 Fax: +617 3810 6366



STANDARDS AUSTRALIA

Page 1 of

Standards Australia Quality Assurance Services Pty Limited A.C.N. 050 611 642

EXPLOSION PROTECTED ELECTRICAL EQUIPMENT

Administered by: Standards Australia Quality Assurance Services

This certificate is granted subject to the conditions as set out in Standards Australia Miscellaneous Publication MP 69 and the Procedures (Doc Q7134) of the scheme.

The electrical equipment and any acceptable variation to it specified in the schedule to this certificate and the identified documents, was found to comply with the following standards:

AS 2380.1 - 1989	Electrical equipment for explosive atmospheres - Explosion-protection techniques - Part 1 : General requirements
AS 2380.2 - 1991	Electrical equipment for explosive atmospheres - Explosion-protection techniques - Part 2 : Flameproof enclosure d (Amdt 1, 13 July 1992)

This certificate does not ensure compliance with electrical safety and performance requirements other than those included in the standards listed above.

The equipment listed has successfully met the examination and test requirements as recorded in

Test Report No: E98/0076 File Reference: 98/0297 (P80763)

Signed for and on behalf of issuing authority

Senior Engineer - Certification Engineering, Testing and Certification Centre Position

9 July 1999

Date of issue

This certificate and schedule may not be reproduced except in full.

This certificate is not transferable and remains the property of Standards Australia Quality Assurance Services and must be returned in the event of its being revoked or not renewed.

Issued by:

Certificate No.: Ex 542X Issue: 5

Engineering, Testing and Certification Centre

2 Smith Street, REDBANK, QLD 4301, Australia Postal Address: PO Box 467, GOODNA, QLD 4300, Australia Phone: (07) 3810 6370 Fax: +617 3810 6366



Quality System Certified to AS/NZS ISO 9001 Certification No 6039



Standards Australia Quality Assurance Services Pty Limited A.C.N. 050 611 642

Page 2 of 5

EXPLOSION PROTECTED ELECTRICAL EQUIPMENT

Administered by: Standards Australia Quality Assurance Services

Schedule

Equipment:

The 120 Series Flameproof Temperature and Pressure Switches are housed in die-cast aluminium enclosures and incorporate a threaded cover with a threaded conduit entry in the base. The enclosures are fitted with a limit switch which is operated by means of bellows by external pressure for pressure switches and a capillary expansion tube for the temperature switches. The range is listed in Tables 2 and 3.

This supplementary certificate covers the additional models to the pressure switch range as listed in Table 1.

Table 1: Addition of Models

ENCLOSURE TYPE	MODELS
J120K	540 to 548

Table 2: Series 120 Pressure Switches

ENCLOSURE TYPE	MODEL NUMBERS IN THE RANGE			
DESCRIPTION	NON-VENTED	VENTED		
J120 - One SPDT; internal adjustment with internal scale J120K - One SPDT; Internal set point adjustment, no dial	S126B, S134B, S137B, S144B, S152B, S166B, S164B, 126 134, 137, 144, 152, 156, 164.	50, 51, 52, 53, 54, 55, S50B, S51B, S52B, S53B, S54B, S55B, 171, 172, 173, 174, 471, 472, 473, 474, 183, 184, 185, 186, 188, 189, 483, 484, 485, 486, 488, 489, 190, 191, 192, 193, 194, 490, 491, 492, 493, 494, 270, 274, 356, 358, 361, 376, 520, 521, 522, 523, 524, 525, 530, 531, 532, 533, 534, 535, 560, 561, 562, 563, 564, 565, 566, 567, 612, 616, 680, 701, 702, 703, 704, 705, 706, 450, 451, 452, 453, 454, 540, 541, 542, 543, 544, 545, 546, 547, 548, 550, 551, 552, 553, 554, 555, 147, 157, S147B, S157B, 367, 36, 37, 38, 39, 455, 456, 457, 559		
H121 - One SPDT; top external reference dial and tamper resistant cover H121K - One SPDT; external reference dial and tamper resistant cover	126, 134, 137, 144, 146, 156, 164, S126B, S134B, S137B, S144B, S146B, S156B, S164B	270, 274, 358, 361, 376, 450, 452, 453, 454, 550, 552, 553, 554, 555, 612, 614, 701, 702, 703, 704, 705, 147, S147B, 157, S157B, 456, 457, 559		
H122 - Two SPDT; top external reference dials and tamper resistant cover; dual switch separation of up to 100% of range H122K - Two SPDT; external reference dials and tamper resistant cover	126, 134, 144, 146, 156, 164, S126B, S134B, S144B, S146B, S156B, S164B	270, 274, 358, 361, 376, 450, 452, 453, 454, 550, 552, 553, 554, 555, 612, 614, 701, 702, 703, 704, 705, 147, S147B, 157, S157B, 456, 457, 559		

Issued by:

Certificate No.: Ex 542X Issue: 5 Date of Issue: 9 July 1999



Engineering, Testing and Certification Centre

2 Smith Street, REDBANK, QLD 4301, Australia Postal Address: PO Box 467, GOODNA, QLD 4300, Australia Phone: (07) 3810 6370 Fax: +617 3810 6366



Quality System Certified to AS/NZS ISO 9001 Certification No 6039



Standards Australia Quality Assurance Services Pty Limited A.C.N. 050 611 642

Page 3 of

EXPLOSION PROTECTED ELECTRICAL EQUIPMENT

Administered by: Standards Australia Quality Assurance Services

Addendum to Certificate No. .: Fy 542X

Issue:	5
Date of Issue:	9 July 1999

Table 3 - Series 120 Temperature Switches

ENCLOSURE TYPE DESCRIPTION	MODEL NUMBERS IN THE RANGE
 B121 - One SPDT; immersion stem; external calibrated dial and tamper resistant cover B122 - Two SPDT; immersion stem; external calibrated dial and tamper resistant cover C120 - One SPDT; immersion stem; no reference scale; internal set point adjustment 	119, 120, 121
E121 - One SPDT; bulb and capillary; external calibrated dial and tamper resistant cover E122 - Two SPDT; bulb and capillary; external calibrated dial and tamper resistant cover	2BSA, 2BSB, 3BS, 4BS, 5BS, 8BS, M9BB
F120 - One SPDT; bulb and capillary; no reference scale; internal set point adjustment	1BS, 2BS, 3BS, 4BS, 5BS, 6BS, 7BS, 8BS, M9B

Issued by:



Engineering, Testing and Certification Centre

2 Smith Street, REDBANK, QLD 4301, Australia Postal Address: PO Box 467, GOODNA, QLD 4300, Australia Phone: (07) 3810 6370 Fax: + 617 3810 6366



STANDARDS AUSTRALIA

Standards Australia Quality Assurance Services Pty Limited A.C.N. 050 611 642

EXPLOSION PROTECTED ELECTRICAL EQUIPMENT

Administered by: Standards Australia Quality Assurance Services

Addendum to Certificate No ...: Ex. 542X.

Issue:	5		
Date of Issue:	9 July 1999		

Drawings:

The following drawings are associated with the additional models to the range:

DRAWING NO.	DRAWING TITLE	REVISION No.	DRAWN/ REVISION DATE
B - 12259 SHEETS 1 TO 5 OF 5	SAA APPROVED J120 & J120K PRESSURE SWITCHES	к	3/25/99
E-6296-277 SHEET 1 OF 2	GENERAL CONSTRUCTION, FLAMEPATH DETAILS, WIRING AND OPTIONAL FEATURES OF 120 SERIES UNCALIBRATED SINGLE SWITCH CONTROLS WITH SAA APPROVAL	F	31/3/99
E-6296-277 SHEET 2 OF 2	GENERAL CONSTRUC. C, F & J120 CONTROL HEAD ASSY (1010 OPTION) SAA APPROVAL	D	4-16 96
UEA-1200L	120 NAME PLATE	6	16/1/96

Conditions of Certification:

Separately certified flameproof threaded adaptors shall be used with the NPT threaded entry.



Engineering, Testing and Certification Centre

2 Smith Street, REDBANK, QLD 4301, Australia Postal Address: PO Box 467, GOODNA, QLD 4300, Australia Phone: (07) 3810 6370 Fax: + 617 3810 6366



STANDARDS AUSTRALIA

Standards Australia Quality Assurance Services Pty Limited A.C.N. 050 611 642

'age 5 of 5

Cartificate No

Ex 542-3

Certificate of Compliance

EOUPPER SUPPLEMENTARY

This is to certify that Standards Australia Certificate No Ex 542. Ex 542-1 and Ex 542-2 issued to:

United Electric Controls (Aust) Pty LTd

- PROJECTED

for the <u>120 series Temperature and Pressure Controls</u> are hereby extended to include changes as detailed in the following schedule.

SCHEDULE

<u>Description of changes:</u>

NOIRON

Change of Address of Certificate Holder to:

Unit 2, 615 Warrigal Road Ashburton Vic 3147

File: P/3: 92220

Date of Issue: 21 December 1992

Date of Explry of Validity: 21 April 2002

Page 1 of 1

l

Signed for and on behalf of Standards Australia

General Monoger Genity Assurance Services

This certificate is not transferable and remains the property of Standards Australia and must be returned in the event of its being revoked or not renowed



Standards Australia Quality Assurance Services Ply Limited A.C.N. 050 611 642

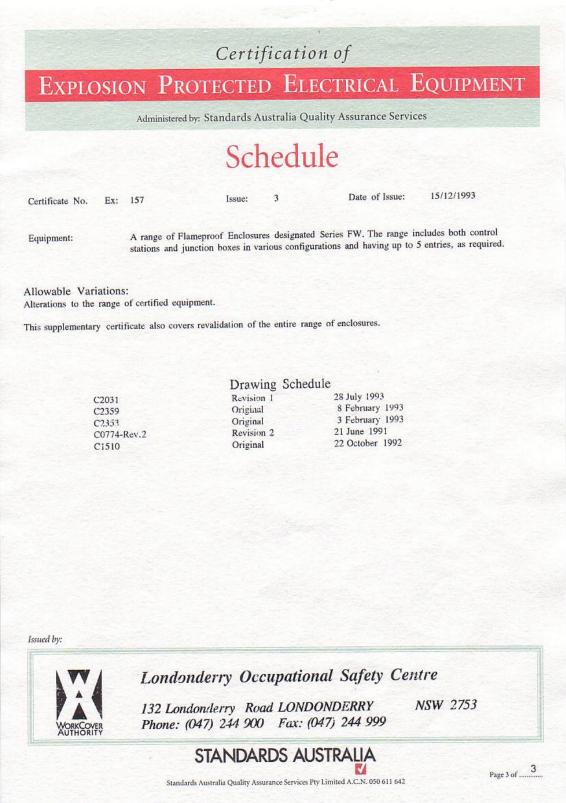
FW0001 (826x1165x16M jpeg)

Explosic	DN	PROTECTE	D EI	LEC	TRICAL	Equipment
		ninistered by: Standards		27-		
	Ce	ertificate	of (Co	nform	nity
ertificate No.	Ex:	157	Issue 0:		Original Issue 24	/2/1993
			Issue 1:		21/9/1982	
			Issue 2:		30/6/1988	
			Issue 3:		15/12/1993	
Date of Expiry:		15/12/2003				
Certificate Holder:		Govan Drewburn Pty Lt 156 Bamfield Road WEST HEIDELBERG	d Victoria	3081		
		WEDT HEIDEBBERG				
Electrical Equipment:		FW Range of Flameproc	f Enclosure	8		
ype of Protection and	Mark	ing Code:	Ex d III	B T6 I	P65 Class I Zone	1
Aanufactured By:		Govan Drewburn Pty Lt 156 Bamfield Road WEST HEIDELBERG	d Victoria	3081		
ued by:						
W/	L	ondonderry O	ccupati	ona	l Safety Co	entre
WORKCOVER		32 Londonderry R hone: (047) 244 90				NSW 2753

FW0002 (826x1165x16M jpeg)



FW0003 (826x1165x16M jpeg)





Incorporated by Royal Charter

STANDARDS HOUSE, 80 ARTHUR STREET, NORTH SYDNEY, N.S.W

CERTIFICATE FOR EXPLOSION PROTECTED ELECTRICAL EQUIPMENT

No. Ex 542

(Sheet of 3)

This certifies that the equipment described hereunder has been examined and tested in accordance with the requirements of the Australian standard(s) specified herein, and such equipment has been found to comply with these requirements. This certificate may be withdrawn at any time if in the opinion of SAA Committee P/3, Certification of Electrical Equipment for Hazardous Locations, the relevant standard has been altered or revised to a degree that the equipment is no longer considered suitable for installation in the hazardous location stated, or if the certificate holder has breached any of the terms or conditions under which this certificate was issued.

Description of Equipment A range of Pressure and Temperature	Hazardous Location
Controls, 120 Series.	Class I Zone 1
	Type of Protection
As detailed in Schedule 1	Ex d IIB T6 IP66
	Certificate Holder
	United Electric Controls (Aust) Pty Ltd 83 Murphy Street RICHMOND VIC 3121.
Drawing No(s)	Manufacturer
Refer Schedule 2	United Electric Controls Co 83 School Street Watertown MASSACHUSETTS USA
	Test Report No(s)
Certification Conditions	Londonderry Centre TR NO: 974
Refer Schedule 1	Australian Standard(s)
	AS 2480-1939 and AS 1939-1981
	SAA File Reference P/3: 82153/M117
Remarks	
	Effective Date
	1984-10-29
	Date of Issue 1984-10-30

This document shall not be reproduced except in full.

This certificate is not transferable and remains the property of the Standards Association of Australia and must be returned to the Association in the event of it being revoked.



Fran Director—Administration & Approvals Standards Association of A Standards Association of Australia

Incorporated by Royal Charter

STANDARDS HOUSE, 80 ARTHUR STREET, NORTH SYDNEY, N.S.W.

CERTIFICATE FOR EXPLOSION PROTECTED ELECTRICAL EQUIPMENT

Continuation of Certificate No: Ex 542 (St

(Sheet 2 of 3

SCHEDULE 1 Description of Equipment cont'd

PRESSURE AND TEMPERATURE CONTROLS, 120 SERIES

- (a) Pressure controls, Types J120, J120H, J120K, J120KH, H121, H122, H121K and H122K
- (b) Temperature controls, Types B121, B122, C120, C120H, F120, F120H, E121, E122, 820E and 822E.

Each control comprises one or two snap switches and externally attached temperature or pressure sensor.

Each control may be provided with one ormore of the following options:

M315 enclosure with expoxy coating M430 cover lock option M440 cover chain option M505 overtravel actuating plunger XXXX other options which may occur and will have no bearing on explosion-protection nor electrical properties.

Certification Conditions cont'd

- 1. As the threaded entries are NPT, flameproof thread adaptors shall be used to permit the use of SAA certified flameproof cable glands.
- Controls equippped with the manual reset arrangement, as detailed in Drawing No: E6296-185 Issue C, shall not be marked 'IP66'.
- 3. Shell petroleum jelly EDP code 82287 may be used for the lid thread

This document shall not be reproduced except in full.

This certificate is not transferable and remains the property of the Standards Association of Australia and must be returned to the Association in the event of it being revoked.

TAM Director—Administration & Approvals Standards Association of Australia

Incorporated by Royal Charter

STANDARDS HOUSE, 80 ARTHUR STREET, NORTH SYDNEY, N.S.W.

CERTIFICATE FOR EXPLOSION PROTECTED ELECTRICAL EQUIPMENT

	Continuation	of Certificate No.	Ex 542	(Sheet 3 of 3)
SCHEDULE 2	Drawing No	(s) cont [*] d		
	E6296-185 E6296-186 E6296-187 E12259 E12260 E12261 E12262 E12263 E12264 E12265 E12266 E12266 E12267 E12267 E12198 E12200 D6201-167 D6201-203 D6201-204	Issue C Issue C Issue B Issue A Issue A Issue B Issue B Issue A Issue A Issue A Issue A Issue A Issue A Issue A Issue A		

Original

Revision 2

This document shall not be reproduced except in full.

This certificate is not transferable and remains the property of the Standards Association of Australia and must be returned to the Association in the event of it being revoked.

UEA-1200G

UEA-1200L

Francia

Director—Administration & Approvals Standards Association of Australia

Incorporated by Royal Charter

STANDARDS HOUSE, 80 ARTHUR STREET, NORTH SYDNEY, N.S.W.

EXPLOSION PROTECTED ELECTRICAL EQUIPMENT

Continuation of Certificate No: Ex 542-1

This is to certify that SAA Certificate Nos Ex 542 issued to:

United Electric Controls (Aust) Pty LTd 83 Murphy Street RICHMOND VIC 3121

for the <u>120</u> series range of Pressure and Temperature controls, is hereby extended to include modifications as detailed in the following schedule.

Schedule

Description of Modifications

- Addition of various pressure sensors to the pressure controls type J120, J120K, H121, H121K, H122 and H112K.
- 2. Addition of the weather protected junction or indication box, fitted externally to flameproof control enclosure.
- 3. Removal of an unused second adjustment shaft hole from type H121 control enclosures.
- 4. Addition of option 1010, which includes replacement of DPDT switch for controls type C120, F120, J120,E121, B121 and H121.
- 5. Removal of the flat gasket type B, and replacement with the uniform O-ring gasket type A for the fitting of pressure sensors.

Drawings

E-6296-277 Sheets 1 &	3	Tanua	c
E-6296-278 Sheets 1 &	2,	Issue	В
E-6296-279 Issue B	-		
E-12559 Sheet 1 Issue	B		
E-12559 Sheet 2 Issue	D		
B-12262 Sheet 1 Issue	С		
E-12262 Sheet 2 Issue	D		
E-12263 Issue A			
E-12264 Issue A			
E-12265 Sheet 1 Issue	В		
E-12265 Sheet 2 Issue	С		
UEA-1200G Issue B			
UEA-1201G Issue A			

Page 1 of 2

This document shall not be reproduced except in full.

This certificate remains the property of the Standards Association of Australia and must be returned to the Association in the event of it being revoked.

Incorporated by Royal Charter

STANDARDS HOUSE, 80 ARTHUR STREET, NORTH SYDNEY, N.S.W.

EXPLOSION PROTECTED ELECTRICAL EQUIPMENT

Continuation of Certificate No: Ex 542-1

Certification Conditions

The conditions specified in certificate Ex 542 shall apply to Ex 542-1

<u>Type of Protection</u>: Ex d IIB T6 IP66 <u>Test Report</u>: LOSC 2010 to AS 2480-1986 and 1939-1986 <u>File</u>: P/3: 85015/M137 Date of Issue: 28 July 1987

Page 2 of 2



This document shall not be reproduced except in full.

This certificate remains the property of the Stendards Association of Australia and must be returned to the Association in the event of it being revoked.

SUPPLEMENTARY Certificate No

Ex 542-2

Certificate of Compliance

This is to certify that Standards Australia Certificate Nos Ex 542 and Ex 542-1 issued to:

United Electric Controls (Aust) Pty Ltd 83 Murphy Street Richmond Vic 3121

for the <u>120 Series Temperature and Pressure Controls</u> are hereby extended to include modifications as detailed in the following schedule.

SCHEDULE

Description of modifications:

EXPLOSION PROTECTED

Change of gas group to IIC

Models in the range

Pressure controls

Pressure controls

Temperature controls B121 series: 119,120,121, E121, E122, C120, B122, F120 series: 2ACA, 2ASA, 2BCA, 2BSA, 2CCA, 2CSA, 2ACB, 2ASB, 2BCB, 2BSB, 2CCB, 2CSB, 3AC, 3AS, 3BC, 3BS, 3CC, 3CS, 4AC, 4AS, 4BC, 4BS, 4CC, 4CS, 5AC, 5AS, 5BC, 5BS, 5CC, 5CS, 8AC, 8AS, 8BC, 8BS, 8CC, 8CS, M9AA, M9BA, M9CA, M9BB, M9CB, 1BS, 2BS, 6BS, 7BS, M9B

(non-vented) J120, J120K, H121, H122 series: 126, 137, 144, 134, 152, 156, 164, S126, S137, S144, S134, S152, S156, S164, S126B, S137B, S144B, S134B, S152B, S156B, S164B, 450, 451, 452, 453, 454

(vented) J120, J120K, H121, H122, H121K, H122K series: 270, 274, 358, 361, 376, 550, 551, 552, 553, 554, 555, 612, 614, 455, 456, 457, 559, 701, 702, 703, 704, 705, 190, 191, 192, 193, 194, 147, S147, S147B, 157, S157B, 36, 37, 38, 39, 40, 183, 184, 185, 186, 188, 189, 612, 616, 50, 51, 52, 53, 54, 55

Page 1 of 2

General Manage Guality Assurance Services

Signed for and on behalf of Standards Australia

This certificate is not transferable and remains the property of Standards Australia and must be meaned in the event of its being revoked or not renewed



Continuation of SUPPLEMENTARY Certificate No

Ex 542-2

Certificate of Compliance

UIPMENT

Drawings:

EXPLOSION PROTECTED

E-6296-277 Sheet 1	Revision D	28 January 1992
E-6296-277 Sheet 2	Revision C	12 February 1986
E-6296-278 Sheet 1	Revision C	28 January 1992
E-6296-278 Sheet 2	Revision B	2 July 1985
E-6296-279	Revision C	28 January 1992
E-12259 Sheet 1	Revision C	28 January 1992
E-12259-Sheet 2	Revision E	29 January 1992
E-12262 Sheet 1	Revision D	28 January 1992
E-12262 Sheet 2	Revision D	12 February 1986
E-12263	Revision B	28 January 1992
E-12264	Revision B	28 January 1992
E-12265 Sheet 1	Revision C	28 January 1992
	Revision D	12 February 1986
	Revision B	5 July 1985
	Revision A	8 July 1985
UEA-1200 L	Issue E	undated
E-12260	Revision B	29 January 1992
E-12261	Revision B	29 January 1992
E-12266	Revision B	29 January 1992
E-12267	Revision B	29 January 1992
N	ACVIDION D	73. Addingt) 7524

TYPE OF PROTECTION: Ex d HIC T6 HP66 Class I Zone 1

Test Report No: NET 92/024 to AS 2380.1-1989 and AS 2380.2-1991

File: P/3: 91193.M165

Date of Issue: 21 April 1992

Date of Expiry of Validity: 21 April 2002

Page 2 of 2

Seneral Manager Quality Assurance Services

Signed for and on behalf of Standards Australia

This certificate is not transferable and remains the property of Standards Australia and must be returned in the event of its being revoked or not renewed



Standards Australia Quality Assurance Services Pty Limited A.C.N. 050 611 642

EPEE Certificate: Ex 3032

Page 1 of 1

Search | Home | SAI Global

Explosion Protection Electrical Equipment

HOME > EPEE > EX 3032

EPEE Certificate: Ex 3032

S A	I Global Assurance Services	Certificate No.	Ex 3032	Latest Issue	Issue 3
				Issue Date	13-11-2001
		Expiry Date	15-03-2004		
		Certificate Holder	Ascomation Pty L	td	
			12/25 Frenchs For	est Road East	
			Frenchs Forest Ne Australia	w South Wale	s 2086
		Equipment Category	Solenoids		
		Product Description	Coil Series EA & I mounted in a mild		oids consist of a coil which is
		Protection Type	Type m Type DIP		
		Marking Code	* see schedule Cl	lass I Class I	I Zone 1
		Gas Group	I		
		IP Rating	IP 65		
		Manufacturer	Ascomation Pty La	td	
		Test Report Number	LOSC7102, 15734	l, 17532, and 2	20768
		Issued By	TestSafe Australia		
		Standard	AS 2236-1994 AS	\$ 2431-1981	

NOTES HOME > EPEE > EX 3032

> This site is part of the SAI Global group. © Copyright SAI Global Release 2.0.0:2.2.2

10/09/2003

sheat of Sheet 2

STANDARDS HOUSE, 80 ARTHUR STREET, NORTH SYDNEY, N.S.W.

CERTIFICATE FOR FLAMEPECOF ENCLOSURE

No. FW. 693

This certifies that the flameproof enclosure described hereunder has been EXAMINED and TESTED and has been found to comply with the requirements for a flameproof enclosure in accordance with AS C98- Flameproof Enclosure of Flactrical Equipment, including Amendment No.(s).....

This Certificate applies only to the flameproof faatures of the equipment described herein and does not purport, nor is it intended to certify compliance with the relevant electrical safety requirements of the SAA Wiring Rules, AS CCI Parts 1 and 11.

DETAILS OF EQUIPMENT:

"S.A.E." Flamoproof Enclocurec, Cert. Nos, FIU1, FIJ2, FIIS51, FIL11 and FNP1L

See Sheet 2 of 2 for a description of enclosures.

DRAWING	NUMDER:
manufacture and the second second second second	785- Same party production of the second

1483 GA5-1, 1433 GA4-1, 148328-2, 148330-3, 148330-1, 140319-2, 053917-1, 148322-1, 148321-1, 0107127-2, 148327-1, "Retainer Clip" information shoet, EO/211/2.

GROUP IIE Enclosures; Temperature Classification T6

GROUPING AND CLASSIFICATION:

APPLICANT:

MANUFACTURER:

Safe Appliance and Equipment Co. Pty. Ltd., 26-28 Kert Road, MASCOT N.S.W. 2060 Netalcraft Engineering Co. Pty.Ltd.,

2060

TESTING STATION AND REPORT No.:

REMARKS:

SCC TR. 10,46601

26-28 Kert Road, MASCOT. N.S.W.

DETAILS OF ENCLOSED ELECTRICAL COMPONENTS

Cat. No. FNJ1 - Four-way terminal block "Siemens BK4" Cat. No. FNJ2 - Four-way terminal block "Siemens BK4" Cat. No. FNS1 - Une "Federal" 3 pole 15 A switch Cat. No. FNL11 - Two "Klockner-Hoeller" Lampholders 2.5%, Two B.S.9.S. size Lamps Cat. No. FNF1L - Two "Klockner-Hoeller" push button switches

Chairman of Committee EL/29

F. Director, Standards Association of Australia

EL/ 29

Date 13, 6,74

•¥

lieet 2 of Sheet 2 INCORPORATED BY BOYAL CHARTER

STANDARDS HOUSE, 80 ARTHUR STREET, NORTH SYDNEY. NSW

CERTIFICATE FOR FLAMEPROOF ENCLOSURE

No. FLP 693

REMARKS:

CAST ALUMINIUM ENCLOSURES

Cat. No FNJ1, Junction Box - One bore and spigot joint, four 3 in. conduit entries 16 T.P.I.

Cat. No.FNJ2, Junction Box - One bore and spigot joint Four 1" conduit entries 16 T.P.I.

Cat, No.FNS51, Isolating Switch - One bore and spigot joint, Four ‡ in. or 1 in, conduit entries 16 T.P.I. One operating spindle.

Cat, No.FNL11, Pilot Lamp Station - One bore and spigot joints, Four 7 in, or 1 in, conduit entries 16 I.P.I. Iwo indicator Lamp inspection windows.

Cat. No.FNP1L, Push Button Station - One bore and spigot joint, Four ‡ in, or 1 in, conduit entries 16 T.P.I. Two operating rods.

b

Chairman of Opmmittee BL/29

Director, Standards Association of Australia

E1/29 Date 3.6.74

۹[.] λ

INCORPORATED BY ROYAL CHARTER

STANDARDS HOUSE. 80 ARTHUR STREET, NORTH SYDNEY, N.S.W.

CERTIFICATE FOR EXPLOSION PROOF ELECTRICAL EQUIPMENT

This certifies that the equipment described hereunder has been examined and tested in regard to its explosion proof properties and inherent safety and no objection is raised to the use of the equipment in the hazardous location(s) defined below in the manner intended in the industry concerned.

This Certificate applies only to the explosion proof features of the equipment described herein and does not purport, nor is it intended to certify compliance with the relevant electrical safety requirements of the SAA Wiring Rules, AS 3000 Parts I and II.

DETAILS OF EQUIPMENT:

'Bettiawitch' switch enclosures Types 3R and 4R

TYPE OF PROTECTION:

E d 118 16

DRAWING NUMBER:

HAZARDOUS LOCATION-CLASSIFICATION:

APPLICANT:

MANUFACTURER:

TESTING STATION AND REPORT No:

REMARKS:

A1/2136/Rev A, A2/2137, A3/2138/Rev C, A4/1034

Class I Zone 1

Bottis Actuators & Controls Ltd 20-36 Express Road SOUTHANPTON SO2 OLU UK

Bettis Astustors & Controle Ltd 20-36 Express Road SOLTHANPTON SO2 Q.U. UK

BSI-THE T/ALS 56

The following models are envered by this cortificate:

~ 39-021-4FB	- 9R-021-AFC
- 39-321-AFB	-9R-321-AFC
-30-022-AFA	
- 38-322-AFA	-48-341-AFC
- 38-041-AFB	-99-022-AFC
~ 39-341-AFB	- 38-322-AFC
~4R-DA1-AFB	- AR-OA2-AFC
-4R-341-AFB	4R-342-AFC

.

Chairman of Committee EL/29

W. J. SE

Director, Standards Association of Australia

EL/29: 76035 Date: 1979-04-12 S/LF: #42/1979-04-18

E



DECLARATION OF CONFORMITY

with the ATEX Directive 94/9/EC

Herewith we, the manufacturer,

Flowserve Flow Control (UK) Ltd

Burrell Road, Haywards Heath, West Sussex, RH16 1TL. United Kingdom

Declare that the construction, manufacturing and testing of the pressure equipment is in conformance with ATEX directive 94/9/EC and The Equipment and Protective Systems Intended for Use in Potentially Explosive Atmospheres Regulations 1996.

Description of the equipment:

Norbro Actuators:

Series: 33, 39, 39R, 40, 40R & 61.

Size range: Norbro size codes: 05, 10, 15, 20, 25, 30, 33, 35, 40, 42, 45, & 50. Product Classification: Equipment Group II, Category 2 (non-mining). Temperature Class: Restricted by media temperature (-40 °C min to 150°C max.) Zone Classification: Suitable for Gas Zones 1 & 2, and Dust Zones 21 & 22.

Control of Internal Production Compliance:

BS EN ISO 9001:2000 (BSI Certificate of Registration FM 00707).

Notified body retaining the Technical File:

BSI, Marylands Avenue, Hemel Hemstead, Herts. HP2 4SQ (Notified body reference number: 0086)

Referenced harmonised standards used:

 BS EN 1127-1 :1998
 (Explosive Atmospheres-Explosion prevention and protection – Part 1 : Basic Concepts and methodology).

 BS EN 13463 : Part 1 : 2001 (Non – electrical equipment for potentially explosive atmospheres – Part 1 :Basic Methods and requirements).

 BS EN 13463 : Part 5 : 2003 (Non – electrical equipment for potentially explosive atmospheres – Part 5 : Protection by constructional safety).

References of other technical standards, specifications and European Directives used:

 Pressure Equipment Directive 97/23/EC

 BS EN 1050:1997
 (Safety of Machinery. Principles for Risk Assessment).

 BS EN 983 : 1996
 (Safety of Machinery. Safety Requirements for Fluid Power Systems and their Components – Pneumatics)

Authorised Person for the Manufacturer within the European Community:

Name: R. S. Sherrard Signature: Research Title: Operations Director

Date: 30th March 2004





EXPLOSION PROTECTED ELECTRICAL EQUIPMENT

Administered by: Standards Australia Quality Assurance Services

This certificate is granted subject to the conditions as set out in Standards Australia Miscellaneous Publication MP 69 and the Procedures (Doc Q7134) of the scheme.

The electrical equipment and any acceptable variation to it specified in the schedule to this certificate and the identified documents, was found to comply with the following standards:

AS 2236-1985 - Electrical equipment for explosive atmospheres - Dust-excluding ignition-proof (DIP) enclosure

AS 2380.1-1994 - Electrical equipment for explosive atmospheres - Explosion protection techniques. Part 1: General Requirements

AS 2380.2-1991 - Electrical equipment for explosive atmospheres - Explosion protection techniques. Part 2: Flameproof enclosure d

The equipment listed has successfully met the examination and test requirements as recorded in

est Report No: SCC 58569, ITACS 676A File Reference: TT354

Signed for and on behalf of issuing authority

General Manager

Position

4 October 1994

Date of issue

Certificate No: Ex 1498U Issue: 0

.....

This certificate and schedule may not be reproduced except in full.

This certificate is not transferable and remains the property of Standards Australia Quality Assurance Services and must be returned in the event of its being revoked or not renewed.

Issued by:

Quality Assurance Services

A subsidiary of Standards Australia 1 The Crescent Homebush NSW 2140 Australia Mail: PO Box 1055 Strathfield NSW 2135 Australia Telephone (02) 746 4900 Fax (02) 746 8460

STANDARDS AUSTRALIA

Standards Australia Quality Assurance Services Pty Limited A.C.N. 050 611 642

' Page 2 of

EXPLOSION PROTECTED ELECTRICAL EQUIPMENT

Administered by: Standards Australia Quality Assurance Services

Schedule

Equipment:

This certificate covers the following flameproof conduit accessories:

SERIES	DESCRIPTION			
FCP	Flameproof conduit plugs 16-63 mm series			
FR	Flameproof metric reducers			
FN	Flameproof hexagon nipples			
FCL	Flameproof couplings			
FA (BSP)	Flameproof adaptors (BSP male thread to metric conduit female thread)			
FA (NPT)	Flameproof adaptors (NPT male thread to metric conduit female thread)			
DCP	Dust-Excluding Ignition - Proof (DIP) Plugs			

Variations to Original Issue:

- 1. Inclusion of the new DCP range of DIP Plugs
 - Modifications to certified conduit accessories covered by Issue 0

Issued by:

Certificate No: Ex 1498U

Issue: 1

Quality Assurance Services

A subsidiary of Standards Australia 1 The Crescent Homebush NSW 2140 Australia Mail: Locked Bag 2032 Strathfield NSW 2135 Australia Telephone (02) 9746 4900 Fax (02) 9746 8460



Standarde Australia Quality Assurance Sancices Pty Timited & CN 050 611 6

Page 3 of4

97 16:12 FROM:CLIPSAL STAHL EX PTY 0297905949

TO: GIPL NUDGEE

Certification of

EXPLOSION PROTECTED ELECTRICAL EQUIPMENT

Administered by: Standards Australia Quality Assurance Services

Ex 1498U

Addendum to Certificate No.....

Issue: 0

DRAWING NO	DRAWING TITLE	REVISION NO	DRAWN/ REVISION DATE
W-514	Flameproof conduit plugs 16-63 mm series	А	8 August 1994
W-515	Flameproof metric reducers	A	8 August 1994
W-516	Flameproof hexagon nipples	A	8 August 1994
W-517	Flameproof couplings	А	8 August 1994
W-518	Flameproof adaptors (BSP male thread to metric conduit female thread)	A	8 August 1994
W-519	Flameproof adaptors (NPT male thread to metric conduit female thread)	A	8 August 1994

Issued by:

Quality Assurance Services

A subsidiary of Standards Australia 1 The Crescent Homebush NSW 2140 Australia Mail: PO Box 1055 Strathfield NSW 2135 Australia Telephone (02) 746 4900 Fax (02) 746 8460

STANDARDS AUSTRALIA

Standards Australia Quality Assurance Services Pty Limited A.C.N. 050 611 642

Page 4 of 4

EXPLOSION PROTECTED ELECTRICAL EQUIPMENT

Administered by: Standards Australia Quality Assurance Services

Certificate of Conformity

Certificate No.:

Ex 1498U

Issue: 0 (original) Issue: 1 Date of Issue: Date of Issue: 4 October 1994 30 September 1997

Date of Expiry:

4 October 2004

Certificate Holder:

GERARD INDUSTRIES PTY LTD 12 Park Terrace Bowden SA 5007

Electrical Equipment:

"Clipsal/Wilco' explosion protected conduit accessories (Refer schedule for type of accessory and identification)

Type of Protection and Marking Code:

Ex d/IIC, Class I, Zone 1 { DIP T6 IP66 Class II { Fo Aus Ex 1498U {

{ For Exd/DIP Product

{ For DIP only Product

DIP T6 IP66 Class II Aus Ex 1498U

Manufactured by:

Issued by:

Clipsal Stahl Ex Pty Ltd

VERIFIED COPY OF ORIGINAL CERTIFICATE

VERIFIED COPY OF ORIGINAL CERTIFICATE Date 20:3.03 Issued By

Quality Assurance Services

A subsidiary of Standards Australia 1 The Crescent Homebush NSW 2140 Australia Mail: Lcoked Bag 2032 Strathfield NSW 2135 Australia Telephone (02) 9746 4900 Fax (02) 9746 8460

STANDARDS AUSTRALIA

RICAL LOU

Administered by: Standards Australia Quality Assurance Services

This certificate is granted subject to the conditions as set out in Standards Australia Miscellaneous Publication MP 69 and the Procedures (Doc Q7134) of the scheme.

The electrical equipment and any acceptable variation to it specified in the schedule to this certificate and the identified documents, was found to comply with the following standards:

AS 2236-1994 - Electrical equipment for explosive atmospheres - Dust-excluding ignition-proof (DIP) enclosure

AS 2380.1-1989 - Electrical equipment for explosive atmospheres - Explosion protection techniques. Part 1: General Requirements

S 2380.2-1991 Inc Amdt No 1 - Electrical equipment for explosive atmospheres - Explosion protection techniques. Part 2: Flameproof enclosure d

The equipment listed has successfully met the examination and test requirements as recorded in

SCC 58569, ITACS 676A, ITACS 1185 Test Report No: File Reference: TT354

nd on behalf of issuing authority Signed for

Technical Manager - Certification Position

30 September 1997

Issue: 1

Date of issue

Certificate No: Ex 1498U

This certificate and schedule may not be reproduced except in full.

This certificate is not transferable and remains the property of Standards Australia Quality Assurance Services and must be returned in the event of its being revoked or not renewed.

Issued by:

Quality Assurance Services

A subsidiary of Standards Australia 1 The Crescent Homebush NSW 2140 Australia Mail: Locked Bag 2032 Strathfield NSW 2135 Australia Telephone (02) 9746 4900 Fax (02) 9746 8460

STANDARDS AUSTRALIA 7

_~-97 16:11

FROM:CLIPSAL STAHL EX PTY 0297905949

TO: GIPL NUDGEE

Certification of

EXPLOSION PROTECTED ELECTRICAL EQUIPMENT

Administered by: Standards Australia Quality Assurance Services

Schedule

Equipment:

This certificate covers the following flameproof conduit accessories:

SERIES DESCRIPTION				
FCP	Flameproof conduit plugs 16-63 mm series			
FR	Flameproof metric reducers			
FN	Flameproof hexagon nipples			
FCL	Flameproof couplings			
FA (BSP)	Flameproof adaptors (BSP male thread to metric conduit female thread)			
FA (NPT)	Flameproof adaptors (NPT male thread to metric conduit female thread)			

onditions of Certification:

- The fittings shall be used in accordance with AS 2381 Electrical equipment for explosive atmospheres -Selection, installation and maintenance.
- 2. The fittings shall be installed so as the required IP rating to AS 1939 Degrees of protection provided by enclosures of electrical equipment, is maintained for the equipment concerned.

Issued by:

Certificate No: Ex 1498U

Issue: 0

' Page 3 of4

Quality Assurance Services

A subsidiary of Standards Australia 1 The Crescent Homebush NSW 2140 Australia Mail: PO Box 1055 Strathfield NSW 2135 Australia Telephone (02) 746 4900 Fax (02) 746 8460

STANDARDS AUSTRALIA

Standards Australia Quality Assurance Services Pty Limited A.C.N. 050 611 642

EXPLOSION PROTECTED ELECTRICAL EQUIPMENT

Administered by: Standards Australia Quality Assurance Services

Addendum to Certificate No. Ex 1498U

Issue: 1

DRAWING NO.	DRAWING TITLE	REVISION NO.	DRAWN/ REVISION DATE
W-514	Flameproof conduit plugs 16-63 mm series	A	8 August 1994
W-515	Flameproof metric reducers	A	8 August 1994
W-516	Flameproof hexagon nipples	A	8 August 1994
W-517	Flameproof couplings	A	8 August 1994
W-518	Flameproof adaptors (BSP male thread to metric conduit female thread)	A	8 August 1994
W-519	Flameproof adaptors (NPT male thread to metric conduit female thread)	A	8 August 1994
W-515	Flameproof metric reducers	В	17 March 1997
W-516	Flameproof hexagon nipples	В	16 May 1997
W-518	Flameproof adaptors (BSP male thread to metric conduit female thread)	В	16 May 1997
W-519	Flameproof adaptors (NPT male thread to metric conduit female thread)	В	16 May 1997
W-646	DIP Metric threaded conduit plugs	A	8 July 1997

Issued by:

Quality Assurance Services

A subsidiary of Standards Australia

1 The Crescent Homebush NSW 2140 Australia Mail: Locked Bag 2032 Strathfield NSW 2135 Australia Telephone (02) 9746 4900 Fax (02) 9746 8460



Standarde Australia Quality Accurance Consider Dire Limited & C M OFD (11 (1)

TD:61893162516

No.4500 P. E

STANDARDS ASSOCIATION OF AUSTRALIA

Incorporated by Royal Charter

STANDARDS HOUSE, 80 ARTHUR STREET, NORTH SYDNEY, N.S.W.

CERTIFICATE FOR EXPLOSION PROTECTED ELECTRICAL EQUIPMENT

No. Ex 492 (Sheet 1 of 2)

This certifies that the equipment described hereunder has been examined and tested in accordance with the requirements of the Australian standard(a) specified herein, and such equipment has been found to comply with these requirements. This certificate may be withdrawn at any time if in the opinion of SAA Committee P/3, Certification of Electrical Equipment for Hazardous Locations, the relevant standard has been altered or revised to a degree that the equipment is no longer considered suitable for installation in the herein stated, or if the certificate holder has breached any of the terms or conditions under which this certificate was issued.

Description of Equipment	Hazardous Location	
	Class I. Zone O	
A range of "Clipsal" Threaded Brass Conduit	Type of Protection	
Accessories, as detailed in Schedule 1.		
	Refer Schedule 1	
	Certificate Holder	
	Gerard Industries Pty Ltd	
	12 Park Terrace	
	BOWDEN S.A. 5007	
Drawing No(s)	Manufacturer	
F12205, F1235 NPT, F1242, F1242BU1,	Gonard Tada to Jan A	
F1242 BU-1, F1242 BU1-1, F1242 BU1-2	Gerard Industries Pty Ltd 12 Park Terrace	
F1242 LU, F1243, F1243H, F1259, F1264M, F1242 BU, F1242 BU-2, F1242 BU-3	BOWDEN S.A. 5007	
and F12208-1.		
	Test Basses March	
	Test Report No(s)	
Certification Conditions	SCC TR Nos: 58568 & 58570	
7. All threads shall be engaged.	Australian Standard(s)	
2. The conduit system shall be in accordance with Clause 3.12.3 of	AS 2480-1981	
AS 1076, Part 1, when installed in		
a Zone O location.	SAA File Reference	
Remarks VERIFIED COPY OF	P/31 83115/M113	
	Effective Date	
Date 1.7.02	1984.01.20	
	Date of Issue	
leaued By	1984.01.27	
his document shall not be reproduced except in full.		

This certificate is not transferable and remains the property of the Standards Association of Australia and must be returned to the Association in the event of it being revoked.

Director-Administration & Approvale Standards Association of Australia

TD:61893162516

PAGE:06

No.4500 P. E

STANDARDS ASSOCIATION OF AUSTRALIA

Incorporated by Royal Charter

STANDARDS HOUSE, 80 ARTHUR STREET, NORTH SYDNEY, N.S.W.

CERTIFICATE FOR EXPLOSION PROTECTED ELECTRICAL EQUIPMENT

Continuation of Certificate No: Ex 492 (Sheet 2 of 2)

SCHEDULE 1 Description of Equipment and Type of Protection (Continued)

A range of "Clipsal" Threaded Brass Conduit Accessories.

	Equipment	Thread Description	Range	Typo
Fistos.	Plug	Metric Conduit Thread	16 mm to 63 mm	Ex d IIC T6
FIREZ	Coupling	Matric Conduit Thread	16 mm to 63 mm	Ex d IIC T6
FILUZLO	Long - Screw Union	Metric Conduit Thread	16 mm to 63 mm	Ex d IIC T6
£ : 1,43	Screwed Nipple	Metric Conduit Thread	16 mm to 63 mm	Ex d IIC T6
F12034	Hexagon Nipple	Metric Conduit Thread	16 mm to 63 mm	Ex d IIC T6
r : - e - t-)	Barrel Union (Type IIC) Consisting of: One - Large Cap One - Small Cap One - Barrel Nut	Metric Conduit Thread and B.S.P. Thread Metric Conduit Thread B.S.P. Thread	16 mm to 53 mm %" to 2 %" 16 mm to 63 mm %" to 2%"	Ex d IIC T6
	Barrel Union (Type IIB) Consisting of: One - Large Cap One - Small Cap One - Barrel Nut	Metric Conduit Thread and B.S.P. Thread Metric Conduit Thread B.S.P. Thread	16 mm to 63 mm 髪'' to 2%'' 16 mm to 63 nm 発'' to 2%''	Ex d IIB T6
Fil ss wît	Adaptors	N.P.T. Thread Metric Female Conduit Thread	1/2", %", 1" to 20 mm %", 1" to 25 mm 1" to 32 mm 114", 11/3" to 40 mm 11/4", 11/2", 2" to 50 mm	Ex d IIC T6
112593		Metric Conduit Thread	16, 20, 25, 32, 40, 50 and 63 mm	Ex d IIC T6
C 1764M	Reducers	Metric Conduit Thread	16 mm to 20 mm 20 mm to 25 mm 25 mm to 32 mm 32 mm to 40 mm 40 mm to 50 mm 50 mm to 63 mm	Ex d IIC TE

This document shall not be reproduced except in full.

This certificate is not transferable and remains the property of the Standards Association of Australia and must be returned to the Association in the event of it being revoked.

Ytahay

Director-Administration & Approvala Standards Association of Australia

STANDARDS ASSOCIATION OF AUSTRALIA

Incorporated by Royal Charter

STANDARDS HOUSE, 80 ARTHUR STREET, NORTH SYDNEY, N.S.W.

EXPLOSION PROTECTED ELECTRICAL EQUIPMENT CERTIFICATE OF COMPLIANCE

Supplementary Certificate Number: Ex 4920-1

This is to certify that SAA Certificate No. Ex 492 issued to:

Gerard Industries Pty Ltd 12 Park Terrace BOWDEN SA 5007

for the <u>Range of "Clipsal" Threaded Brass Conduit Accessories</u> is hereby extended to include modifications as detailed in the following schedule.

SCHEDULE

Description of Modifications:

- 1. Alternative trade name "Wilco" in lieu of "Clipsal".
- 2. Modified method of marking for 16, 20 and 25mm conduit plugs.
- Decrease size of heragonal hole to allow readily available allan keys to be used.
- 4. Reference to thread detail updated.
- 5. Overall length of plugs changed to provide "stops" for threads.
- 6. Plugs Plated.

Drawings:

F1220616 Ser		
	Inque 7	23 January 1991
F1220516-2	Issue 3	23 January 1991
F12Z0SZ0-2	Issue 5	23 January 1991
F1220525-2	Issue 4	23 January 1991
F1220532 Ser	Tesue 9	23 January 1991

TYPE OF PROTECTION: Refer to original certificate.

Test Report No: N/A

File: P/3: 90176.M159

Date of Issue: 25 March 1991

Date of Expiry of Validity : 20 January 1994

Page 1 of 1

This document shall not be reproduced except in full.

This certificate remains the property of the Standards Association of Australia and must be returned to the Association in the event of it being revoked. VERIFIED COPY OF ORIGINAL CERTIFICATE Date 11-7.02 Issued By

Director-Administration & Approvals Standards Association of Australia

P. 7



6 Datasheets and Electrical Drawings

Documentation in relation to this section is to be included and maintained by APA Group.



7 Calculations

Documentation in relation to this section is to be included and maintained by APA Group.

Calculations need to be confirmed for equipment installed in hazardous areas. These include heat dissipation calculation for Ex e and intrinsically safe barrier assessment for Ex i, which are relevant for the ADP sites.

This section contains sample calculation sheet for intrinsically safe barrier assessment and extracts from AS 2381.6-1993 and AS 2381.7-1989.

Intrinsically Safe Barrier Assessment Sheet



Document No:	-				Prepared By:		
Site:					Checked:		
Loop Description:					QA:		
					Approved:		
Loop Drawing Number:					Date:		
Hazardous Area:							
	H. A. Report	:			Area Class:		
Н. /	A. Drawing No.	:			Gas Group:		
			-		Temperature Class:		
Repeater	Power Supply / Bar	rier			Se	nsor	
Cable Screens shall be							
connected to		\				-	
intrinsically safe earth						-	
at the Intrinsically Safe Barrier end.	I.S. Earth	/	Ca	ole 1	· · · · · · · · · · · · · · · · · · ·	-	
Sule Burrer chui	•	•	(01	>	i	
I.S. Device details (Hazardous Ar	rea) [Note 2]						
				T	Man Valta an U		V
Tag: Type of instrument:				-	Max Voltage Um:		V V
				_	O/C Voltage Uo:		•
Manufacturer:				-	S/C Current lo:		mA
Model Number:				_	Power Po:		mW
Serial No:				_	Allowable Cap. Co:		uF
Certificate Number:				_	Allowable Ind. Lo:		mH
Certifying Authority:				_	L/Ro:		uH/Ohm
Protection Type:							
Cables:							
Cable 1:		Cable 2:			Total Cable:		
Tag:		Tag:		1			
Capacitance:	uF/m	Capacitance:		uF/m	Capacitance:		uF
Inductance:	mH/m	Inductance:		mH/m	Inductance:		mH
L/R _c :	mH/Ohm	L/R _c :		mH/Ohm	Max L/Rc		mH/Ohm
Length(D1):	m	Length(D2):		m	-		
I.S. Apparatus Parameters (Haza	rdous Aros)						
i.S. Apparatus Parameters (naza	iluous Alea).						
Tag:					O/C Voltage Ui:		V
Type of instrument:					S/C Current Ii:		mA
Manufacturer:					Power Pi:		mW
Model Number:					Capacitance Ci:		uF
Serial No:					Inductance Li:		mH
Certificate Number:							
Certifying Authority:							
Protection Type:							
Chasks							
Checks:		1 Uo <= Ui	<	=	PASS/FAIL/NA		
		2 lo <= li		=			
		3 Po <= Pi		=			
			1				
	4	4 Ci+C _{Cable} <= Co	<	=			
	(6 Li+L _{Cable} <= Lo		=			
		OR	1		1		
	-	7 L/R _{Cable} < L/Ro		<			
Conclusion: The circuit IS Loc	op Calculation]				

Notes:

1- Calculation is based on AS.NZS 2381.1:2005, AS2381.7-1989 & AS/NZS 60079.25:2004 for a single power supply loop in an intrinsically safe system.

2- The I.S. Barrier is an integral part of the discrete input wireless transmitter.

3- The above calculation, check and conclusion are also applicable to wireless transmitter LSL and LSLL level switch I.S.

circuits used for pump 1161C/D, 1162C/D, 1163C/D and 1164C/D sealoil pots.

4- The level switch in this I.S. Circuit is classified as simple device.

APPENDIX A

DETERMINATION OF EXTERNAL CIRCUIT PARAMETERS FOR INTRINSICALLY SAFE SYSTEMS

(This Appendix forms an integral part of this Standard.)

A1 CERTIFICATION METHODS. As specified in Clause 1.4, intrinsically safe electrical equipment may be certified under one of three categories as follows:

- (a) *Self-contained equipment*. Since this equipment has no external cabling, there are no external parameters to be specified, and hence, such equipment will not be considered further in this Appendix.
- (b) *Entity concept equipment.*
- (c) Integrated systems.

A2 PARAMETERS TO BE DEFINED.

A2.1 Entity concept equipment. For certified entity concept equipment the following parameters should be defined:

- (a) Associated electrical equipment.
 - (i) Maximum open circuit voltage (U_0) .
 - (ii) Maximum output current (I_0) .
 - (iii) Maximum external capacitance (C_0) .
 - (iv) Maximum external inductance (L_0) .

(v) Maximum external connected inductance to resistance ratio (L/R).

- (b) Intrinsically safe equipment.
 - (i) Maximum input voltage (U_i) .
 - (ii) Maximum input current (I_i) .
 - (iii) Maximum internal capacitance (C_i) .
 - (iv) Maximum internal inductance (L_i) .

The parameters are marked on the equipment or specified in the accompanying documentation.

A2.2 Integrated systems. For integrated systems, either one of the following cable parameters should be defined:

(a) Maximum capacitance, inductance, and inductance to resistance ratio.

(b) Maximum cable lengths for defined cable types.

These parameters are specified in the system documentation or the certificate.

A3 INSTALLATION OF ENTITY CONCEPT EQUIPMENT. For entity concept equipment to be installed, the total of the cable parameters and those for the intrinsically safe equipment shall be less than those permitted to be connected to the associated electrical equipment, i.e.

(a) $C_i + C_{cable} < C_o$; and

(b) either $L_i + L_{cable} < L_o$, or $L/R_{cable} < L/R$.

Also, the voltage and current allowed for the intrinsically safe equipment shall be greater than those available from the associated electrical equipment, i.e. $U_i > U_o$, $I_i > I_o$.

Where shunt diode safety barriers are being used and their capacitance, inductance and L/R ratio parameters have not been specified in the documentation, the values specified in Table A1 may be used.

A4 INSTALLATION OF INTEGRATED SYSTEMS. For an integrated system to be installed correctly, the cable characteristics shall be below those specified in the system certification, i.e. the total cable capacitance and either the total lumped cable inductance or the L/R ratio must be less than those shown in the certificate or installation diagram. Cable characteristics may be obtained from the manufacturer or the values specified in Tables A2 and A3 may be used.

Alternatively, the following cable characteristics represent probable maximums:

- (a) $C = 0.11 \, \mu F/km$.
- (b) L = 0.8 mH/km.
- (c) $L/R = 56 \ \mu H/\Omega$.

COPYRIGHT

If the parameters are only specified in the system certification for Group IIC they may be multiplied by 3 for Group IIB, by 8 for Group IIA, or by 10 for Group I installations.

Where the system documentation specifies cable types and corresponding lengths it is simply a matter of adhering to those specific requirements.

TABLE A1

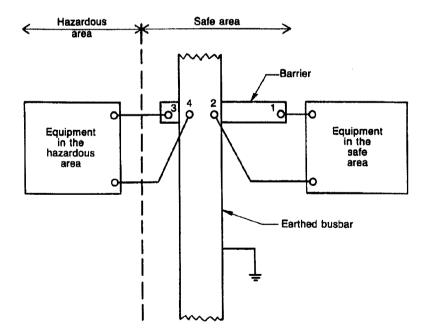
EXTERNAL PARAMETERS MAXIMUM VALUES FOR GROUP IIC (HYDROGEN)*

Barrier type	Permissible configuration	Max. permissible capacitance µF	Max. permissible inductance mH	Max. permissible <i>L/R</i> ratio μΗ/Ω
27 V 270 Ω	Figure A1	0.15	3.7	55
22 V 150 Ω	Figure A1	0.2	1.5	40
15 V 100 Ω	Figure A1	0.8	1.5	60
	Figure A2	0.8	1.5	60
10 V 47 Ω	Figure A1	3.0	1.0	80
	Figure A2	3.0	1.0	80
	Figure A3	0.2	1.0	40
47 V 10 Ω	Figure A1	>1 000	0.16	100
	Figure A2	>1 000	0.16	100
	Figure A3	3.0	0.16	50
1 V 2 Ω	Figure A1	>1 000	0.16	320
	Figure A2	>1 000	0.16	320
	Figure A3	>1 000	0.16	160

* For most practical purposes, the value for gases of Group IIB are 3 times these values, and for gases of Group IIA are 8 times these values.

 \dagger The *L/R* ratio of the cable is defined as follows:

L/R ratio = $\frac{\text{Inductance per unit length (µH)}}{\text{Resistance per unit length (}\Omega\text{)}}$



NOTE: Barrier can be either positive or negative.

FIGURE A1 INSTALLATION CONFIGURATION 2-WIRE SYSTEM WITH SINGLE BARRIER

,

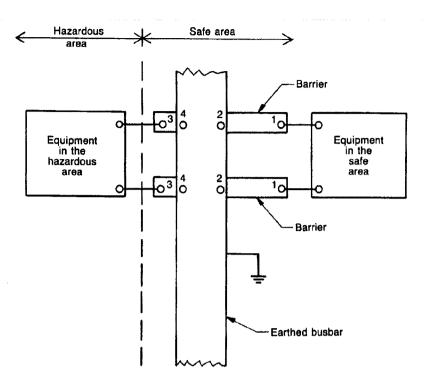


FIGURE A2 INSTALLATION CONFIGURATION 2-WIRE SYSTEM WITH TWO BARRIERS OF LIKE POLARITY

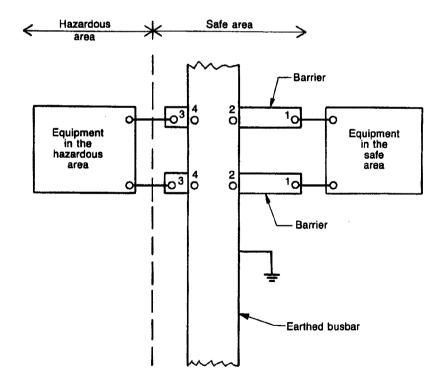


FIGURE A3 INSTALLATION CONFIGURATION 2-WIRE SYSTEM WITH TWO BARRIERS OF OPPOSITE POLARITY

COPYRIGHT

TABLE A2

15

TYPICAL CABLE CHARACTERISTICS FOR PVC CABLES WITH 0.3 mm RADIAL THICKNESS

Nominal conductor size, number and dia. of wires	7/0.3 mm	(0.5 mm ²)	7/0.5 mm (1.5 mm ²)		
Screening	Screened	Unscreened	Screened	Unscreened	
Conductor resistance at 20°C (Ω/100 m)	3.8	3.8	1.4	1.4	
Capacitance of pairs (µF/km)	0.145	0.090	0.2	0.12	
Inductance at 1 kHz (mH/km)	0.9	0.9	0.8	0.8	
L/R ratio (µH/ohm)	12	12	31	31	

TABLE A3 TYPICAL CABLE CHARACTERISTICS FOR 2-CORE MICC CABLE

Nominal conductor size (mm ²)	1
Conductor resistance single core (Ω /100 m)	3.45
Capacitance of pairs (µF/km)	0.1194
Capacitance, conductor to earth (µF/km)	1.1612
Inductance at 1 kHz (mH/km)	0.684
<i>L/R</i> ratio (µH/ohm)	20

COPYRIGHT

APPENDIX C

27

SELECTION OF Ex e COMPONENTS

(Normative)

GENERAL Each enclosure is allocated a permissible maximum dissipating power, C1 expressed in watts, taking into account-

- the dissipation per component for a given cable conductor size; (a)
- the size of each cable used and the resistance of its length, equal to the diagonal of (b) the enclosure:
- (c) the maximum allowable current for the Ex e component or the maximum current allowable for each cable, if below the maximum allowable for the terminal block; and
- (d) the bunching of cables within each enclosure and the effect this has in producing 'hot spots'.

The selection of an acceptable combination in any assembly is based upon the requirement that enclosures shall not exceed a specified total dissipation of power (in watts) from the cables and the components which are to be housed within each enclosure.

The permissible maximum dissipating power (MDP) for the temperature classification of the enclosure, determined by test, will appear on the manufacturer's rating plate, e.g. 15.5 W.

Having established maximum dissipation of power from the enclosures, the wired assembly may be expressed in power loss in the following way:

Dissipation per terminal:
$$P = I^2[R_t + L \times R_c]$$
 E(1)
 $P = I^2[R_t + R_s]$ E(2)

$$P = P[R_{\rm t} + R_{\rm d}] \qquad \dots \quad E(2)$$

where

Р = power dissipation, in watts

Ι = current through terminal (max. allowable or limited by cable size)

 R_1 = internal resistance of terminal, in ohms

= cable resistance per metre, in ohms R_{c}

L = length of cable equal to the diagonal of the enclosure, in metres

MDP = maximum dissipating power, in watts—the sum total of all terminals and wiring within the enclosure

 $R_{\rm d}$ = resistance of a length of cable equal to the diagonal of the enclosure

Therefore, for a combination of terminals and cables the watts loss can be calculated from the basic test information and cable data as follows:

$$MDP = aP_1 + bP_2 + cP_3 \dots + zP_n$$
 E(3)

where

 aP_1 ; bP_2 ; cP_3 , ... zP_n represent the heat dissipation of different combinations and numbers (a; b; c ... z) of terminals and cables.

C2 EXAMPLE: SELECTION OF TERMINAL BLOCKS FOR COMPLIANCE WITH T6 CLASSIFICATION

Assume that the following is derived from tests:

Enclosure MDP = 15 watt

Terminal block TBK2.5 = 15 A max. Terminal block TBK16 = 47 A max. L = 270 mm

A. P (TBK2.5) for

- P_1 3 amps 0.5 mm² cable = 0.092 W
- P_2 12 amps 1.0 mm² cable = 0.763 W
- P_3 15 amps 2.5 mm² cable = 0.530 W

B. *P* (TBK16) for

 P_4 47 amps 16 mm² cable = 0.790 W Maximum number of allowable terminals:

$$P_{1} \text{ only } = \frac{15.0}{0.092} = 163; \text{ or}$$

$$P_{2} \text{ only } = \frac{15.0}{0.763} = 19; \text{ or}$$

$$P_{3} \text{ only } = \frac{15.0}{0.530} = 28; \text{ or}$$

$$P_{4} \text{ only } = \frac{47.0}{0.790} = 59;$$

Now assume the following combination of terminals-

 $(60 \times P_1) + (6 \times P_2) + (3 \times P_3) + (3 \times P_4)$ (60 × 0.092) + (6 × 0.763) + (3 × 0.530) + (3 × 0.790)

Total Heat Dissipation is-

5.52 + 4.578 + 1.590 + 2.37 = **14.058** Watt

It is concluded that the combination of terminals and cables does not exceed MDP of 15 W and is therefore satisfactory for T6.

NOTE: The cables should not be bunched in quantities greater than the number of cores from each cable or conduit entering the enclosure and in any case should not exceed six per bunch.

C3 CABLE SELECTION v TERMINAL SELECTION The maximum current density permitted in any conductor inside or outside the enclosure is to be established as though the conductors are insulated with V75 material and enclosed in conduit in air and derated according to the ambient temperature and in any case not less than 50° C as established according to AS 3008.1. Additional derating factors may be necessary where bunching of cables occurs.

However, where the cables are run in situations that allow an increase of current-carrying capacity, the Ex e installation is placed at risk, particularly when the cable enters the terminal enclosure.

It is important to keep in mind that—

- (a) the Ex e terminal block rated current must not be exceeded; and
- (b) the cable connected to each terminal block is of a size acceptable to that block and the current carried by that cable complies with the requirements of Clause 2.7.2.

COPYRIGHT

29

C4 FACTORS TO BE CONSIDERED IN SELECTING EQUIPMENT CERTIFIED

TO Ex e The establishment of criteria which can lead to practical installation of terminal boxes for use in Class I, Zones 1 and 2 hazardous areas can only be made by testing and from the tests a manufacturer can tabulate and mark—

- (a) maximum power for each enclosure to meet the temperature class—generally T6 or as certified;
- (b) maximum current per Ex e terminal—marked thereon, in amps;
- (c) resistance per terminal, in ohms;
- (d) average length per conductor—box diagonal in metres;
- (e) resistance per conductor length, in ohms;
- (f) actual load current per terminal for the installation in amps; and
- (g) maximum current per conductor, in amps in accordance with AS 3008.1.

For a particular manufacturer's terminal box, these criteria lead to the following tabulations:

TABLE C1

CONDUCTOR RESISTANCE PER BOX FOR EACH CONDUCTOR SIZE

Size mm ²	Enclosure types No. 1 No. 2 No. 3 No. 4 No. 5
0.5	
1.0	
2.5	ohms/1000 m \times L
4.0	1000
6.0	
10.0	
16.0	
25.0	
35.0	
50.0	where L is in metres
70.0	
95.0	

TABLE C2

TERMINAL/COMPONENT RESISTANCE (R_t)

Component type	Average resistance (ohms)
TBK 2.5 TBK 4 TBK 6 TBK 10 TBK n	Determined by test

From Tables C1 and C2, details for each enclosure can be derived: Assume Enclosure type box No. 1. MDP = 15 watt

COPYRIGHT

Ex e component			Cable	Total
Туре	Qty	Load or rating A	mm ²	w
TBK 2.5	60	3.0	0.5	5.52
TBK 2.5	6	12.0	1.0	4.578
TBK 2.5	3	15.0	2.5	1.590
TBK 16	3	47.0	16.0	2.37
		Enclosu	re Total =	14.058

It is possible to determine a large variety of enclosure combinations for different components, given-

- (a) conductor resistance;
- (b) component resistance;
- (c) current drawn through each cable and component; and
- (d) enclosure MDP.

The manufacturer should be able to supply details of certified components and enclosures. Cable resistances are readily available from tables or the enclosure manufacturer may provide the values for each enclosure size and each cable length, equal to the enclosure diagonals.

C5 ENCLOSURE CONTENTS AND LABEL Having established the contents for each enclosure for a known application, it is important that any spare space within is **not** filled at some later stage with equipment which—

- (a) exceeds the certified MDP;
- (b) is not certified Ex e; or
- (c) arcs or sparks.

The user or the supplier should attach to the inside of the enclosure a label showing-

- (i) certified MDP;
- (ii) original component contents; and
- (iii) calculated total power dissipation of original installed components.

If the user changes the contents, it would be his responsibility to secure a revised list, having first established that the enclosure temperature class and certified MDP will not be exceeded by the proposed changes.



8 Manufacturer's Data Report (MDR) and Installation, Operating and Maintenance (IOM) Manual

Documentation in relation to this section is to be included and maintained by APA Group.



9 Maintenance Register

Documentation in relation to this section is to be included and maintained by APA Group. This section includes sample maintenance sheet.

FYFE Earth Partners ENVIRONMENT DEVELOPMENT		MAINTENANCE REGISTER					APA Group			
DEVELOPMEN RESOURCES	0			Site:						
							DOSSIER	UPDATE AS REQU	JIRED (YES / NO / I	NA)
DATE	DESCRIPTION	ASSOCIATED TAGS	P&ID	DATASHEET	HA EQUIPMENT REGISTER	CERTIFICATE OF CONFORMITY	INSTALLATION CHECK LIST	REPAIR & EXAMINATION REPORT	HA CLASSIFICATION	HA DRAWIN
					1					
			<u> </u>					<u> </u>		
					1					
	·	•	•	-	•	•	•	•	-	•

up	0				
	U	-			

ING	REMARKS

FYFE Earth Partners ENVIRONMENT DEVELOPMENT RESOURCES		MAINTEN REGIST				AP/				
		1								
				-		-	DOSSIER	UPDATE AS REQU	JIRED (YES / NO / I	NA)
DATE	DESCRIPTION	ASSOCIATED TAGS	P&ID	DATASHEET	HA EQUIPMENT REGISTER	CERTIFICATE OF CONFORMITY	INSTALLATION CHECK LIST	REPAIR & EXAMINATION REPORT	HA CLASSIFICATION	HA DRAWIN
										-
										+
			1		1					
-										
<u> </u>										
										<u> </u>
										<u> </u>
										<u> </u>
L	1	1	1	L	1	L	1	1	L	1

up			
-() -		

ING	REMARKS

FYFE Earth Partne ENVIRONMEN DEVELOPMEN RESOURCES	NT	MAINTEN REGIST		Site:				APA Group		
										I
							DOSSIER	UPDATE AS REQU	JIRED (YES / NO / I	NA)
DATE	DESCRIPTION	ASSOCIATED TAGS	P&ID	DATASHEET	HA EQUIPMENT REGISTER	CERTIFICATE OF CONFORMITY			HA CLASSIFICATION	
				<u> </u>						
										<u> </u>
				+	+					
										ł
										ļ
										+
										ł
				<u> </u>						
				+	+		<u> </u>			
										+
				1	1	1				<u> </u>
				1	1					
				1	1					
				ļ	<u>_</u>		_			
				+	+					
				+	+	+				+
										+
				1	1	1		1		<u> </u>
L	I	J		1	1		1	1		L

up			
-() -		

ING	REMARKS



10 Inspection Register

Close visual inspection to confirm equipment installations was performed by Neville Green, an electrical engineer from Sitzler during a site visit on 5th September 2011.

This Section contains the inspection sheets. The Section also contains sample inspection sheet(s) for future inspection.

Documentation in relation to this section is to be maintained by APA Group.

Ref: I:/data/sitzler/contracts/darwin/sbsj12/fy/1 fy/e pty ltd hazardous areas reporting award 28.07.11/fy/3 fy/e northern end pipline/reports/katherine/electrical equipment for hazardous area summary report - katherine 16.09.11.docx

16 September 2011

FYFE PTY LTD Level 3, 80 Flinders St Adelaide SA 5000

Attention: Tony Bird

Dear Tony,

RE: AMADEUS PIPELINE – KATHERINE METER STATION

HAZARDOUS AREA ELECTRICAL INSPECTION REPORTING

Please find attached hazardous area device inspection sheets for the above site as part of the visual grade of inspection reporting completed on September 5th 2011. A broad range of findings have been identified and documented within the 'action required' section of each check sheet in order to identify the non compliance of the equipment/installation with respect to current standards.

We list the items of deliverables requested by FYFE below and trust the scope of work delivered is in accordance with the specified requirements.

- 1. Preparation of hazardous area device inspection check-sheets
- 2. Attend sites and inspect all electrical equipment at each site
- 3. Complete inspection check-sheets for each instrument
- 4. Production of a memo stating what work was done and a summary of rectification work
- 5. To provide ongoing support to the client, it is recommended that a cost estimate is provided for any rectification work.

The level of electrical inspections were carried out in accordance with the Australian/New Zealand Standard AS/NZS 60079 series for explosive atmospheres and in particular parts 14 and 17 relating to electrical installations, design, selection, inspections and maintenance.

The grade of inspection completed was a combination of visual and close techniques only as defined within the above standards. Detailed equipment/installation inspections in accordance with the above standards were not performed however it is a requirement that detailed inspections be performed prior to initial energising of equipment installed within hazardous classified areas and in the absence of any information it is assumed this has been completed by others.

The visual inspections were conducted on energised equipment with emphasis on the condition reporting of the equipment and installation techniques applicable to the hazardous area classification and associated environment. It is also acknowledged that at the commissioning date of the original installation the Australian standards have since been revised which has been taken into consideration in the compliance evaluation of each device.

In some cases the nameplate detail of the installed equipment was illegible and hence the equipment method of protection and associated certification could not be identified.

Darwin 100 Pruen Road, Berrimah, NT 0828, PO Box 39062 Winnelle NT 0821 tel: +618 8922 4000 fax: +618 8922 4044 email: admin@stzler.com.au www.siztler.com.au



A compilation of the inspection findings/actions across the installation is provided as follows:

- 1. Re-termination of cabling at equipment with exposed cable armour.
- 2. Tighten loose cable glands and accessories.
- 3. Remove white tape thread and verify minimum flameproof thread engagement requirements.
- 4. Verification of flame-path obstructions adjacent flanged joints.
- 5. Re-route cabling externally to structural steel members or provide insulated bushings.
- 6. Repair/investigate equipment where evidence of process release has occurred.
- 7. Equipotential bonding (or at least testing for compliance) of conductive equipment/stands for the control of undesirable static electricity.
- Equipment and cable identification labelling required (where not provided) and alteration
 of existing where incorrectly labelled in accordance with the piping and instrumentation
 diagrams and electrical loop drawings.
- 9. Application of blue cable sheathing and/or labelling to clearly identify intrinsically safe installations.
- 10. Provide additional equipment ingress protection where evidence of insect/vermin infestation exists.
- 11. Provide additional cable support and cover to prevent further mechanical and ultraviolet damage.
- 12. Replace/remediate cabling where long term ultraviolet damage has occurred.
- 13. Replacement of uncertified hazardous area installed equipment and insufficiently ingress protected components with certified equipment.
- 14. Replace junction box weatherproof door seals.
- 15. Sealing of conduit surrounding instrument cabling to prevent transmission of flammable gases.
- 16. Corrosion visible compromising IP rating and method of protection.
- 17. Replacement of equipment impending failure due to the age and poor condition.

It is evident that the lifetime expectancy of some equipment installed would be considered approaching a nominal design life of 30 years. Where nil evidence of Australian hazardous area certification exists, and nameplate details are illegible, we recommend replacement with Australian certified equipment. Where evidence of Australian certification was valid at the time of installation, and the general condition is acceptable for use within the hazardous area, minor remediation works can be completed with minimal operational impacts. The establishment of a regular periodic maintenance regime with respect to hazardous area compliance is also recommended as a minimum in accordance with AS/NZS 60079 Part 14/17.

We look forward to providing further advice and discussions with FYFE in order to assist the client with a remediation plan and associated cost estimating of the works. Trusting the above is satisfactory, please do not hesitate to contact the undersigned should you require any further information on the above or attached.

Yours faithfully,

D. Cher

Neville Green Engineering Services Manager Encl. Device Inspection Sheets.

Hazardous area device inspection sheet for Ex-d, Ex-e, Ex-i, Ex-n, Ex-p and other Ex devices

Based on AS/NZS 60079 part 17

Ref: I:\data\sitzlencompany operations\darwin\lenders\sbsj11\fyf1 - haz area inspections\hazardous area inspection forms\hazardous area device inspection sheet for ex-d,ex-e,ex-i,ex-n,ex-p and other ex devices.doc

Specifications

General	
Device ID or tag: PT-9	Asset: STATION INLET
Gircuit ID: JOO2	Physical location: KATHERINE MS
Area classification :	Environment: (hot?)

Data from Label

Apparatus type: (light, JB, Motor) Pressole Ty	Type of protection: (d,e, l, n, p	
Manufacturer: Rosemount	Gas group: (IIA/B/C)	
Full model number: 3051794A2B21B4K7M5	Temp class: (T1-T6) TS (40	° L)
Serial number: 01472746	Certificate number:	AUFEX 1249X
IP Class JP66	Test authority: (BAS, PTB, SAA etc)	iero E iel

Number of cables:

For	each cable entry	gland 1	gland 2	others	PLUG_	
Glan	d manufacturer:	ALCO			COAPT	
Mod	el: ,	WG203		OA.	-D M20	
Glan	d type of protection: (d,e)			EEX	1 11/	
	<u> </u>			0 0 0	9 ATEX III	3
Inspe	ection ———	· _ · ·				s checked
mape			• •	Applicable to		
	A Equipment			protection type:	Internal	External
1	Equipment (incl group and	temp class) is appropriate for	or area classification	all	X	X
2	Equipment ID or circuit ID is correct			all	X	(X)
3		ure, sealing gaskets or compounds are satisfactory			X	\otimes
4	There are no damage or e	vidence of unauthorised mod	difications	ail	X	\bigotimes
5	Bolts, cable entries and bla	anking elements are correct a	and tight	ail	X	\otimes
6	Flange facings are clean a	and undamaged		d	X	
7	Lamp rating, type and pos	ition correct		all	X	
8	Electrical connections are	tight		all	X	
9	Hermetically sealed device			n	X	
10	Restricted breathing enclo	sure is satisfactory to enclose	ure and/or covers	n	X	
1 1	Motor fans have sufficient	clearance		motors only	, X ,	
12	Installation clearly labelled			ì	X	Ø
13	Safety barriers/isolators in required	stalled as per certification an	d securely earthed where	ì	x	\otimes
14	Entity calculation/documer	ntation is available		i	Х	XN

B Installation

	DInstanation				
1	Type of cable is appropriate, cables are undamaged	all	X	\otimes	SMEA
2	Sealing of ducts and/or conduits is satisfactory	all	X	X	SEAL
3	Stopper boxes or barrier glands are properly filled	d	X		
Ļ	Integrity of conduit system and interface with mixed system is maintained	all	X		
	Earthing and bonding connections are tight, in good condition and of sufficient cross section	all	x	\bigotimes	EACT
	Fault loop impedance is satisfactory	power outlets	X		
	Insulation resistance is satisfactory (check only during initial inspection)	all	X		
	Automatic electrical protective devices are set correctly and operate within permitted limits	all	х		
	Special certification conditions U,X or B have been complied with	all	X		
	Cables/spare cores are terminated satisfactorily	all	X		
	No obstructions adjacent to flameproof flanged joint	d	X _	Х	
-	Ducts, pipes and enclosures are in good condition	р	X _	Х	
	Protective gas is substantially free from contaminants (water, oil, dirt)	р	X _	X	
	Protective gas flow/pressure is adequate	р	X _		
;	Pressure and/or flow indicators, alarms and interlocks function correctly	р	X		
	Pre-energising purge period is adequate	p	Х		
,	Condition of spark/particle barriers of ducts exhausting the gas into hazardous area are satisfactory	q	X		

Amadeus Pipeline Electrical Inspections

SITZLER



18	Cables are installed and screens are earthed in accordance with the	i	×	
	documentatio0n		^	
19	The circuit is isolated from earth or earthed at one point only	i	Х	
20	Separation is maintained with non-IS circuits	ì	Х	
21	As applicable, short circuit protection of the power supply is in accordance with	i	×	
	the documentation		^	
			_	

	C Environment			-
1	Apparatus adequately protected from corrosion, weather, vibration, other	all	Х	8
2	No undue accumulation of dust or dirt	all	Х	$\langle X \rangle$
3	Electrical insulation is clean and dry	all	Х	

Faults found? (circle as appropriate)

No:

Yes: List action required

Contract	or (write): Inspector	Supervisor	Client (write): Inspector	
	N. GREEN	-		
	-1-1			
Date:	\$ 9/11		Date:	

Device ID or tag

Action	required to make device com	oliant:	111	1	
_	Replace cable st	eath (blue) .	with UV o	lamage	
-	seal cable condu	it to prevant	gas migr	ration	
-	provide earth to	instrument si	tand		

Reviewed by: N. CAREEN Date: 14/9/11 Priority:

Comments:			
All action items new completed			
All action items now completed:			
Job closed:			
		_	
Device now fully compliant, spreadsheet i	egister has been updat	ed	
Cumanuta an (unita)	-		

Supervisor (write): Date:

Hazardous area device inspection sheet for Ex-d, Ex-e, Ex-i, Ex-n, Ex-p and other Ex devices



Circle as checked

Based on AS/NZS 60079 part 17

Ref: 1:\data\sitz\er\company operations\darwin\lenders\sbsj11\fyf1 - haz area inspections\hazardous area inspection forms\hazardous area device inspection sheel for ex-d, ex-e, ex-i, ex-n, ex-p and other ex devices.doc

Specifications

Genera

General	
Device ID or tag: STATION INLET VALUE JE	X Asset: MLV - WITHW CABINET
Circuit ID: Jo52	Physical location: KATMERINE MS
Area classification :	Environment: (hot?)

Data from Label

Apparatus type: (light, JB, JC) Motor)	Type of protection: (d,e, i, n, p etc)
Manufacturer: GOVAN	Gas group: (IIA/B/C)
Full model number: F7	Temp class: (T1-T6)
Serial number:	Certificate number: AOS Ex 4-0)
IP Class JP65	Test authority: (BAS, PTB, SAA etc)

Number of cables: 4

For each cable entry	gland 1 🔀 🛃	gland 2 🖌	others puck x2
Gland manufacturer:		7 MAN GABLE.	2
Model:	FLOW MOR GITSS		
Gland type of protection: (d,e)			7
	PS. X4. X41		7

Inspection -

mop		-			~
		Applicable to	Ļ	Ļ	
	A Equipment	protection type:	Internal	External	_
1	Equipment (incl group and temp class) is appropriate for area classification	all	X	X	- EQ
2	Equipment ID or circuit ID is correct	all	X	Ø	TAGE
3	Enclosure, sealing gaskets or compounds are satisfactory	all	X	Ø	
4	There are no damage or evidence of unauthorised modifications	all	X	\otimes]
5	Bolts, cable entries and blanking elements are correct and tight	all	X		pus x2
6	Flange facings are clean and undamaged	d	X		
7	Lamp rating, type and position correct	all	X		
8	Electrical connections are tight	all	Х		
9	Hermetically sealed devices are undamaged	n	X		
10	Restricted breathing enclosure is satisfactory to enclosure and/or covers	n	X]
11	Motor fans have sufficient clearance	motors only	X]
12	Installation clearly labelled	i	X		7
13	Safety barriers/isolators installed as per certification and securely earthed where required	î	x	T x T]
14	Entity calculation/documentation is available	i	X	⊤ x −	1
1	B Installation Type of cable is appropriate, cables are undamaged	all	X	8	sucan
2	Sealing of ducts and/or conduits is satisfactory	all	X		JUCHIN
3	Stopper boxes or barrier glands are properly filled	d			-
4	Integrity of conduit system and interface with mixed system is maintained	all	X	+	-
5	Earthing and bonding connections are tight, in good condition and of sufficient	all	-		NO ENTH.
5	cross section	-	X	\otimes	NO CIMIN
6	Fault loop impedance is satisfactory	power outlets	X		
7	Insulation resistance is satisfactory (check only during initial inspection)	all	X		
8	Automatic electrical protective devices are set correctly and operate within permitted limits	all	x		
9	Special certification conditions U,X or B have been complied with	all	Х		7
10	Cables/spare cores are terminated satisfactorily	all	Х	1.000	
11	No obstructions adjacent to flameproof flanged joint	d	X	\bigcirc	FLAMERAM
12	Ducts, pipes and enclosures are in good condition	p	X		
13	Protective gas is substantially free from contaminants (water, oil, dirt)	p	X	X	
14	Protective gas flow/pressure is adequate	p	X		7
15	Pressure and/or flow indicators, alarms and interlocks function correctly	p	X		7
16	Pre-energising purge period is adequate	p	X		
17	Condition of spark/particle barriers of ducts exhausting the gas into hazardous area are satisfactory	p	X		



18	Cables are installed and screens are earthed in accordance with the documentatio0n	i	×	
19	The circuit is isolated from earth or earthed at one point only	ì	X	
20	Separation is maintained with non-IS circuits	i	X	
21	As applicable, short circuit protection of the power supply is in accordance with the documentation	i	х	

	C Environment				
1	Apparatus adequately protected from corrosion, weather, vibration, other	all	X		INSECT
2 '	'No undue accumulation of dust or dirt	ail	X	\otimes	LIGARA
3	Electrical insulation is clean and dry	all	Х		

Faults found? (circle as appropriate)

 No:

 Yes
 List action required

 Contractor (write): Inspector
 Supervisor
 Client (write): Inspector

 Date:
 5 / 9 / 11
 Date:

Device ID or tag

Action	required to make device compliant:
-	JB label required
	Replace oncertified plugs x 2
	Replace cable sheath with UV damage
-	PIDside equipotental bond to instrument stand
-	Verify flame path obstruction adjacent flamged joint.
-	Evidence of insect/vamin infestation, provide I.P. to MLV JB.

Reviewed by: N, CREEN Date: 14/9/4 Priority:

Comments:			 	
Comments:				
	_			
All action items now completed:				
Job closed:				
Device now fully compliant, spreadshee	t register has h	een undsted	 	
Supervisor (write):	riegister nas b	con apadica		

Date:

Hazardous area device inspection sheet for Ex-d, Ex-e, Ex-i, Ex-n, Ex-p and other Ex devices



Based on AS/NZS 60079 part 17

Ref. 1: data/sitzen/company operations/darwin/lenders/sbsj11/ly/1 - haz area inspections/hazardous area inspection forms/hazardous area device inspection sheet for ex-d, ex-e, exi.ex-n.ex-p and other ex devices.doc

Specifications

General	
Device ID or tag: MW	Asset: MLV JB
Circuit ID:	Physical location: KATHERINE MS
Area classification :	Environment: (hot?)

Data from Label

Type of protection: (d,e, i, n, p $\epsilon_{\kappa} d$
Gas group: (IIA/B/C)
Temp class: (T1-T6)
Certificate number: AUS Ex 267 (1981)
Test authority: (BAS, PTB, SAA etc)

Number of cables: 1

For each cable entry	gland 1	gland 2	others
Gland manufacturer:	ALCO		
Model:	VEDIE		
Gland type of protection: (d,e)	End ?		

Inspection -Circle as checked Applicable to A Equipment protection type: Internal External Equipment (incl group and temp class) is appropriate for area classification all X 1 Х all x 2 Equipment ID or circuit ID is correct 8 NO Х 3 Enclosure, sealing gaskets or compounds are satisfactory all 8 all Х 4 There are no damage or evidence of unauthorised modifications BB all 5 Bolts, cable entries and blanking elements are correct and tight Х Х 6 Flange facings are clean and undamaged d all Х 7 Lamp rating, type and position correct Х all 8 Electrical connections are tight X 9 Hermetically sealed devices are undamaged n Restricted breathing enclosure is satisfactory to enclosure and/or covers Х 10 n Motor fans have sufficient clearance motors only Х 11 Х Х 12 Installation clearly labelled i Safety barriers/isolators installed as per certification and securely earthed where 13 Х Х required Entity calculation/documentation is available Х Х 14 i **B** Installation 1 Type of cable is appropriate, cables are undamaged all Х X Sealing of ducts and/or conduits is satisfactory all Х 2 Stopper boxes or barrier glands are properly filled d 3

4	Integrity of conduit system and interface with mixed system is maintained	all	X		
5	Earthing and bonding connections are tight, in good condition and of sufficient	all	x	(x)	120
	cross section			0	200
6	Fault loop impedance is satisfactory	power outlets	X		
7	Insulation resistance is satisfactory (check only during initial inspection)	all	X		
8	Automatic electrical protective devices are set correctly and operate within	all	X		
	permitted limits		^		
9	Special certification conditions U,X or B have been complied with	all	X		
10	Cables/spare cores are terminated satisfactorily	alt	X		
11	No obstructions adjacent to flameproof flanged joint	d	X	X	
12	Ducts, pipes and enclosures are in good condition	p	X	X	
13	Protective gas is substantially free from contaminants (water, oil, dirt)	p	X	X	
14	Protective gas flow/pressure is adequate	р	X		
15	Pressure and/or flow indicators, alarms and interlocks function correctly	p	X		
16	Pre-energising purge period is adequate	р	X		
17	Condition of spark/particle barriers of ducts exhausting the gas into hazardous area are satisfactory	q	x		



18	Cables are installed and screens are earthed in accordance with the documentatio0n	i	х	
19	The circuit is isolated from earth or earthed at one point only	i	Х	
20	Separation is maintained with non-IS circuits	i	Х	
21	As applicable, short circuit protection of the power supply is in accordance with the documentation	i	Х	

	C Environmient			
1	Apparatus adequately protected from corrosion, weather, vibration, other	all	X	8
2	No undue accumulation of dust or dirt	all	X	TX
3	Electrical insulation is clean and dry	all	Х	

Faults found? (circle as appropriate)

No:

List action required

Contractor (write): Inspector	Supervisor	Client (write): Inspector
N. LIKEEN		
Data - Jalu		Data
Date: <u>\$ [9] 11</u>		Date:

Device ID or tag

Equipment		+ cable ID.
Equipment		
		certification

Reviewed by: N. GREEN Date: 199911 Priority:

Comments:			
All action items new completed			
All action items now completed:	닖		
Job closed:			
Device new fully compliant approaches tracio	tar haa haan una	Interd	
Device now fully compliant, spreadsheet regis	ter has been upo	ateu	
Supervisor (write):			
Date:			

Hazardous area device inspection sheet for Ex-d, Ex-e, Ex-i, Ex-n, Ex-p and SITZLER other Ex devices

Based on AS/NZS 60079 part 17

Ref: It/data/sitzlencompany operations/darwin/tenders/sbsj11/fyf1 - haz area inspections/hazardous area inspection forms/hazardous area device inspection sheet for ex-d, ex-e, ex-i, ex-n, ex-p and other ex devices.doc

Specifications

	Asset: MLV SoleNois VARUES - WITHIN JE
Circuit ID:	Physical location: KATHERNE MS
Area classification :	Environment: (hot?)

Motor) SOLENDID VALVEX2	etc) Cx S G (Special Piot)
Manufacturer: NERON	Gas group: (IIA/B/C)
Full model number: S44 0270 9711800	Temp class: (T1-T6)
Serial number: 657307 / 657306	Certificate number: AUS Ex 198-DIP CONTAILARUE.
IP Class	Test authority: (BAS, PTB, SAA etc)

Number of cables; 1

For each cable entry	gland 1 😠 🕻	gland 2	others	
Gland manufacturer:				
Model:				
Gland type of protection: (d,e)	-			

nsp	ection		Circle a	s checke	d
	A Equipment	Applicable to protection type:	Internal	External	
1	Equipment (incl group and temp class) is appropriate for area classification	all	Х	\bigotimes	2
	Equipment ID or circuit ID is correct	ail	X		1
	Enclosure, sealing gaskets or compounds are satisfactory	all	Х	08	
	There are no damage or evidence of unauthorised modifications	all	Х	Ø]
	Bolts, cable entries and blanking elements are correct and tight	all	Х	8	
	Flange facings are clean and undamaged	d	Х		
	Lamp rating, type and position correct	all	Х		
	Electrical connections are tight	all	Х		
	Hermetically sealed devices are undamaged	n	X		
0	Restricted breathing enclosure is satisfactory to enclosure and/or covers	n	Х		
1	Motor fans have sufficient clearance	motors only	Х]
2	Installation clearly labelled	í	Х	X]
3	Safety barriers/isolators installed as per certification and securely earthed where required	ì	×	×	
4	Entity calculation/documentation is available	i	Х	Х]
	B installation				
	Type of cable is appropriate, cables are undamaged	all	X	80	٦

1	Type of cable is appropriate, cables are undamaged	j all	X	$\square \otimes$	
2	Sealing of ducts and/or conduits is satisfactory	all	X	Ø	
3	Stopper boxes or barrier glands are properly filled	d	X		
4	Integrity of conduit system and interface with mixed system is maintained	all	X]
5	Earthing and bonding connections are tight, in good condition and of sufficient	all	x	AL	
	cross section		^	Ø	NO EAPETH
6	Fault loop impedance is satisfactory	power outlets	Х		
7	Insulation resistance is satisfactory (check only during initial inspection)	all	Х		
8	Automatic electrical protective devices are set correctly and operate within	all	х		
	permitted limits		~		
9	Special certification conditions U,X or B have been complied with	all	X		
10	Cables/spare cores are terminated satisfactorily	all	<u> </u>		
11	No obstructions adjacent to flameproof flanged joint	d	X	X	
12	Ducts, pipes and enclosures are in good condition	р	X	X	
13	Protective gas is substantially free from contaminants (water, oil, dirt)	p	X	X	
14	Protective gas flow/pressure is adequate	р	X		
15	Pressure and/or flow indicators, alarms and interlocks function correctly	р	Х		
16	Pre-energising purge period is adequate	р	X		
17	Condition of spark/particle barriers of ducts exhausting the gas into hazardous	р	Х		
	area are satisfactory		^		



18	Cables are installed and screens are earthed in accordance with the documentatio0n	1	X	
19	The circuit is isolated from earth or earthed at one point only	1	X	
20	Separation is maintained with non-IS circuits	i	Х	
21	As applicable, short circuit protection of the power supply is in accordance with the documentation	Ì	×	

	C Environment	• •		
1	Apparatus adequately protected from corrosion, weather, vibration, other	í` all	X	8
2	No undue accumulation of dust or dirt	ail	X	X
3	Electrical insulation is clean and dry	all	X	

Faults found? (circle as appropriate)

No:

,

(Yes) List action required

-				
Contrac	tor (write): Inspector	Supervisor	Client (write): Inspector	
	N. GREEN.	-		
5.4	clali		Deter	
Date:	212/11		Date:	

Device ID or tag	Device	ID	or	tag
------------------	--------	----	----	-----

Action	required to make device compliant:	
-	Equipment and circuit IO required	
-	Equipment earth required	
-	Equipment method of protection Exs (special) however	
	certification detail not available.	
	Cable gland cartification unknown	
-	- General undition of equipment is poor.	

Reviewed by: N. CREEN Date: 14/9/11 Priority:

Comments:				
All action items now completed:				
All action items now completed:				
Job closed:			_	
Device now fully compliant, spreadsheet	register has beer	1 updated		
Supervisor (write):				
Date:				
Date.				

Hazardous area device inspection sheet for Ex-d, Ex-e, Ex-i, Ex-n, Ex-p and other Ex devices Based on AS/NZS 60079 part 17



Circle as checked

•

Ref. L'data\sitzlencompany operations\darwin\tenders\sbsj11\fyf1 - haz area inspections\hazardous area inspection forms\hazardous area device inspection sheet for ex-d,ex-e,exi,ex-n,ex-p and other ex devices.doc

Specifications

General
General

General					
Device ID or tag:	-	(zsc/zso-11)	Asset: MLV	ACTURSON	umas - 3B
Circuit ID:	-		Physical location:	KATHE	ANE MS
Area classification :			Environment: (hot?)		

Data from Label

Apparatus type: (light, JB, Motor)	Type of protection: (d,e, i, $n_i p$ Exactly etc.)
Manufacturer: Gerris	Gas group: (IIA/B/C)
Full model number: 4R 041 AFC	Temp class: (T1-T6)
Serial number: -	Certificate number: BAS Ex 77241 AS C98?
IP Class	Test authority: (BAS, PTB, SAA etc)

Number of cables: L p Computer.

For each cable entry	gland 1	gland 2	others
Gland manufacturer:	COPOUR TO 3 BOX	CAUCUDSUDE .	
Model:	GOVAN PL - PSA	+ CLIPSOL ?	
Gland type of protection: (d,e)			

Inspection ·

A Equipment	Applicable to protection type:	↓ Internal	External	
Equipment (incl group and temp class) is appropriate for area classification	all	X	X	
Equipment ID or circuit ID is correct	all	X	8	20
Enclosure, sealing gaskets or compounds are satisfactory	all	X	Ø	
There are no damage or evidence of unauthorised modifications	all	X	Ø	
Bolts, cable entries and blanking elements are correct and tight	all	X	Ø	
Flange facings are clean and undamaged	d	X		7
Lamp rating, type and position correct	all	X		1
Electrical connections are tight	all	X		1
Hermetically sealed devices are undamaged	n	X		7
Restricted breathing enclosure is satisfactory to enclosure and/or covers	n	X		7
Motor fans have sufficient clearance	motors only	X		7
Installation clearly labelled	i	X	Х	1
Safety barriers/isolators installed as per certification and securely earthed where required	i	X	X	
Entity calculation/documentation is available	i	X	X	
B Installation				
Type of cable is appropriate, cables are undamaged	all	X	Ø	LONG
Sealing of ducts and/or conduits is satisfactory	all	X	N N	

2	Sealing of ducts and/or conduits is satisfactory	all	X	
3	Stopper boxes or barrier glands are properly filled	d	Х	
4	Integrity of conduit system and interface with mixed system is maintained	all	Х	
5	Earthing and bonding connections are tight, in good condition and of sufficient cross section	all	Х	8
6	Fault loop impedance is satisfactory	power outlets	Х	
7	Insulation resistance is satisfactory (check only during initial inspection)	all	X	
8	Automatic electrical protective devices are set correctly and operate within permitted limits	all	x	
9	Special certification conditions U,X or B have been complied with	all	Х	
10	Cables/spare cores are terminated satisfactorily	all	Х	
11	No obstructions adjacent to flameproof flanged joint	d	X	X
12	Ducts, pipes and enclosures are in good condition	p	X	X
13	Protective gas is substantially free from contaminants (water, oil, dirt)	p	Х	X
14	Protective gas flow/pressure is adequate	p	Х	
15	Pressure and/or flow indicators, alarms and interlocks function correctly	p	Х	
16	Pre-energising purge period is adequate	p	Х	
17	Condition of spark/particle barriers of ducts exhausting the gas into hazardous area are satisfactory	р	х	



18	Cables are installed and screens are earthed in accordance with the documentatio0n	ì	Х	
19	The circuit is isolated from earth or earthed at one point only	ì	X	
20	Separation is maintained with non-IS circuits	i	Х	
21	As applicable, short circuit protection of the power supply is in accordance with the documentation	Í	Х	

	C Environment			
1	Apparatus adequately protected from corrosion, weather, vibration, other	all	X	\otimes
2	No undue accumulation of dust or dirt	all	X	\bigotimes
3	Electrical insulation is clean and dry	all	X	

Faults found? (circle as appropriate)

No:		
Yes: List action required		
Contractor (write): Inspector Supervisor	Client (write): Inspector	
Date: 5/9/11	Date:	

Device ID or tag Action required to make device compliant: - Equipment & cable ID required - N:l equipment and associated condit catification details mailable to Authalian standards.

Reviewed by: p. CREEN Date: [9]11 Priority:

Comments:				
All action items now completed:				
Job closed:	H			
000 003eu.	<u> </u>		-	
Device now fully compliant, spreadshe	et register has be	en updated		
Supervisor (write):				
Date:				

Hazardous area device inspection sheet for Ex-d, Ex-e, Ex-i, Ex-n, Ex-p and other Ex devices

Based on AS/NZS 60079 part 17



Ref. 1:\data\sitzleAcompany operations\darwin\lenders\sbsj11\Vf1 - haz area inspections\hazardous area inspection forms\hazardous area device inspection sheel for ex-d,ex-e,ex-i,ex-n,ex-p and other ex devices.doc

Specifications

Device ID or tag: - (750-19)	Asset: FILTER JEP # 2. TCV-19
Circuit ID: JOIS	Physical location: KAT WARINE MS
Area classification :	Environment: (hot?)

Apparatus type: (light, JB, Motor) POSITION SWITCH.	Type of protection: (d,e, i, n, p etc) <u> </u>
Manufacturer: msk	Gas group: (IIA/B/C) CLASSI CR C, O
Full model number: 304	Temp class: (T1-T6)
Serial number: 9644626	Certificate number:
IP Class CNG 4.	Test authority: (BAS, PTB, CSA SAA etc)
Number of cables:	

For each cable entry	gland 1	gland 2	others April 1012
Gland manufacturer:	2		2.
Model:			
Gland type of protection: (d,e)			

Insp	ection		Circle a	is checke	d
	A Equipment	Applicable to protection type:	Internal	External	
1	Equipment (incl group and temp class) is appropriate for area classification	all			1
2	Equipment ID or circuit ID is correct	all	X	<u>×</u>	JO
3	Enclosure, sealing gaskets or compounds are satisfactory	all	X		
4	There are no damage or evidence of unauthorised modifications	all	X		
5	Bolts, cable entries and blanking elements are correct and tight	all	X	<u>Ø</u>	
6	Flange facings are clean and undamaged	d	X		1
7	Lamp rating, type and position correct	all	X		1
8	Electrical connections are tight	alf	X		1
9	Hermetically sealed devices are undamaged	n	X		1
10	Restricted breathing enclosure is satisfactory to enclosure and/or covers	n	X		1
11	Motor fans have sufficient clearance	motors only	X		
12	Installation clearly labelled	- i	X	Ø	slean
13	Safety barriers/isolators installed as per certification and securely earthed where required	i	x	\otimes	sleah
14	Entity calculation/documentation is available	i	X	Ø	ND
	B Installation				
1	Type of cable is appropriate, cables are undamaged	all	X	8	+UV support
2	Sealing of ducts and/or conduits is satisfactory	all	X	\otimes	-support
3	Stopper boxes or barrier glands are properly filled	d	X		
4	Integrity of conduit system and interface with mixed system is maintained	all	X		
5	Earthing and bonding connections are tight, in good condition and of sufficient	all		for	

Earthing and bonding connections are tight, in good condition and of sufficient	all	x	8
cross section			
Fault loop impedance is satisfactory	power outlets	X	
Insulation resistance is satisfactory (check only during initial inspection)	all	Х	
Automatic electrical protective devices are set correctly and operate within permitted limits	all	х	
	all	Х	_
Cables/spare cores are terminated satisfactorily	all	Х	
No obstructions adjacent to flameproof flanged joint	d	Х	Х
Ducts, pipes and enclosures are in good condition	Р	X	Х
Protective gas is substantially free from contaminants (water, oil, dirt)	p	X	Х
Protective gas flow/pressure is adequate	р	X	
Pressure and/or flow indicators, alarms and interlocks function correctly	р	X	
Pre-energising purge period is adequate	р	X	
Condition of spark/particle barriers of ducts exhausting the gas into hazardous area are satisfactory	q	x	
	cross section Fault loop impedance is satisfactory Insulation resistance is satisfactory (check only during initial inspection) Automatic electrical protective devices are set correctly and operate within permitted limits Special certification conditions U,X or B have been complied with Cables/spare cores are terminated satisfactorily No obstructions adjacent to flameproof flanged joint Ducts, pipes and enclosures are in good condition Protective gas is substantially free from contaminants (water, oil, dirt) Protective gas flow/pressure is adequate Pressure and/or flow indicators, alarms and interlocks function correctly Pre-energising purge period is adequate Condition of spark/particle barriers of ducts exhausting the gas into hazardous	cross section power outlets Fault loop impedance is satisfactory power outlets Insulation resistance is satisfactory (check only during initial inspection) all Automatic electrical protective devices are set correctly and operate within all permitted limits all Special certification conditions U,X or B have been complied with all Cables/spare cores are terminated satisfactorily all No obstructions adjacent to flameproof flanged joint d Ducts, pipes and enclosures are in good condition p Protective gas is substantially free from contaminants (water, oil, dirt) p Pressure and/or flow indicators, alarms and interlocks function correctly p Pre-energising purge period is adequate p Condition of spark/particle barriers of ducts exhausting the gas into hazardous p	cross section ^ Fault loop impedance is satisfactory power outlets X Insulation resistance is satisfactory (check only during initial inspection) all X Automatic electrical protective devices are set correctly and operate within all X Special certification conditions U,X or B have been complied with all X Cables/spare cores are terminated satisfactorily all X No obstructions adjacent to flameproof flanged joint d X Ducts, pipes and enclosures are in good condition p X Protective gas is substantially free from contaminants (water, oil, dirt) p X Pressure and/or flow indicators, alarms and interlocks function correctly p X Pre-energising purge period is adequate p X Condition of spark/particle barriers of ducts exhausting the gas into hazardous p x



18	Cables are installed and screens are earthed in accordance with the documentatio0n	i	Х	
19	The circuit is isolated from earth or earthed at one point only	i	Х	
20	Separation is maintained with non-IS circuits	i	Х	
21	As applicable, short circuit protection of the power supply is in accordance with the documentation	ì	Х	

	C Environment		-	
1	Apparatus adequately protected from corrosion, weather, vibration, other	all .	Х	\otimes
2	No undue accumulation of dust or dirt	all	Х	X
3	Electrical insulation is clean and dry	all	Х	

Faults found? (circle as appropriate)

No:

Yes:

List action required

Contractor (write): Inspector	Supervisor	Client (write): Inspector	
N. GREEN			
Date: 519/11		Date:	

Device	ID	or	taq
Device		S.	LUG

Action r	equired to ma	ke device	compliant:	_				
- Eg	impment	ŦD	required					
- 1	Replace	calle	sheath	(blue)	with	VV	damaye.	
- C	able Sur	oport	required.					

Reviewed by: D. CREEN Date: 14/9/4 Priority:

Comments:			 	
	_			
All action items now completed:				
Job closed:				
			 	_
Device now fully compliant, spreadsheet	register has b	een updated		
Supervisor (write):	0			
Date:				

Hazardous area device inspection sheet for Ex-d, Ex-e, Ex-i, Ex-n, Ex-p and SITZLER other Ex devices

Based on AS/NZS 60079 part 17

Ref. 1:\data\siz\encompany operations\darwin\lenders\sbsj11\fyf1 - haz area inspections\hazardous area inspection forms\hazardous area device inspection sheet for ex-d,ex-e,ex-i,ex-n,ex-p and other ex devices.doc

adfiecti ~

Spee	cifications							
Gen	eral							
Devi	ice ID or tag:	(PY-19)	Asset:	FILTER	SEP #	2 TCI	1-19	7
Circ	uit ID: TOOY	2	Physical loc		THERN			1
Area	a classification :		Environmen					-
Data	a from Label							
App: Moto	aratus type: (light, JB, 🚽	: P TRANSOURR	Type of prot etc)	tection: (d,e,	í, n, p 🧧	ix in		
Man	ufacturer: FLCNOR		Gas group:	(IIA/B/C)	112			
Full	model number: 3590	S	Temp class	: (T1-T6)	74 'X	([*]		
Seria	al number: 988615	5	Certificate n	umber: 😒	204 20	Ex 64-1		
IP C		- <u>Fortuna</u> -	Test authori SAA etc)	ty: (BAS, PT	В,			1
Num	ber of cables:							_
NUN	iber of cables:							
	each cable entry	gland 1	_	gland 2	oth	ners		_
	nd manufacturer:]
Mod	el: nd type of protection: (d,e)							4
0120		<u></u>						
Inspe	ection ———					 Circle a 	s checked	ł
	A Equipment				plicable to otection type:		↓	
1		temp class) is appropriate for are	a classification	pr	all	Internal X	External	1
2	Equipment ID or circuit ID			·	all	X	Ø	DEVILE 10
3		s or compounds are satisfactory			all	X	Ø	
4		evidence of unauthorised modifical	tions		alí	X	8	
5		anking elements are correct and t			all	X	(X)	
6	Flange facings are clean a	and undamaged			d	X	<	
7	Lamp rating, type and pos	ition correct			all	X]
8	Electrical connections are				all	X		41.2
9	Hermetically sealed devic				n	X		1.1.2
10		osure is satisfactory to enclosure a	and/or covers	_	п	X		್ಷ
11	Motor fans have sufficient				motors only			-
12	Installation clearly labelled				<u> </u>	X		
13	Safety barriers/isolators in required	stalled as per certification and sec	curely earthed	where	i	×	X	
14	Entity calculation/docume	ntation is available			i	X	\$	PO
	B Installation							
1		te, cables are undamaged			all	X	\otimes	SHEATH
2	Sealing of ducts and/or co				all		R	atter of
3	Stopper boxes or barrier of	/			d	X	10	-
4		and interface with mixed system	is maintained		all	x		-
5		nections are tight, in good condition		ient	all		1	-
	cross section					X	X	
6	Fault loop impedance is s				power outlets			_
7		tisfactory (check only during initial			all	X	<u> </u>	_
8	permitted limits	ctive devices are set correctly and	operate within		all	X		
9		ions U,X or B have been complied	d with		all	- x -		-
10	Cables/spare cores are te				all	X	1	1
11		o flameproof flanged joint			d	X	X	1
12	Ducts, pipes and enclosur				p	X	X	1
13		ially free from contaminants (water	r, oil, dirt)		p	X	X	1
14	Protective gas flow/pressu				p	X]
15	Pressure and/or flow indic	ators, alarms and interlocks functi	on correctly		P	X]
16	Pre-energising purge perio	od is adequate			p	X]
17		barriers of ducts exhausting the g	jas into hazard	ous	p	X]
	area are satisfactory					^		



18	Cables are installed and screens are earthed in accordance with the documentatio0n	i	Х	
19	The circuit is isolated from earth or earthed at one point only	i	X	
20	Separation is maintained with non-IS circuits	i	X	
21	As applicable, short circuit protection of the power supply is in accordance with the documentation	i	х	

1	Apparatus adequately protected from corrosion, weather, vibration, other	all	Х	\bigotimes
2	No undue accumulation of dust or dirt	all	X	(X)
3	Electrical insulation is clean and dry	all	X	

Faults found? (circle as appropriate)

No:

Yes

List action required

Supervisor	Client (write): Inspector	
•		
	Date:	
	Supervisor	

Device ID or tag

Action required to make	device compliant:			
- Device IO - Remediate	-	speath of	cabling	

Reviewed by: D. CREEN Date: 14/9/11 Priority:

Comments:				
•				
All action items now completed:				
All action items now completed.				
Job closed:				
Device now fully compliant, spreadsheet	ragiotor has he	an undeted	 	
Device now rully compliant, spreadsheet	register has be	en updated		
Supervisor (write):				
Date:				

Hazardous area device inspection sheet for Ex-d, Ex-e, Ex-i, Ex-n, Ex-p and other Ex devices



Based on AS/NZS 60079 part 17

Ref: I:\data\sizter\company operations\darwin\tenders\sbsj11\fyf1 - haz area inspections\hazardous area inspection forms\hazardous area device inspection sheet for ex-d,ex-e,ex-i,ex-n,ex-p and other ex devices.doc

Specifications

Gen		(200 -17)	- Annati		1 mart 1	1	7
	ice ID or tag:	(ZSC-17)	Asset: FILTER	<u>2 SEP. 1</u>	=) TCV-	T	-
	uit ID: <u>7-010</u>		Physical location:	KATMORINE	MS		4
Area	a classification :		Environment: (hot?)				
Date	a from Label						
	aratus type: (light, JB,		Type of protection: (d.e. i. n. p			7
Mot		POSITION SWITCH	etc)				
Mar	sufacturer: FISNER		Gas group: (IIA/B/C)	CLIGR	(,0		
Full	model number: 304	0	Temp class: (T1-T6)				1
Seri	al number: 964463	2	Certificate number:	-			1
IP C	lass		Test authority: (BAS	, PTB,			1
	*****		SAA etc)				
Nun	nber of cables:]				
Бал	anch and and a	alarad 4			4		
	each cable entry	gland 1	gland 2		thers ADAPT	BRy2	7
Mod		WARDZ					-
Glar	nd type of protection: (d,e)				ì		1
							-
Insp	ection ———				→ Circle a	as chepked	1
	A Equipment			Applicable to protection type	e: Internal	External	
1		temp class) is appropriate for are	a classification	ail	X	X	
2	Equipment ID or circuit ID			all	X	8	5 EQ
3		s or compounds are satisfactory		all	X	8	
4		evidence of unauthorised modificat		all	X	X	
5		anking elements are correct and ti	ght	all	X	X	
6	Flange facings are clean a			d	X	<u></u>	
7	Lamp rating, type and pos			all	X	<u> </u>	
8	Electrical connections are			all	<u> </u>	<u> </u>	
9 10	Hermetically sealed device	es are undamaged osure is satisfactory to enclosure a	od/or opuor	n	X	<u> </u>	
11	Motor fans have sufficient		nd/or covers		y X	<u> </u>	
12	Installation clearly labelled			motors onl	x x	Ø	ID
13		stalled as per certification and sec	urely earthed where	i			-0
	required				X	Ø	0.0
14	Entity calculation/documer	ntation is available		i	X	\otimes	NO
	B Installation						
1	Type of cable is appropriate	te, cables are undamaged		all	X	8	SHEATU,
2	Sealing of ducts and/or co			all	X	0	Auppor
3	Stopper boxes or barrier g			d	X	<u> </u>	• <i>r</i> •
4	Integrity of conduit system	and interface with mixed system i	s maintained	all	X		1
5		nections are tight, in good conditio	n and of sufficient	all	X	Ø	1
e	cross section Fault loop impedance is sa	atiafactor (_				-
6 7		tisfactory (check only during initial	inspection)	power outle all	X		-
8		tive devices are set correctly and		all		+	1
-	permitted limits			ci,	×		
9		ions U,X or B have been complied	with	all	X]
10	Cables/spare cores are ter			all	X		1
11	No obstructions adjacent to			d	X	X	1
12	Ducts, pipes and enclosure			р	X	X	4
13		ially free from contaminants (water	, oll, dirt)	p	X	X	4
14	Protective gas flow/pressu			p	X	<u> </u>	4
15		ators, alarms and interlocks function	UII CORRECTLY	p	X		4
16 17	Pre-energising purge perio	barriers of ducts exhausting the g	as into hazardava	P	X	<u> </u>	4
	area are satisfactory	samera or ducto exhausting (ne g	as mu nazdruuus	р	×		



18	Cables are installed and screens are earthed in accordance with the documentatio0n	i	Х	
19	The circuit is isolated from earth or earthed at one point only	í	Х	
20	Separation is maintained with non-IS circuits	i	X	
21	As applicable, short circuit protection of the power supply is in accordance with the documentation	i	Х	

	C Environment			
1	Apparatus adequately protected from corrosion, weather, vibration, other	alí	X	\otimes
2	No undue accumulation of dust or dirt	ali	Х	8
3	Electrical insulation is clean and dry	all	X	

Faults found? (circle as appropriate)

No:

Ves: List action required			
Contractor (write): Inspector	Supervisor	Client (write): Inspector	
Date: 5/9/11		Date:	

Device ID or tag

Action I	required to make device co	mpliant:		
	Equipment ID			
-	Elle calle. Cable support	sheath requi	red.	
_	cable support	required .		

Reviewed by: D. GREEN Date: 14/9/11 Priority:

Comments:				
All action items now completed:				
	님			
Job closed:			_	
Device now fully compliant, spreadshee	et register has ber	en updated	 	
Supervisor (write):				
Date:			 	

Based on AS/NZS 60079 part 17

Ref. 1:\data\sitzler\company operations\darwin\lenders\sbsj11\yf1 - haz area inspections\hazardous area inspection forms\hazardous area device inspection sheet for ex-d, ex-e, ex-i, ex-n, ex-p and other ex devices.doc

Specifications

General		
Device ID or tag:	- (PY-17)	Asset: FILTER SEP. +1 TOV-17
Circuit ID: 7003		Physical location: KATHERENE MS
Area classification :		Environment: (hot?)

Data from Label

Apparatus type: (light, JB, I/P TIANS OUNCE	Type of protection: (d,e, i, n, p etc)
Manufacturer: FILMER.	Gas group: (IIA/B/C)
Full model number: 3590 S	Temp class: (T1-T6) 74
Serial number: 9880 156	Certificate number: AUS Ex 64-1
IP Class	Test authority: (BAS, PTB, SAA etc)
Number of cables:	

For each cable entry	gland 1	gland 2	others
Gland manufacturer:	<u>,</u>		
Model:			
Gland type of protection: (d,e)			

Inspection -

	A Equipment	Applicable to protection type:	Internal	External	
1	Equipment (incl group and temp class) is appropriate for area classification	all	X	(X)	Th
2	Equipment ID or circuit ID is correct	all	X	0	
3	Enclosure, sealing gaskets or compounds are satisfactory	all	X	8	1
4	There are no damage or evidence of unauthorised modifications	all	X	10	1
5	Bolts, cable entries and blanking elements are correct and tight	all	X	R	1
6	Flange facings are clean and undamaged	d	X		1
7	Lamp rating, type and position correct	all	X		1
8	Electrical connections are tight	all	X		1
9	Hermetically sealed devices are undamaged	ת	X		1
10	Restricted breathing enclosure is satisfactory to enclosure and/or covers	n	X		1
11	Motor fans have sufficient clearance	motors only	X		1
12	Installation clearly labelled	i	X	Ø	TO
13	Safety barriers/isolators installed as per certification and securely earthed where required	i	X	\bigotimes	
14	Entity calculation/documentation is available	i	X	X	1

B Installation

	Type of cable is appropriate, cables are undamaged	all	X	(X)	SMEAT
2	Sealing of ducts and/or conduits is satisfactory	all	<u>x</u>	Ø	5 00-0
1	Stopper boxes or barrier glands are properly filled	d	Х		Notes a
	Integrity of conduit system and interface with mixed system is maintained	all	X		1
	Earthing and bonding connections are tight, in good condition and of sufficient cross section	all	Х	\bigotimes	
	Fault loop impedance is satisfactory	power outlets	X		1
	Insulation resistance is satisfactory (check only during initial inspection)	alí	X		1
	Automatic electrical protective devices are set correctly and operate within permitted limits	all	x		1
	Special certification conditions U,X or B have been complied with	all	X		1
	Cables/spare cores are terminated satisfactorily	all	X	1	1
	No obstructions adjacent to flameproof flanged joint	d	Х	X	7
	Ducts, pipes and enclosures are in good condition	p	Х	X	7
	Protective gas is substantially free from contaminants (water, oil, dirt)	p	Х	X	7
	Protective gas flow/pressure is adequate	p	Х		7
	Pressure and/or flow indicators, alarms and interlocks function correctly	p	Х		7
	Pre-energising purge period is adequate	p	X		1
	Condition of spark/particle barriers of ducts exhausting the gas into hazardous area are satisfactory	p	х		1

Amadeus Pipeline Electrical Inspections

SITZLER

Circle as checked

•



18	Cables are installed and screens are earthed in accordance with the documentatio0n	í	х	
19	The circuit is isolated from earth or earthed at one point only	i	Х	
20	Separation is maintained with non-IS circuits	i	X	
21	As applicable, short circuit protection of the power supply is in accordance with the documentation	i	X	

	C Environment			
1	Apparatus adequately protected from corrosion, weather, vibration, other	all	Х	(X)
2	No undue accumulation of dust or dirt	alí	X	8
3	Electrical insulation is clean and dry	all	X	

Faults found? (circle as appropriate)

 No:

 Ves:

 List action required

 Contractor (write): Inspector

 Supervisor

 Client (write): Inspector

 Date:

 Supervisor

 Date:

Device ID or tag

Action	required to m	nake devic	e complia	nt:		
-	Replace	blue	Sheak	h to	calling .	
	Equipr	reat	IO 1	equired.		
	•					

Reviewed by: D.CREEN Date: Priority: 14/9/4

Comments:				
All action items now completed:				
An action hems now completed.				
Job closed:	<u> </u>			
			•	
Device now fully compliant, spreadsheet	register has been u	pdated		
Supervisor (write):				

Date:



Circle as checked

•

Based on AS/NZS 60079 part 17

Ref: 1:\data\sitzlencompany operations\darwin\tenders\sbsj11\fyf1 - haz area inspections\hazardous area inspection forms\hazardous area device inspection sheet for ex-d,ex-e,ex-i,ex-n,ex-p and other ex devices.doc

Specifications

General	
Device ID or tag: PO1-20	Asset: FILTER SEP #2
Circuit ID:	Physical location: KATHERWS MS
Area classification :	Environment: (hot?)

Data from Label

Apparatus type: (light, JB. PRESS. (DIR.) TRANSMITTER	Type of protection: (d,e, i, n, Big, n / Exd
Manufacturer: 70 LD CAWA	Gas group: (IIA/B/C) IC / IG
Full model number: ETX110A-EM546-914EB-	Temp class: (T1-T6) 74 / 76 (-50-70)
Serial number: 916849586748 /SU2/X2	Certificate number: JECEC CSA 05:0005/ ECE CADS. 000
IP Class 66/67	Test authority: (BAS, PTB, SAA etc)

Number of cables:

For each cable entry	gland 1	gland 2	-others PLUG
Gland manufacturer:	ALCO		"PLASTIC"
Model:	WG 203		_
Gland type of protection: (d,e)			

Inspection -

					•
		Applicable to	↓ I	↓ ↓	
	A Equipment	protection type:	Internal	External	
1	Equipment (incl group and temp class) is appropriate for area classification	all	X	X	- 11/2 M
2	Equipment ID or circuit ID is correct	all	X	$\overline{\otimes}$	SHEATH.
3	Enclosure, sealing gaskets or compounds are satisfactory	all	X	Ø	
4	There are no damage or evidence of unauthorised modifications	all	X	Ø	
5	Bolts, cable entries and blanking elements are correct and tight	all	X	Ø	
6	Flange facings are clean and undamaged	d	X		1
7	Lamp rating, type and position correct	all	X		
8	Electrical connections are tight	all	X		
9	Hermetically sealed devices are undamaged	л	X		
10	Restricted breathing enclosure is satisfactory to enclosure and/or covers	n	X		
11	Motor fans have sufficient clearance	motors only	X		
12	Installation clearly labelled	i	Х	8	
13	Safety barriers/isolators installed as per certification and securely earthed where required	i	×	8	
14	Entity calculation/documentation is available	i	X	X	
	B Installation				
1	Type of cable is appropriate, cables are undamaged	all	X		SUPPORT
2	Sealing of ducts and/or conduits is satisfactory	all	Х	<u>&</u>	JUPPORT
3	Stopper boxes or barrier glands are properly filled	d	X		
4	Integrity of conduit system and interface with mixed system is maintained	all	X		1
5	Earthing and bonding connections are tight, in good condition and of sufficient cross section	all	×	×	
6	Fault loop impedance is satisfactory	power outlets	Х]
7	Insulation resistance is satisfactory (check only during initial inspection)	ali	Х]
8	Automatic electrical protective devices are set correctly and operate within permitted limits	all	Х]
9	Special certification conditions U,X or B have been complied with	all	X]
10	Cables/spare cores are terminated satisfactorily	all	X]
11	No obstructions adjacent to flameproof flanged joint	d	Х	X]

12 Ducts, pipes and enclosures are in good condition р Х X 13 Protective gas is substantially free from contaminants (water, oil, dirt) Х Х р 14 Protective gas flow/pressure is adequate Х р 15 Pressure and/or flow indicators, alarms and interlocks function correctly Х р 16 Pre-energising purge period is adequate Х р 17 Condition of spark/particle barriers of ducts exhausting the gas into hazardous Р Х area are satisfactory



18	Cables are installed and screens are earthed in accordance with the documentatio0n	i	X	
19	The circuit is isolated from earth or earthed at one point only	i	X	
20	Separation is maintained with non-IS circuits	i	X	
21	As applicable, short circuit protection of the power supply is in accordance with the documentation	ì	x	

	C Litvitonment			
1	Apparatus adequately protected from corrosion, weather, vibration, other	all	X	\otimes
2	No undue accumulation of dust or dirt	all	X	\otimes
3	Electrical insulation is clean and dry	all	X	

Faults found? (circle as appropriate)

 No:

 Ves.

 List action required

 Contractor (write): Inspector

 Supervisor

 Client (write): Inspector

Contra	Ctor (write): Inspector Supervisor	Client (write): Inspector
Date:	5/9/11	Date:

Device ID or tag

	Action required to make device compliant:									
-	Replace	plaA.c.	plug	with	switchly	rated	IP	plug.		
	Replace	cauing	ane	SAEG	nik .					
-	PROVIDE	CARVE -	UPPOR	L						
	_									

Reviewed by: N, CREEN Date: 14/9/11 Priority:

Comments:			
All action items now completed:			
Job closed:			
	<u>U</u>		
Device now fully compliant, spreadshee	et register has bee	en updated	
Supervisor (write):			
Date:			
Date.			

Based on AS/NZS 60079 part 17

Ref. 1./data/sitzlen/company operations/darwin/tenders/sbsj11/fyf1 - haz area inspections/hazardous area inspection forms/hazardous area device inspection sheet for ex-d, ex-e, ex-i, ex-n, ex-p and other ex devices.doc

Spe	cifications					
Gen	eral					
Dev	ice ID or tag:- (LSH-18 CEFT SIDE!)	Asset: FILTE	n sep +2			1
	uit ID:	Physical location:	Karnonine	AA 8		1
<u> </u>	a classification :	Environment: (hot?)		1417		-
Area						J .
	a from Label					_
App Mote	aratus type: (light, JB, LEVEL Switch	Type of protection: (etc)	d,e, i, n, p Ex d			
Man	ufacturer: MURPNY		I CLI ZONE !	IR]
Full	model number: L1200 DPDT	Temp class: (T1-T6)				
Seri	al number:	Certificate number:	AUS EL 50	9]
IP C	lass	Test authority: (BAS SAA etc)	, PTB,		_	1
	ber of cables:					
	each cable entry gland 1	gland 2	other	<u>s</u>		_
	nd manufacturer: ALCO			_		
Mod	lel: w6203					-
Giai						
Inspe	ection		Applicable to	Circle a	as checked	ł
	A Equipment		protection type:	Internal	External	1
1 2	Equipment (incl group and temp class) is appropriate for Equipment ID or circuit ID is correct	or area classification	all		× Ø	SHOP
3	Enclosure, sealing gaskets or compounds are satisfactor		all	X	- 8	NO 10.
4	There are no damage or evidence of unauthorised mod		all	X	- W	
5	Bolts, cable entries and blanking elements are correct a		all	X	(X)	LODGE NUT
6	Flange facings are clean and undamaged		d	X		10 4400.
7	Lamp rating, type and position correct		all	X		
8	Electrical connections are tight		all	X		
9	Hermetically sealed devices are undamaged		n	X		
10 11	Restricted breathing enclosure is satisfactory to enclose Motor fans have sufficient clearance	ure and/or covers	n meters esty	X		
12	Installation clearly labelled		i motors only	$\frac{x}{x}$	Ø	sucarry
13	Safety barriers/isolators installed as per certification and required	d securely earthed where	i	x	8	
14	Entity calculation/documentation is available		î	X	X	
	B Installation		-			
1	Type of cable is appropriate, cables are undamaged		all	Х		1 UV
2	Sealing of ducts and/or conduits is satisfactory		all	X	8	
3	Stopper boxes or barrier glands are properly filled		d	X		
4	Integrity of conduit system and interface with mixed sys		all	X		1
5	Earthing and bonding connections are tight, in good con cross section	ndition and of sufficient	all	x	\bigotimes	
6	Fault loop impedance is satisfactory		power outlets	Х]
7	Insulation resistance is satisfactory (check only during i		all	Х		
8	Automatic electrical protective devices are set correctly permitted limits		all	×		
9	Special certification conditions U,X or B have been corr	plied with	all	X]
10	Cables/spare cores are terminated satisfactorily		all	X]

Cables/spare cores are terrimined of the second point No obstructions adjacent to flameproof flanged joint 11 12 Ducts, pipes and enclosures are in good condition 13

Protective gas is substantially free from contaminants (water, oil, dirt) Х p Protective gas flow/pressure is adequate 14 p Х Pressure and/or flow indicators, alarms and interlocks function correctly 15 Х D 16 Pre-energising purge period is adequate Х D Condition of spark/particle barriers of ducts exhausting the gas into hazardous 17 р Х area are satisfactory

Amadeus Pipeline Electrical Inspections

Х

Х

Х

Х

Х

d

р

SITZLER



18	Cables are installed and screens are earthed in accordance with the documentatio0n	i	х	
19	The circuit is isolated from earth or earthed at one point only	i	X	
20	Separation is maintained with non-IS circuits	i	X	
21	As applicable, short circuit protection of the power supply is in accordance with the documentation	Ì	x	

	C Environment			
1	Apparatus adequately protected from corrosion, weather, vibration, other	all	Х	\bigotimes
2	No undue accumulation of dust or dirt	all	Х	N
3	Electrical insulation is clean and dry	all	X	

Faults found? (circle as appropriate)

No:

List action required		
Contractor (write): Inspector	Supervisor	Client (write): Inspector
Date: 5/9/11		Date:

•	to make device compli		_
- Equipmen	A & cable :	ID required	
	abling blue		
- Tighten	. cable gland	nut.	
	•		

Reviewe	ed by:	N.	GREEN
Date:	14 9	h	
Priority		•	

Comments:			
All action items now completed:			
All action items now completed,			
Job closed:			
Device now fully compliant, spreadshee	t register has b	een updated	
Supervisor (write):			
Date:			

Hazardous area device inspection sheet for Ex-d, Ex-e, Ex-i, Ex-n, Ex-p and other Ex devices Based on AS/NZS 60079 part 17



Ref. I:\data\sitzleAcompany operations\darwin\tenders\sbsj11\fyf1 - haz area inspections\hazardous area inspection forms\hazardous area device inspection sheet for ex-d, ex-e, ex-i, ex-p, and other ex devices.doc

Specifications

Gen	eral						
	ice ID or tag: - (LSN-19	(A BETHER CUTE?)	Asset: EUTP	A SEP #2	(eus)		
	uit ID:	KIMIT STOC.	Physical location:		-	seure m	C
	a classification :		Environment: (hot?)		partic	ACADE VI	-
/400							
	a from Label	_	Tune of protection: /	dainn			-
Mot	aratus type: (light, JB, Li	EVEL SWITCH.	Type of protection: (etc)	o,e, i, ii, p			
Мап	ufacturer: F.w . M	brpn-1	Gas group: (IIA/B/C)	CGI GRE	6		
Fuli	model number: 6-120	00	Temp class: (T1-T6)				
Seri	al number: 📃 🗕		Certificate number:	-			
IP C	lass		Test authority: (BAS SAA etc)	, РТВ,			
			7				_
Nurr	hber of cables:						
	each cable entry	gland 1	gland 2	others	ò		_
	nd manufacturer:	2					_
Mod	iel: nd type of protection: (d,e)						
	ta type of protection. (d,e)						
Insp	ection				Circle a	s checke	d
mop				E .			-
				Applicable to	↓ ↓	↓ I	
	A Equipment	_		protection type:	Internal	External	_
1	Equipment (incl group and	d temp class) is appropriate for are	ea classification	all	X	X	
2	Equipment ID or circuit ID) is correct		all	X	Ø	CLT EQ
3	Enclosure, sealing gaske	ts or compounds are satisfactory		all	X	(X)	EQ
4	There are no damage or e	evidence of unauthorised modificat	tions	all	X	Ø	
5		lanking elements are correct and ti		all	X	Ø	1
6	Flange facings are clean	and undamaged		d	X		1
7	Lamp rating, type and pos			ali	X		1
8	Electrical connections are			alí	X		1
9	Hermetically sealed device			n	X	1	1
10	Restricted breathing enclo	osure is satisfactory to enclosure a	and/or covers	n ′	X	1	1
11	Motor fans have sufficient			motors only	X		1
12	Installation clearly labelle			i	X	62	SWOAD
13	Safety barriers/isolators in	nstalled as per certification and sec	curely earthed where	i	X	8	
14	required Entity calculation/docume	entation is available		í	X	X	-
14	Entry baloaration, docume						_
	B Installation	the setting and up descended			V		1
1		ate, cables are undamaged		all	<u> </u>	<u> </u>	UV
2	Sealing of ducts and/or co	onduits is satisfactory		all	X	0	4
3	Stopper boxes or barrier		· · · · · · · · · · · ·	d	X	<u> </u>	_
4		n and interface with mixed system		all	X		-
5	Earthing and bonding cor cross section	nnections are tight, in good conditio	on and of sufficient	al)	X	\otimes	
6	Fault loop impedance is s	atisfactory		power outlets	Х		
7	Insulation resistance is sa	atisfactory (check only during initial		all	X		
8	Automatic electrical protective devices are set correctly and operate within all						
0	permitted limits	tions U,X or B have been complied	d with	all	X	+	-
9				all	$\frac{x}{x}$	+	-
10	Cables/spare cores are te	d	X	- x -	-		
11		to flameproof flanged joint					-
12	Ducts, pipes and enclosu	res are in good condition		p	X	X	-
13	Protective gas is substant	tially free from contaminants (wate	er, oli, dirt)	Р	X	X	
14	Protective gas flow/press	ure is adequate		р	X	<u> </u>	_
15		cators, alarms and interlocks functi	ion correctly	Р	X		_
16	Pre-energising purge peri	iod is adequate		р	X	───	
17		e barriers of ducts exhausting the g	gas into hazardous	р	X		
	area are satisfactory						



8	Cables are installed and screens are earthed in accordance with the documentatio0n	i	х	
Э [The circuit is isolated from earth or earthed at one point only	í	X	
) (Separation is maintained with non-IS circuits	i	Х	
	As applicable, short circuit protection of the power supply is in accordance with the documentation	i	Х	
	C Environment			

	C Environment			
1	Apparatus adequately protected from corrosion, weather, vibration, other	all	X	8
2	No undue accumulation of dust or dirt	all	X	8
3	Electrical insulation is clean and dry	all	Х	

Faults found? (circle as appropriate)

No:			
List action required			_
Contractor (write): Inspector ル. GREEN	Supervisor	Client (write): Inspector	
Date: 5/9/11		Date:	_

Device ID or tag

Action required to make device compliant:	
- Equipment & cable ID require	d
- Replace calling the sheath	

Reviewed by: D. GREEN Date: 14 9/11 Priority:

Comments:			
	-		
All action items now completed:			
Job closed:			
Device now fully compliant, spreadsheet	t register has beer	n updated	
Supervisor (write):	-	-	
Date:			

Hazardous area device inspection sheet for Ex-d, Ex-e, Ex-i, Ex-n, Ex-p and other Ex devices Based on AS/NZS 60079 part 17



Circle as checked

Ref: It/data/sitz/encompany operations/darwin/tenders/sbsj11/fyf1 - haz area inspections/hazardous area inspection forms/hazardous area device inspection sheet for ex-d, ex-e, exi, ex-n, ex-p and other ex devices.doc

Specifications

General

Device ID or tag: - (LSHW - 20)	Asset: PUTER SEP # 2
Circuit ID: Jozz	Physical location: KATHERINE MS
Area classification :	Environment: (hot?)

Data from Label

Apparatus type: (light, JB, Motor)	Type of protection: (d,e, i, n, p etc)
Manufacturer: FW MURDWY	Gas group: (IIA/B/C) CL 1 TONE / //B
Full model number: LILOO DPOT	Temp class: (T1-T6) 76
Serial number: -	Certificate number: AUS is 609
IP Class	Test authority: (BAS, PTB, SAA etc)
Number of cables:	

For each cable entry	gland 1	gland 2	others	
Gland manufacturer:	7			
Model:				
Gland type of protection: (d,e)				
₩e	exposed/damaged mour	•.		

Inspection -

4 Equipment	Applicable to		•	
A Equipment	protection type:	Internal	External	1
Equipment (incl group and temp class) is appropriate for area classification	all	X	×	1
Equipment ID or circuit ID is correct	all	X	\otimes	E
Enclosure, sealing gaskets or compounds are satisfactory	all	X	(X	
There are no damage or evidence of unauthorised modifications	all	X	8] .
Bolts, cable entries and blanking elements are correct and tight	all	X	8	1
Flange facings are clean and undamaged	d	X		1
Lamp rating, type and position correct	all	X		1
Electrical connections are tight	all	X		1
Hermetically sealed devices are undamaged	n	X		1
Restricted breathing enclosure is satisfactory to enclosure and/or covers	n	X		
Motor fans have sufficient clearance	motors only	X	5 - 51 (L 34	1012
Installation clearly labelled	ì	X	Ø	N
Safety barriers/isolators installed as per certification and securely earthed where required	í	×	∞	
Entity calculation/documentation is available	i	X	R	1

B Installation

	Bilistaliation		_		
	Type of cable is appropriate, cables are undamaged	all	X	Ø	SHE
	Sealing of ducts and/or conduits is satisfactory	all	X	(3)	
	Stopper boxes or barrier glands are properly filled	d	X		
	Integrity of conduit system and interface with mixed system is maintained	all	Х		
	Earthing and bonding connections are tight, in good condition and of sufficient cross section	ali	x	Ø	
	Fault loop impedance is satisfactory	power outlets	Х		
	Insulation resistance is satisfactory (check only during initial inspection)	all	Х		7
	Automatic electrical protective devices are set correctly and operate within permitted limits	all	х		
	Special certification conditions U,X or B have been complied with	all	X		7
)	Cables/spare cores are terminated satisfactorily	all	Х		
	No obstructions adjacent to flameproof flanged joint	d	X	X	
2	Ducts, pipes and enclosures are in good condition	р	X	X	
1	Protective gas is substantially free from contaminants (water, oil, dirt)	p	X	X	
	Protective gas flow/pressure is adequate	p	X		7
i	Pressure and/or flow indicators, alarms and interlocks function correctly	р	×		7
	Pre-energising purge period is adequate	p	X		
,	Condition of spark/particle barriers of ducts exhausting the gas into hazardous area are satisfactory	p	Х		7



18	Cables are installed and screens are earthed in accordance with the documentatio0n	1	x	
19	The circuit is isolated from earth or earthed at one point only	i	X	
20	Separation is maintained with non-IS circuits	i	X	
21	As applicable, short circuit protection of the power supply is in accordance with the documentation	i	х	

	C Environment			
1	Apparatus adequately protected from corrosion, weather, vibration, other	all	X	\otimes
2	No undue accumulation of dust or dirt	all	X	\otimes
3	Electrical insulation is clean and dry	all	X	

Faults found? (circle as appropriate)

No:			
List action required			
Contractor (write): Inspector ル、に発きたの	Supervisor	Client (write): Inspector	
Date: _ \$ (9) 1)		Date:	

Device ID or tag

.

Action required to make device compliant:
E. A label Januar
- Equipment label required
Tighten cable gland nut
Lo Expaled annour - "vrplace cable".

Reviewed by: N. GREEN Date: 14/9/4 Priority:

		_	
Comments:			
	_		
All action items now completed:			
Job closed:			
Device now fully compliant, spreadsheet	register has be	en updated	
Supervisor (write):			
Date:			



Circle as checked

Based on AS/NZS 60079 part 17

Ref: 1:\data\sitzlercompany operations\darwin\tenders\sbsj11\fyf1 - haz area Inspections\hazardous area inspection forms\hazardous area device inspection sheet for ex-d, ex-e, ex-i, ex-n, ex-p and other ex devices.doc

Specifications

General

Device ID or tag: POI -18	Asset: FILTOR TOP # 1
Circuit ID: Jon	Physical location: KATMERINE MS
Area classification :	Environment: (hot?)

Data from Label

Apparatus type: (light, JB, Motor)	Type of protection: (d,e, i, n, p i and d
Manufacturer: Yoko GAWA	Gas group: (IIA/B/C)
Full model number: ETX 110A EMSUG 914 68 502/x2	Temp class: (T1-T6) 74
Serial number: 919849571 748	Certificate number: IECEx CSA 05.000 5 /
IP Class	Test authority: (BAS, PTB, SAA etc)

Number of cables:

For each cable entry	gland 1	gland 2	others PLUG	
Gland manufacturer:	Arco		2	
Model:	W4707			
Gland type of protection: (d,e)				

Inspection ·

	A Equipment	Applicable to protection type:	Internal	External
1	Equipment (incl group and temp class) is appropriate for area classification	all	X	X
2	Equipment ID or circuit ID is correct	all	X	Ø
	Enclosure, sealing gaskets or compounds are satisfactory	all	X	Ø
	There are no damage or evidence of unauthorised modifications	all	X	0
	Bolts, cable entries and blanking elements are correct and tight	all	X	\otimes
	Flange facings are clean and undamaged	d	Х	
	Lamp rating, type and position correct	all	X	
	Electrical connections are tight	all	X	
	Hermetically sealed devices are undamaged	n	X	
)	Restricted breathing enclosure is satisfactory to enclosure and/or covers	ภ	X	
1	Motor fans have sufficient clearance	motors only	X	-
2	Installation clearly labelled	i	X	(XS)
3	Safety barriers/isolators installed as per certification and securely earthed where required	i	×	0
4	Entity calculation/documentation is available	i	X	X
	BInstallation			
	Type of cable is appropriate, cables are undamaged	all	X	
	Cooling of ducto and/or and/lite is patiefactory	-11	V	

1	Type of cable is appropriate, cables are undamaged	all	X	(X)	She
2	Sealing of ducts and/or conduits is satisfactory	all	X	Ø	SUP
3	Stopper boxes or barrier glands are properly filled	d	X		
4	Integrity of conduit system and interface with mixed system is maintained	all	X		7.
5	Earthing and bonding connections are tight, in good condition and of sufficient cross section	all	X	\bigotimes]
5	Fault loop impedance is satisfactory	power outlets	X		
,	Insulation resistance is satisfactory (check only during initial inspection)	all	X		-
	Automatic electrical protective devices are set correctly and operate within permitted limits	all	X]
	Special certification conditions U,X or B have been complied with	all	X		1
D	Cables/spare cores are terminated satisfactorily	all	X		1
1	No obstructions adjacent to flameproof flanged joint	d	X	Х	1
2	Ducts, pipes and enclosures are in good condition	р	X	Х	1
3	Protective gas is substantially free from contaminants (water, oil, dirt)	p	X	Х	1
ţ .	Protective gas flow/pressure is adequate	p	X		1
5	Pressure and/or flow indicators, alarms and intertocks function correctly	p	X		1
6	Pre-energising purge period is adequate	p	X		7
,	Condition of spark/particle barriers of ducts exhausting the gas into hazardous area are satisfactory	р	X]



18	Cables are installed and screens are earthed in accordance with the documentatio0n	í	X	
19	The circuit is isolated from earth or earthed at one point only	i	X	
20	Separation is maintained with non-IS circuits	ì	X	
21	As applicable, short circuit protection of the power supply is in accordance with the documentation	i	X	

	C ENVERONMENT			
1	Apparatus adequately protected from corrosion, weather, vibration, other	all	Х	\otimes
2	No undue accumulation of dust or dirt	all	Х	8
3	Electrical insulation is clean and dry	all	X	

Faults found? (circle as appropriate)

 No:
 Ves
 List action required

 Contractor (write): Inspector
 Supervisor

 Date:
 Supervisor

Date:

Device ID or tag

Action	required to ma	ake device d	compliant:		
-	provide	blue	sheath to	calling.	
	Proside	cable	support.		
					_

Reviewed by: D- GREEN Date: 4/1/11 Priority:

Comments:		
All action items now completed:		
Job closed:		
Device a set fully a set of and a set of a		
Device now fully compliant, spreadsheet r	egister has been updated	
Supervisor (write):		
Date:		



Based on AS/NZS 60079 part 17

Ref: 1:\data\sitzlencompany operations\darwin\tenders\sbsj11\fyf1 - haz area inspections\hazardous area inspection forms\hazardous area device inspection sheet for ex-d,ex-e,ex-i,ex-n,ex-p and other ex devices.doc

Specifications

Gen	eral					
Dev	ice ID or tag: - (LSH -18A?-MUS)	Asset: FILTER	SEO HI (H	204 TNS	POI-18)]
Circ	uit ID: Jon	Physical location:	KATTIERIN			1
Area	a classification :	Environment: (hot?)				1
L	м		-			1
	a from Label - BARELY VEGIBLE.					-
App Mot	aratus type: (light, JB, or) LEVID SWACH	Type of protection: (etc)	d,e, i, n, p		-	
Mar	ufacturer: FW MURPHY	Gas group: (IIA/B/C)	-	•		
Fuli	model number: 61200 PPST	Temp class: (T1-T6)	-			
Seri	al number: -	Certificate number:		-		
IP C	lass	Test authority: (BAS) SAA etc)	, PTB,			
Num	nber of cables:					-
	each cable entry gland 1	gland 2	oth	ers		1
Mod			·			-
	nd type of protection: (d,e)					1
						-
Insp	ection			· Circl	e as checked	l
	A Equipment		Applicable to protection type:	♦ Interna	al External	
1	Equipment (incl group and temp class) is appropriate	for area classification	ali	X		
2	Equipment ID or circuit ID is correct		all	X	Ø	50
3	Enclosure, sealing gaskets or compounds are satisfact	ctory	all	X	8	
4	There are no damage or evidence of unauthorised mo		all	X	Ø	
5	Bolts, cable entries and blanking elements are correct		all		8	
6	Flange facings are clean and undamaged		d	X		
7	Lamp rating, type and position correct		all	X		
8	Electrical connections are tight		all	X		
9	Hermetically sealed devices are undamaged		n	X		
10	Restricted breathing enclosure is satisfactory to enclo	sure and/or covers		X		
11	Motor fans have sufficient clearance		motors only	X		
12	Installation clearly labelled		i	X	18	(D)
13	Safety barriers/isolators installed as per certification a required	nd securely earthed where	ì	X	0	
14	Entity calculation/documentation is available		i	X	Ø	
1	B Installation Type of cable is appropriate, cables are undamaged		all	v	Ø	SWEATH
2	Sealing of ducts and/or conduits is satisfactory				8	o mon o
3	Stopper boxes or barrier glands are properly filled		d	<u> </u>		<u>a</u>
4	Integrity of conduit system and interface with mixed sy	vstem is maintained	all	X		-
5	Earthing and bonding connections are tight, in good c		all	<u> </u>		-
•	cross section	onorion and or someent	aii	X	\otimes	
6	Fault loop impedance is satisfactory		power outlets	X		1
7	Insulation resistance is satisfactory (check only during	initial inspection)	all	X		1
8	Automatic electrical protective devices are set correct		all			1
	permitted limits	,		X		
9	Special certification conditions U,X or B have been co	mplied with	all	X]
10	Cables/spare cores are terminated satisfactorily		all	X]
11	No obstructions adjacent to flameproof flanged joint		d	X	X	
12	Ducts, pipes and enclosures are in good condition		p	X	X]
13	Protective gas is substantially free from contaminants	(water, oil, dirt)	p	X	X	1
14	Protective gas flow/pressure is adequate		p	X		1
15	Pressure and/or flow indicators, alarms and interlocks	function correctly	p	X		1
16	Pre-energising purge period is adequate		p	X		
17	Condition of spark/particle barriers of ducts exhausting	g the gas into hazardous	p	V]
	area are satisfactory		•	X	1	



18	Cables are installed and screens are earthed in accordance with the documentatio0n	i	Х	
19	The circuit is isolated from earth or earthed at one point only	i	Х	
20	Separation is maintained with non-IS circuits	i	X	
21	As applicable, short circuit protection of the power supply is in accordance with the documentation	i	х	

	C Environment				Section 2
1	Apparatus adequately protected from corrosion, weather, vibration, other	all	X	8	PODIOS .
2	No undue accumulation of dust or dirt	all	X	8	blement .
3	Electrical insulation is clean and dry	all	Х		

Faults found? (circle as appropriate)

 No:
 Ist action required

 Contractor (write): Inspector
 Supervisor

 Date:
 Supervisor

Date:

Device ID or tag

Actio	n required to n	nake devi	ice compliant:					
-	SWITCH	HAS	EVIDENCE	BF	LEAKING	AND	requires	MECHANICAL
	ATTENNON.							
			s required					
-	Provide 6	due	sheath t	D	calling.			
					~			

Reviewed by: D. GREEN Date: 14/9/4 Priority:

Comments:				
All action items now completed:				
	H			
Job closed:			 	_
Device now fully compliant, spreadsheet	register has bee	n updated		
Supervisor (write):	•	•		
Date:				
Date.				



Circle as checked

4

Based on AS/NZS 60079 part 17

Ref. 1:\data\sitzler\company operations\darwin\tenders\sbsj11\fyf1 - haz area inspections\hazardous area inspection forms\hazardous area device inspection sheet for ex-d,ex-e,ex-i,ex-n,ex-p and other ex devices.doc

Specifications

General

Centeral (
Device ID or tag: - (LSW-182 LWS)	Asset: FILTER FOR HI (LUNS)
Circuit ID: JOJ3	Physical location: KATWORINE MS
Area classification :	Environment: (hot?)

Data from Label

Apparatus type: (light, JB, Motor)	Type of protection: (d,e, i, n, p etc) $\mathcal{E}_{\mathbf{k}} \mathcal{A}$
Manufacturer: FW MURANY	Gas group: (IIA/B/C)
Full model number: LI200 ppor	Temp class: (T1-T6)
Serial number:	Certificate number: AUSEX 609
IP Class	Test authority: (BAS, PTB, SAA etc)

Number of cables:

For each cable entry	gland 1	gland 2	others
Gland manufacturer:	Aico		
Model:	W9207		
Gland type of protection: (d,e)			
Inspection	LD Reterinada	exposed amoir.	Circle as checked

Inspection -

	A Equipment	Applicable to protection type:	Internal	External	
1	Equipment (incl group and temp class) is appropriate for area classification	all	X	X	
2	Equipment ID or circuit ID is correct	all	Х	Ø	20
3	Enclosure, sealing gaskets or compounds are satisfactory	all	X	\otimes	
4	There are no damage or evidence of unauthorised modifications	all	X	Ø	
5	Bolts, cable entries and blanking elements are correct and tight	all	Х	Ø	
6	Flange facings are clean and undamaged	d	X		
7	Lamp rating, type and position correct	all	Х		
8	Electrical connections are tight	ali	Х		
9	Hermetically sealed devices are undamaged	n	Х		
10	Restricted breathing enclosure is satisfactory to enclosure and/or covers	ח	Х		
11	Motor fans have sufficient clearance	motors only	Х		
12	Installation clearly labelled	i	Х	X	
13	Safety barriers/isolators installed as per certification and securely earthed where required	i	×	Ø	
14	Entity calculation/documentation is available	i	X	X	

B Installation

	BInstanation				
1	Type of cable is appropriate, cables are undamaged	all	Х		(MAT
	Sealing of ducts and/or conduits is satisfactory	all	X	8	in a contraction
3	Stopper boxes or barrier glands are properly filled	d	Х		RETURPO
	Integrity of conduit system and interface with mixed system is maintained	all 5	X		IVERO
	Earthing and bonding connections are tight, in good condition and of sufficient cross section	all	х	8	
	Fault loop impedance is satisfactory	power outlets	Х		
	Insulation resistance is satisfactory (check only during initial inspection)	all	Х		
	Automatic electrical protective devices are set correctly and operate within permitted limits	all	х		
	Special certification conditions U,X or B have been complied with	all 🔪	X		
	Cables/spare cores are terminated satisfactorily	all	X		
	No obstructions adjacent to flameproof flanged joint	d `	Х	X	
	Ducts, pipes and enclosures are in good condition	р	Х	X	
	Protective gas is substantially free from contaminants (water, oil, dirt)	р	Х	X	
	Protective gas flow/pressure is adequate	p	Х		
	Pressure and/or flow indicators, alarms and interlocks function correctly	P	Х		
	Pre-energising purge period is adequate	Р	X		
	Condition of spark/particle barriers of ducts exhausting the gas into hazardous area are satisfactory	q	х		



18	Cables are installed and screens are earthed in accordance with the documentatio0n	i	Х	
19	9 The circuit is isolated from earth or earthed at one point only		X	
20	Separation is maintained with non-IS circuits	i	Х	
21			X	

1	Apparatus adequately protected from corrosion, weather, vibration, other	all	X	00
2	No undue accumulation of dust or dirt	all	X	8
3	Electrical insulation is clean and dry	all	X	

Faults found? (circle as appropriate)

List action required	
Contractor (write): Inspector Supervisor	Client (write): Inspector
Date: 5 9) 11	Date:

Device ID or tag

No:

Action	a required to make device compliant:	
-	Preplace blue cable sheath	
	Reterminate cable (expained armour) and provide cable support	
-	Equipment ID required.	

Reviewed by: N. CREEN Date: 19/9/11 Priority:

Comments:				
				1
All action items now completed:				
Job closed:				
Device now fully compliant, spreadshee	t register has be	en updated		
Supervisor (write):	-	-		
Date:				
Date.				



Circle as checked

Based on AS/NZS 60079 part 17

Ref: 1\data\sitzlencompany operations\darwin\tenders\sbsj11\fyf1 - haz area inspections\hazardous area inspection forms\hazardous area device inspection sheet for ex-d,ex-e,ex-i,ex-n,ex-p and other ex devices.doc

Specifications

General

Device ID or tag:	LSHU-18	Asset: FILTER- (PP +)
Circuít ID:	5014	Physical location: KATWORINE MJ
Area classification :		Environment: (hot?)

Data from Label

Apparatus type: (light, JB, Motor) LEVEL INTCH	Type of protection: (d,e, i, n, p etc)
Manufacturer: FN MURDM	Gas group: (IIA/B/C)
Full model number: LI200 OPOT	Temp class: (T1-T6)
Serial number:	Certificate number: Aus Ex 609
IP Class	Test authority: (BAS, PTB, SAA etc)
Number of cables:	

For each cable entry gland 1 gland 2 others Gland manufacturer: Model: Gland type of protection: (d,e) 4 LOOJE ME N CLARCK TCR.MNATION.

Inspection

	A Equipment	Applicable to protection type:	Internal	External	
1	Equipment (incl group and temp class) is appropriate for area classification	all		X	
2	Equipment ID or circuit ID is correct	all	X	Ø	EQ.
3	Enclosure, sealing gaskets or compounds are satisfactory	all	X	13	
Ļ	There are no damage or evidence of unauthorised modifications	all	X	(3)	
	Bolts, cable entries and blanking elements are correct and tight	all	X	LX	
5	Flange facings are clean and undamaged	d	X		
,	Lamp rating, type and position correct	all	X		
3	Electrical connections are tight	all	Х		
)	Hermetically sealed devices are undamaged	n	X		
0	Restricted breathing enclosure is satisfactory to enclosure and/or covers	n	Х		
1	Motor fans have sufficient clearance	motors only	X		
2	Installation clearly labelled	í	X	\otimes	
13	Safety barriers/isolators installed as per certification and securely earthed where required	ì	x	8	
14	Entity calculation/documentation is available	i	Х	X	
	B Installation				

1	Type of cable is appropriate, cables are undamaged	all	X	N	- Sugarh
2	Sealing of ducts and/or conduits is satisfactory	all	X	Ø	-support
3	Stopper boxes or barrier glands are properly filled	d	X		1
4	Integrity of conduit system and interface with mixed system is maintained	all	X		
5	Earthing and bonding connections are tight, in good condition and of sufficient cross section	all	x	Ø	
6	Fault loop impedance is satisfactory	power outlets	X		7
7	Insulation resistance is satisfactory (check only during initial inspection)	all	X		
8	Automatic electrical protective devices are set correctly and operate within permitted limits	all	х		
9	Special certification conditions U,X or B have been complied with	all	X		7
10	Cables/spare cores are terminated satisfactorily	all	X		
11	No obstructions adjacent to flameproof flanged joint	d	X	X	
12	Ducts, pipes and enclosures are in good condition	р	X	X	
13	Protective gas is substantially free from contaminants (water, oil, dirt)	р	X	X	
14	Protective gas flow/pressure is adequate	p	X		
15	Pressure and/or flow indicators, alarms and interlocks function correctly	р	X		
16	Pre-energising purge period is adequate	р	X		
17	Condition of spark/particle barriers of ducts exhausting the gas into hazardous area are satisfactory	q	x		



Cables are installed and screens are earthed in accordance with the documentatio0n	i	Х	
The circuit is isolated from earth or earthed at one point only	i	X	
Separation is maintained with non-IS circuits	i	Х	
As applicable, short circuit protection of the power supply is in accordance with the documentation	j	X	

1	Apparatus adequately protected from corrosion, weather, vibration, other	all	Х	(X)
2	No undue accumulation of dust or dirt	all	X	\$
3	Electrical insulation is clean and dry	all	X	

Faults found? (circle as appropriate)

No:	
Yes: List action required	
Contractor (write): Inspector Supervisor	Client (write): Inspector
P.GREEN	
Date: $5/9/n$	Date:

Device ID or tag

Action	required to make device compliant:	
-	Replace the cable theath	
	Loose gland - check calle	termi-ation
-	Provide cable support.	
	Equipment ID required.	

Reviewed by: N. CREEN Date: W(9) u Priority:

Comments:			
All action items now completed:			
Job closed:	П		
Device now fully compliant, spreadshee	et register has be	en updated	
Supervisor (write):	-	•	
Date:			



Based on AS/NZS 60079 part 17

Ref. I:\datasitzlencompany operations\darwin\lenders\sbsj11\fyf1 - haz area inspections\hazardous area inspection forms\hazardous area device inspection sheel for ex-d, ex-e, exi, ex-n, ex-p and other ex devices.doc

Specifications

General

Device ID or tag: PT - 24	Asset: FIL	ten sep +	DIS. MEADER
Circuit ID: 3006	Physical location:	KATHERINE	ms
Area classification :	Environment: (hot?)		

Data from Label

Apparatus type: (light, JB, Motor) PRESSARE TROWSMANN	Type of protection: (d,e, i, n, p etc)
Manufacturer: 2052mount.	Gas group: (I{A/B/C)
Full model number: 35/T640282155427M571	Temp class: (T1-T6) <u>T5 (40°C)</u>
Serial number: 01509653	Certificate number: AUS B. 1249x
IP Class 66	Test authority: (BAS, PTB, SAA etc)

Number of cables: 1

For	each cable entry	gland 1	gland 2	2 other	'S		
Glar	nd manufacturer:	ANCO	y	Ŕ	EPAPT		7
Mod	el:	N6203		PA	-0 M20		7
Glar	nd type of protection: (d,e)				A.		7
Insp	ection —				Circle a	heo is checked	1
	A Equipment			Applicable to protection type:	Internal	External	
1		temp class) is appropriate for	r area classification	all	X	X]
2	Equipment ID or circuit ID			all	X	00	1
3	Enclosure, sealing gaskets	s or compounds are satisfacto	Dry	all	X	X	1
4		vidence of unauthorised modi		all	X	0	
5	Bolts, cable entries and bl	anking elements are correct a	nd tight	all	X	8	pluc
6	Flange facings are clean a	and undamaged		d	X		prinsee
7	Lamp rating, type and pos	ition correct		all	X		1
8	Electrical connections are			alí	X		1
9	Hermetically sealed device	es are undamaged		n	X		1
		1 11 4 1 1 1		· -			1

10	Restricted breathing enclosure is satisfactory to enclosure and/or covers	N	X
11	Motor fans have sufficient clearance	motors only	Х
12	Installation clearly labelled	i	X
13	Safety barriers/isolators installed as per certification and securely earthed where required	i	×
14	Entity calculation/documentation is available	i	Х

B Installation

				_	-
1	Type of cable is appropriate, cables are undamaged	all	X	8	-shean
2	Sealing of ducts and/or conduits is satisfactory	all	X	\sim	- SUAPO
\$	Stopper boxes or barrier glands are properly filled	d	X		1
	Integrity of conduit system and interface with mixed system is maintained	ali	X		
	Earthing and bonding connections are tight, in good condition and of sufficient cross section	all	X	8	
	Fault loop impedance is satisfactory	power outlets	X		
	Insulation resistance is satisfactory (check only during initial inspection)	all	X		
	Automatic electrical protective devices are set correctly and operate within permitted limits	all	×		
	Special certification conditions U,X or B have been complied with	all	X		
)	Cables/spare cores are terminated satisfactorily	all	X		
1	No obstructions adjacent to flameproof flanged joint	d	X	X _	
2	Ducts, pipes and enclosures are in good condition	p	X	X	
3	Protective gas is substantially free from contaminants (water, oil, dirt)	p	Х	X	
L	Protective gas flow/pressure is adequate	p	X		
5	Pressure and/or flow indicators, alarms and interlocks function correctly	р	X		
6	Pre-energising purge period is adequate	р	X		
7	Condition of spark/particle barriers of ducts exhausting the gas into hazardous area are satisfactory	p	Х		7

Amadeus Pipeline Electrical Inspections

0

×

SHEAM



18	Cables are installed and screens are earthed in accordance with the documentatio0n	i	×	
19	The circuit is isolated from earth or earthed at one point only	i	X	
20	Separation is maintained with non-IS circuits	i	X	
21	As applicable, short circuit protection of the power supply is in accordance with the documentation	i	x	

1	Apparatus adequately protected from corrosion, weather, vibration, other	all	Х	(A)
2	No undue accumulation of dust or dirt	all	Х	8
3	Electrical insulation is clean and dry	all	Х	

Faults found? (circle as appropriate)

No:			
Contractor (write): Inspector	Supervisor	Client (write): Inspector Date:	

Device	1D	٥r	faq
DEVICE	10	UI.	lay

Action	required to make device compliant:		-	_		
-	Replace blue cable sheath, rechify as required provide cable support Replace damaged black plag.	verify	exposed	mmour	and	

Reviewed by: D. GREEN Date: 14/9/11 Priority:

Comments:		
o o i i i i i i i i i i i i i i i i i i		
		1
All action items now completed:		
Job closed:		
JOD Closed.		
Device now fully compliant, spreadsheet	register has been undated	
Device now runy compliant, spieadsheet	register nas been upuateu	
Supervisor (write):		
Date:		



Based on AS/NZS 60079 part 17

Ref: I:\data\sizercompany operations\darwin\tenders\sbsj11\fyf1 - haz area inspections\hazardous area inspection forms\hazardous area device inspection sheet for ex-d,ex-e,ex-i,ex-n,ex-p and other ex devices.doc

Specifications

General

Device ID or tag: DT 24A	Asset: FILTE	n si	R :	*	2 - 015	NEADER
Circuit ID: toos	Physical location:	KATH	ERI	UE	2M	_
Area classification :	Environment: (hot?)					

Data from Label

Apparatus type: (light, JB, PRESSURE TRANSAITER	Type of protection: (d,e, i, n, p
Manufacturer: ROSEMOUNT	Gas group: (IIA/B/C)
Full model number: 3051 7 44 A2821884427057	Temp class: (T1-T6)
Serial number: 01509654	Certificate number: ADS Ex 1289X
IP Class	Test authority: (BAS, PTB, SAA etc)

Number of cables:

For each cable entry	gland 1	gland 2	others
Gland manufacturer:	ALLO		REDAPT
Model:	FLPW 202		PA-0, M20
Gland type of protection: (d,e)	CA.	-	A
Inspection			Circle as checked

	A Equipment	Applicable to protection type:	Internal	External	
1	Equipment (incl group and temp class) is appropriate for area classification	all	Х	X	
2	Equipment ID or circuit ID is correct	all	X	X	
3	Enclosure, sealing gaskets or compounds are satisfactory	all	X	Ø	
4	There are no damage or evidence of unauthorised modifications	all	X	8	PLUG
5	Bolts, cable entries and blanking elements are correct and tight	all	X	C>	oanace
6	Flange facings are clean and undamaged	d	X		
7	Lamp rating, type and position correct	all	X		
8	Electrical connections are tight	alí	Х		
9	Hermetically sealed devices are undamaged	n	X		
10	Restricted breathing enclosure is satisfactory to enclosure and/or covers	n	X		
11	Motor fans have sufficient clearance	motors only	Х		
12	Installation clearly labelled	i	X _	8	SWEATH
13	Safety barriers/isolators installed as per certification and securely earthed where required	í	×	K	
14	Entity calculation/documentation is available	i	X	x	

B Installation

_	B Installation			
	Type of cable is appropriate, cables are undamaged	all	Х	8
	Sealing of ducts and/or conduits is satisfactory	all	X	X
	Stopper boxes or barrier glands are properly filled	d	Х	
Γ	Integrity of conduit system and interface with mixed system is maintained	ali	X	
	Earthing and bonding connections are tight, in good condition and of sufficient cross section	all	x	R
	Fault loop impedance is satisfactory	power outlets	X	
	Insulation resistance is satisfactory (check only during initial inspection)	all	X	
	Automatic electrical protective devices are set correctly and operate within permitted limits	all	x	
	Special certification conditions U,X or B have been complied with	all	X	
	Cables/spare cores are terminated satisfactorily	all	X	
	No obstructions adjacent to flameproof flanged joint	d	X	Х
	Ducts, pipes and enclosures are in good condition	p	Х	Х
	Protective gas is substantially free from contaminants (water, oil, dirt)	p	Х	Х
	Protective gas flow/pressure is adequate	p	Х	
	Pressure and/or flow indicators, alarms and interlocks function correctly	p	Х	
	Pre-energising purge period is adequate	р	X	
	Condition of spark/particle barriers of ducts exhausting the gas into hazardous area are satisfactory	q	x	



18	Cables are installed and screens are earthed in accordance with the documentatio0n	i	Х	
19	The circuit is isolated from earth or earthed at one point only	i	x	
20	Separation is maintained with non-IS circuits	ì	Х	
21	As applicable, short circuit protection of the power supply is in accordance with	ì	~	
	the documentation		^	

1	Apparatus adequately protected from corrosion, weather, vibration, other	all	Х	\bigotimes
2	No undue accumulation of dust or dirt	all	X	8
3	Electrical insulation is clean and dry	all	X	

Faults found? (circle as appropriate)

 No:

 Yes:
 List action required

 Contractor (write): Inspector
 Supervisor

 Date:
 Supervisor

 Date:
 Supervisor

Device ID or tag

Action	required to m	ake devid	e compliant:			2	0471 0411	-
-	Replace	blue	sheath	*	provide	cable	support	
	Replace							
			5-		9			

Reviewed by: D. GREEN Date: 14/9/11 Priority:

			_	
Comments:				
All action items now completed:				
Job closed:				
Device now fully compliant, spreadsheet	t register has be	en updated		
Supervisor (write):				
Date:				

Hazardous area device inspection sheet for Ex-d, Ex-e, Ex-i, Ex-n, Ex-p and SITZLER other Ex devices Based on AS/NZS 60079 part 17



Specifications

Ocheral					
Device ID or tag: PLS - 26	Asset: TILY	L SOF #	2	- OLS CH.	HOADER
Circuit ID: JOIS	Physical location:	KATHERIN	E	MS	
Area classification :	Environment: (hot?)				

B/C)
-T6) ~~
er: NUL
BAS, PTB,
E

For each cable entry	gland 1	gland 2	others	
Gland manufacturer:	CLIPSAL			
Model:	1244120			
Gland type of protection: (d,e)	NIL .			

Inspection -

pec	ction	>	Circle a	is checked	ł
	A Equipment	Applicable to protection type:	Internal	External	
	Equipment (incl group and temp class) is appropriate for area classification	all	X	X	
	Equipment ID or circuit ID is correct	all	X	8	In- rever
	Enclosure, sealing gaskets or compounds are satisfactory	all	X	K	
	There are no damage or evidence of unauthorised modifications	all	X	88	
	Bolts, cable entries and blanking elements are correct and tight	all	X	- W	•
	Flange facings are clean and undamaged	d	X -		
	Lamp rating, type and position correct	all	<u> </u>	1	•
	Electrical connections are tight	all	X -	1	•
	Hermetically sealed devices are undamaged	n	X	1	•
	Restricted breathing enclosure is satisfactory to enclosure and/or covers	n	X	4	1
	Motor fans have sufficient clearance	motors only	X	1	1
-	Installation clearly labelled	i i	X	$\overline{\otimes}$	BUT
	Safety barriers/isolators installed as per certification and securely earthed where required	i	×	X	
	Entity calculation/documentation is available	i í	X	X	
	Type of cable is appropriate, cables are undamaged	all	X		Chc/aty
Ľ	Sealing of ducts and/or conduits is satisfactory	all	X	8	1
	Stopper boxes or barrier glands are properly filled	d	Х]
	Integrity of conduit system and interface with mixed system is maintained	all	X]
	Earthing and bonding connections are tight, in good condition and of sufficient cross section	all	x	\otimes	
	Fault loop impedance is satisfactory	power outlets	Х		1
	Insulation resistance is satisfactory (check only during initial inspection)	all	Х		1
	Automatic electrical protective devices are set correctly and operate within permitted limits	all	х		
	Special certification conditions U,X or B have been complied with	all	X	1	1
	Cables/spare cores are terminated satisfactorily	all	X	1	1
	No obstructions adjacent to flameproof flanged joint	d	X	X -	1
	Ducts, pipes and enclosures are in good condition	p	X	X -	1
	Protective gas is substantially free from contaminants (water, oil, dirt)	p P	X	X	1
	Protective gas flow/pressure is adequate	p	X	<u> </u>	1
	Pressure and/or flow indicators, alarms and interlocks function correctly	p P	X	1	1
	Pre-energising purge period is adequate	p	<u> </u>	+	1
	Condition of spark/particle barriers of ducts exhausting the gas into hazardous	p p	X		1



18	Cables are installed and screens are earthed in accordance with the documentatio0n	i	х	
19	The circuit is isolated from earth or earthed at one point only	i	Х	
20	Separation is maintained with non-IS circuits	i	Х	
21	As applicable, short circuit protection of the power supply is in accordance with the documentation	i	х	

1	Apparatus adequately protected from corrosion, weather, vibration, other	all	Х	Х
2	No undue accumulation of dust or dirt	all	Х	X
3	Electrical insulation is clean and dry	all	X	

Faults found? (circle as appropriate)

No:			
Fest List action required			
Contractor (write): Inspector	Supervisor	Client (write): Inspector	
Date: 5/9/11	_	Date:	

Device ID or tag

Action	required to ma	ke device c	ompliant:					
-	Replace	Hue	heath	ŧ	provide	cuble	support	
-	Replace	deice	J.O	with	PSL	- 26.		

Reviewed by: N.GREEN Date: 14/9/11 Priority:

Comments:				
All action items now completed:				
	H			
Job closed:				_
Device now fully compliant, spreadshee	et register has b	een updated		
Supervisor (write):				
Date:				



Circle as checked

Based on AS/NZS 60079 part 17

Ref. 1:/data/sitz/encompany operations/darwin/lenders/sbsj11/fyf1 - haz area inspections/hazardous area inspection forms/hazardous area device inspection sheet for ex-d, ex-e, ex-i, ex-n, ex-p and other ex devices.doc

Specifications

General

Conora						
Device ID or tag:	TE	22 + 22A	Asset: FILTER	L SEP 1+	2 - DIS. H	EDDER
Circuit ID:	5005	1 7007	Physical location:	KATHERINE	MS	
Area classification	n:	-	Environment: (hot?)		_	

Data from Label

Apparatus type: (light, JB, Motor)	RTO	Type of protection: (d,e, i, n, p etc)	
Manufacturer:	3	Gas group: (IIA/B/C)	
Full model number:	-	Temp class: (T1-T6)	-
Serial number:	-	Certificate number:	-
IP Class	-	Test authority: (BAS, PTB, SAA etc)	
Number of cables:			

For each cable entry	gland 1	gland 2	others
Gland manufacturer:	ALCO		
Model:	N9207		
Gland type of protection: (d,e)			

Inspection -

	_A Equipment	Applicable to protection type:	Internal	External	
1	Equipment (incl group and temp class) is appropriate for area classification	all	X	X	
2	Equipment ID or circuit ID is correct	all	X	0	
3	Enclosure, sealing gaskets or compounds are satisfactory	all	X	00	1
4	There are no damage or evidence of unauthorised modifications	all	X	\otimes	
5	Bolts, cable entries and blanking elements are correct and tight	ali	X	\otimes	1
6	Flange facings are clean and undamaged	d	X		
7	Lamp rating, type and position correct	all	X		
8	Electrical connections are tight	all	X		
9	Hermetically sealed devices are undamaged	n	X		
10	Restricted breathing enclosure is satisfactory to enclosure and/or covers	n	X		
11	Motor fans have sufficient clearance	motors only	X		
12	Installation clearly labelled	i	X _	\otimes	1000
13	Safety barriers/isolators installed as per certification and securely earthed where required	i	x	\otimes	
14	Entity calculation/documentation is available	i	X	X	

B Installation

1	Type of cable is appropriate, cables are undamaged	all	X	Ø	SHEATH
2	Sealing of ducts and/or conduits is satisfactory	all	X	\otimes	SUPPORT
3	Stopper boxes or barrier glands are properly filled	d	X		
4	Integrity of conduit system and interface with mixed system is maintained	all	X		7
5	Earthing and bonding connections are tight, in good condition and of sufficient cross section	ali	X	⊗	
6	Fault loop impedance is satisfactory	power outlets	X –	1	1
7	Insulation resistance is satisfactory (check only during initial inspection)	all	X –	1	1
8	Automatic electrical protective devices are set correctly and operate within permitted limits	all	x		
9	Special certification conditions U,X or B have been complied with	all	X		1
10	Cables/spare cores are terminated satisfactorily	all	X		1
11	No obstructions adjacent to flameproof flanged joint	d	X	X	1
12	Ducts, pipes and enclosures are in good condition	p	X	X X	1
13	Protective gas is substantially free from contaminants (water, oil, dirt)	p	X	X X	1
14	Protective gas flow/pressure is adequate	p	X		1
15	Pressure and/or flow indicators, alarms and interlocks function correctly	p	X		1
16	Pre-energising purge period is adequate	Р	X		1
17	Condition of spark/particle barriers of ducts exhausting the gas into hazardous area are satisfactory	p	Х		1



18	Cables are installed and screens are earthed in accordance with the documentatio0n	i	х	
19	The circuit is isolated from earth or earthed at one point only	i	Х	
20	Separation is maintained with non-IS circuits	i	Х	
21	As applicable, short circuit protection of the power supply is in accordance with the documentation	i	х	

1	Apparatus adequately protected from corrosion, weather, vibration, other	all	Х	\otimes
2	No undue accumulation of dust or dirt	all	Х	\otimes
3	Electrical insulation is clean and dry	all	X	

Faults found? (circle as appropriate)

No:	
Ves: List action required	
Contractor (write): Inspector Supervisor	Client (write): Inspector
Date: <u>\$/9/11</u>	Date:

Device ID or tag

	ction required (8 a 16		
-	TE 22A	NOOSW	9 15	LOOSE	AT	THORMON	NEU	st em	
-	Replace	blue	sheal	+ 14	piosi	le cuble	Suppo	A.	

Reviewed by: D · 4 RP2N Date: IL[6] IL Priority:

Comments:			
All action items now completed:			
Job closed:			
Device now fully compliant, spreadshee	t register has he	an undated	
Supervisor (write):	it register has bee	en upualeu	
Date:			

Based on AS/NZS 60079 part 17

Ref: 1:\data\sitzler\company operations\darwin\tenders\sbsj11\fyf1 - haz area inspections\hazardous area inspection forms\hazardous area device inspection sheet for ex-d,ex-e,ex-i,ex-n,ex-p and other ex devices.doc

Specifications

General	_
Device ID or tag: - SVC / SVO 31	Asset: AOV 31 - WB HEATER # 1
Circuit ID:	Physical location: KATHERINE MS
Area classification :	Environment: (hot?)

Apparatus type: (light, JB, SOLENDID VALVE	Type of protection: (d,e, i, n, p etc)	4	
Manufacturer: - 2	Gas group: (IIA/B/C)	-	
Full model number: FA80163 , AI33A	Temp class: (T1-T6)	-	
Serial number: ? FA8 \$2064Mo	Certificate number:	-	
IP Class ?	Test authority: (BAS, PTB, SAA etc)	-	
Number of coldes			1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 10000 - 10000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 -
Number of cables:			100

For each cable entry	gland 1		gland 2	others	1.20
Gland manufacturer:	RYCO FLEX	FLAMEPROOF	860 641		
Model:	THE THE				-
Gland type of protection: (d,e)	GADUP 118 TO				

Inspection -

	A Equipment	Applicable to protection type:	Internal	External	
1	Equipment (incl group and temp class) is appropriate for area classification	all	X	X	1 State
2	Equipment ID or circuit ID is correct	all	X	8	- EQ
3	Enclosure, sealing gaskets or compounds are satisfactory	all	X	0	cot
4	There are no damage or evidence of unauthorised modifications	all	Х	82	14
5	Bolts, cable entries and blanking elements are correct and tight	all	X	× ×	199
6	Flange facings are clean and undamaged	d	X		1
7	Lamp rating, type and position correct	all	X]
8	Electrical connections are tight	all	Х]
9	Hermetically sealed devices are undamaged	n	Х]
10	Restricted breathing enclosure is satisfactory to enclosure and/or covers	n	X]
11	Motor fans have sufficient clearance	motors only	Х]
12	Installation clearly labelled	i	Х	X	1
13	Safety barriers/isolators installed as per certification and securely earthed where required	i	x	x	
14	Entity calculation/documentation is available	i	Х	X]

Type of cable is appropriate, cables are undamaged	all	Х	Ø
Sealing of ducts and/or conduits is satisfactory	all	Х	Ø
Stopper boxes or barrier glands are properly filled	d	Х	120
Integrity of conduit system and interface with mixed system is maintained	all	Х	
Earthing and bonding connections are tight, in good condition and of sufficient cross section	all	X	Ø
Fault loop impedance is satisfactory	power outlets	X	
Insulation resistance is satisfactory (check only during initial inspection)	all	Х	
Automatic electrical protective devices are set correctly and operate within permitted limits	all	x	
Special certification conditions U,X or B have been complied with	all	Х	
Cables/spare cores are terminated satisfactorily	all	Х	-
No obstructions adjacent to flameproof flanged joint	d	Х	Ø
Ducts, pipes and enclosures are in good condition	p	Х	X
Protective gas is substantially free from contaminants (water, oil, dirt)	p	Х	X
Protective gas flow/pressure is adequate	p	Х	
Pressure and/or flow indicators, alarms and interlocks function correctly	P	Х	
Pre-energising purge period is adequate	р	Х	
Condition of spark/particle barriers of ducts exhausting the gas into hazardous area are satisfactory	p	Х	

Amadeus Pipeline Electrical Inspections

SITZLER

Circle as checked

1

•



18	Cables are installed and screens are earthed in accordance with the documentatio0n	i	x	
19	The circuit is isolated from earth or earthed at one point only	i	Х	
20	Separation is maintained with non-IS circuits	i	X	
21	As applicable, short circuit protection of the power supply is in accordance with the documentation	i	Х	

					the second second second second second second second second second second second second second second second s
1	Apparatus adequately protected from corrosion, weather, vibration, other	all	X	\bigotimes	CORROSION
2	No undue accumulation of dust or dirt	all	X	\otimes	
3	Electrical insulation is clean and dry	all	Х		

Faults found? (circle as appropriate)

 No:

 Vest

 List action required

 Contractor (write): Inspector

 Supervisor

 Client (write): Inspector

 Date:

 Supervisor

 Date:

Device	D or	tag
DEVICE		lay

- Equ	ipment :	t cuble ID	required			
- p:1	equipme		a scociated	conduit	condification	detoils
- Co	rosion ex	no etca	equipment	f cond	int.	

Reviewed by: N. GREEN Date: 14/9/4 Priority:

.

Comments:			
	-		
All action items now completed:			
Job closed:			
Device now fully compliant, spreadsheet	t register has be	en updated	
Supervisor (write):	-	•	
Date:			

Based on AS/NZS 60079 part 17

Ref: 1:\data\sitziencompany operations\darwin\lenders\sbsj11\fyf1 - haz area inspections\hazardous area inspection forms\hazardous area device inspection sheat for ex-d, ex-e, ex-i, ex-n, ex-p and other ex devices.doc

Specifications

General

Device ID or tag: JBOX	Asset: AOV 31 SUBUDIO - BOY -WB HD	ATER#1
Circuit ID: 3059	Physical location: KATHERENE MS	
Area classification :	Environment: (hot?)	

Data from Label

Apparatus type: (light, JB, JUPCAIDD ROX	Type of protection: (d,e, i, n, p etc) CL1, 2 PIV 1, 2
Manufacturer: SAE (GROUSE HINDS)	Gas group: (IIA/B/C)
Full model number: FOJI FNJL	Temp class: (T1-T6)
Serial number:	Certificate number: FLP 697 ? (Aus Ex242)
IP Class	Test authority: (BAS, PTB, SAA etc)
Number of cables:	

others For each cable entry gland 1 gland 2 ROW Gland manufacturer: 7 Ruco in Model: Gland type of protection: (d,e)

Inspection

	A Equipment	Applicable to protection type:	Internal	External
1	Equipment (incl group and temp class) is appropriate for area classification	all	X	X
2	Equipment ID or circuit ID is correct	all	X	02
3	Enclosure, sealing gaskets or compounds are satisfactory	all	X	6
4	There are no damage or evidence of unauthorised modifications	all	X	C *
5	Bolts, cable entries and blanking elements are correct and tight	all	Х	8
6	Flange facings are clean and undamaged	d	X	
7	Lamp rating, type and position correct	all	X	
8	Electrical connections are tight	all	X	
9	Hermetically sealed devices are undamaged	n	X	
10	Restricted breathing enclosure is satisfactory to enclosure and/or covers	'n	X	
11	Motor fans have sufficient clearance	motors only	X	
12	Installation clearly labelled	i	Х	X
13	Safety barriers/isolators installed as per certification and securely earthed where required	i	X	X
14	Entity calculation/documentation is available	i	Х	X

B Installation

B Installation		-	
Type of cable is appropriate, cables are undamaged	alí	Х	Q
Sealing of ducts and/or conduits is satisfactory	all	X	\otimes
Stopper boxes or barrier glands are properly filled	d	X	
Integrity of conduit system and interface with mixed system is maintained	all	X	
Earthing and bonding connections are tight, in good condition and of sufficient cross section	all	×	0
Fault loop impedance is satisfactory	power outlets	X	
Insulation resistance is satisfactory (check only during initial inspection)	all	Х	
Automatic electrical protective devices are set correctly and operate within permitted limits	all	х	
Special certification conditions U,X or B have been complied with	all	X	
Cables/spare cores are terminated satisfactorily	all	X	
No obstructions adjacent to flameproof flanged joint	d	Х	
Ducts, pipes and enclosures are in good condition	р	Х	X
Protective gas is substantially free from contaminants (water, oil, dirt)	р	X	X
Protective gas flow/pressure is adequate	p	X	
Pressure and/or flow indicators, alarms and interlocks function correctly	p	Х	
Pre-energising purge period is adequate	р	X	
Condition of spark/particle barriers of ducts exhausting the gas into hazardous area are satisfactory	P	×	

SITZLER

Circle as checked



18	Cables are installed and screens are earthed in accordance with the documentatio0n	i	×	
19	The circuit is isolated from earth or earthed at one point only	ì	Х	
20	Separation is maintained with non-IS circuits	i	X	
21	As applicable, short circuit protection of the power supply is in accordance with	i	x	
	the documentation			
	C Environment			

	C Environment				
1	Apparatus adequately protected from corrosion, weather, vibration, other	all	X	(X)	UV
2	No undue accumulation of dust or dirt	all	X	\propto	1000
3	Electrical insulation is clean and dry	all	X		

Faults found? (circle as appropriate)

No:				
Yest	List action required			
Contra	nctor (write): Inspector	Supervisor	Client (write): Inspector	
Date:	slalu		Date:	

Device ID or tag

64

- - 2

Replace cable	sheath &	provide à	cable sup	frequ
scal conduit transmission				

Reviewed by: N. GREEN Date: 14/9/11 Priority:

			_	
Comments:				
All action items now completed:				
Job closed:				
		_		
Device now fully compliant, spreadsheet	register has l	been updated		
Supervisor (write):				
Date:				

Based on AS/NZS 60079 part 17

Ref. I:\data\sitzler\company operations\darwin\tenders\sbsj11\fyf1 - haz area inspections\hazardous area inspection forms\hazardous area device inspection sheet for ex-d,ex-e,ex-i,ex-n,ex-p and other ex devices.doc

Specifications

General	water barn heaven to 2
Device ID or tag: 3 Box	Asset: AOJ 33 SOLENDAD JAOX
Circuit ID: JO 60	Physical location: KATHERWE MS
Area classification :	Environment: (hot?)

Data from Label

Apparatus type: (light, JB, Motor)	Type of protection: (d,e, i, n, p etc)
Manufacturer: SAC	Gas group: (IIA/B/C)
Full model number: FNJL / FNJL	Temp class: (T1-T6) T6
Serial number:	Certificate number: FLP 69]? (AUS Gx 242)
IP Class	Test authority: (BAS, PTB, SAA etc)
	SAA etc)

Number of cables:

7

For each cable entry	gland 1	gland 2	others	
Gland manufacturer:	FLPW? K BI	MUO x2	45	
Model:				
Gland type of protection: (d,e)				

Inspection -

	A Equipment	Applicable to protection type:	Internal	External	
1	Equipment (incl group and temp class) is appropriate for area classification	all	X	X	
2	Equipment ID or circuit ID is correct	all	X	\otimes	LAPEL
3	Enclosure, sealing gaskets or compounds are satisfactory	alí	X	8	and the second second
4	There are no damage or evidence of unauthorised modifications	all	X	(X)	
5	Bolts, cable entries and blanking elements are correct and tight	all	X	TA	
6	Flange facings are clean and undamaged	d	X		1
7	Lamp rating, type and position correct	all	X		
8	Electrical connections are tight	all	X		
9	Hermetically sealed devices are undamaged	n	X		1
10	Restricted breathing enclosure is satisfactory to enclosure and/or covers	n	X		ſ
11	Motor fans have sufficient clearance	motors only	X	_	
12	Installation clearly labelled	i	X	X	
13	Safety barriers/isolators installed as per certification and securely earthed where required	i	x	x	
14	Entity calculation/documentation is available	i	X	X	

B Installation

	Difficult				• • • • •
1	Type of cable is appropriate, cables are undamaged	all	X	(X)	TAGU ?.
2	Sealing of ducts and/or conduits is satisfactory	all	x	8	LONDU
3	Stopper boxes or barrier glands are properly filled	d	X		-1 -
4	Integrity of conduit system and interface with mixed system is maintained	all	X		7
5	Earthing and bonding connections are tight, in good condition and of sufficient cross section	ali	х	3]
6	Fault loop impedance is satisfactory	power outlets	X		7
7	Insulation resistance is satisfactory (check only during initial inspection)	all	X		7
8	Automatic electrical protective devices are set correctly and operate within permitted limits	all	х		1
9	Special certification conditions U,X or B have been complied with	all	X		1
10	Cables/spare cores are terminated satisfactorily	all	X		7
11	No obstructions adjacent to flameproof flanged joint	d	Х	X	7
12	Ducts, pipes and enclosures are in good condition	р	Х	X	1
13	Protective gas is substantially free from contaminants (water, oil, dirt)	p	Х	X	7
4	Protective gas flow/pressure is adequate	p	Х		7
15	Pressure and/or flow indicators, alarms and interlocks function correctly	p	Х		7
16	Pre-energising purge period is adequate	p	X		7
17	Condition of spark/particle barriers of ducts exhausting the gas into hazardous area are satisfactory	p	Х		1

IUPPORT **CHOATH**

SITZLER

Circle as checked



18	Cables are installed and screens are earthed in accordance with the documentatio0n	i	x
19	The circuit is isolated from earth or earthed at one point only	i	X
20	Separation is maintained with non-IS circuits	i	X
21	As applicable, short circuit protection of the power supply is in accordance with	i	
	the documentation		
	C Environment		

			_		
1	Apparatus adequately protected from corrosion, weather, vibration, other	all	Х	8	UV
2	No undue accumulation of dust or dirt	all	Х	Se la construction de la constru	
3	Electrical insulation is clean and dry	all	X		

Faults found? (circle as appropriate)

Yes List action required	
Contractor (write): Inspector Supervisor	Client (write): Inspector
Date: $S/q/n$	Date:

Device ID or tag

No:

Action rec	quired to ma	ake device c	ompliant:					
-	Replace	calle	Sheath	+	Support	cuble		
			to rey					
-	seal	cendur	k sullow	nding	cuble.			

Reviewed by: N. GREEN Date: $(4/q)_{ii}$ Priority:

				_
Comments:				
All action items now completed:				
Job closed:				
			_	_
Device now fully compliant, spreadshee	t register has b	een updated		
Supervisor (write):				
Date:				

.



Based on AS/NZS 60079 part 17

Ref: 1:\data\sitz\encompany operations\\darwin\\lenders\\sbsj11\fyl1 - haz area inspections\\hazardous area inspection forms\\hazardous area device inspection sheet for ex-d, ex-e, ex-i, ex-n, ex-p and other ex devices.doc

Specifications

General	Annali Anna	60	
Device ID or tag: - (SVC / SVD 33)	Asset: AOV	ss-wk	WEATER # 2
Circuit ID:	Physical location:	KATHERINE	ms
Area classification :	Environment: (hot?)		
Data from Label - ILUECoRUE			

Apparatus type: (light, JB, Motor) Scheword VALVE	Type of protection: (d,e, i, n, p etc)	-
Manufacturer:	Gas group: (IIA/B/C)	
Full model number: FASO163 ALSTA	Temp class: (T1-T6)	-
Serial number: FAS 320 64 MO	Certificate number:	-
IP Class	Test authority: (BAS, PTB, SAA etc)	-

Number of cables:

For each cable entry	FLCY_gland-1	gland 2	others	
Gland manufacturer:	Ryco Z	-		
Model:	FLP 641	-		
Gland type of protection: (d,e)	113, 76			

Insp	ection		Circle a	is checked	t
	A Equipment	Applicable to protection type:		External	
1	Equipment (incl group and temp class) is appropriate for area classification	all	X	X	
2	Equipment ID or circuit ID is correct	all	X	Ø	-EU
3	Enclosure, sealing gaskets or compounds are satisfactory	all	X	Ø	CC
4	There are no damage or evidence of unauthorised modifications	all	X	00	
5	Bolts, cable entries and blanking elements are correct and tight	all	X	X	1
6	Flange facings are clean and undamaged	d	X		1
7	Lamp rating, type and position correct	all	X		1
8	Electrical connections are tight	all	X		1
9	Hermetically sealed devices are undamaged	n	X		1
10	Restricted breathing enclosure is satisfactory to enclosure and/or covers		X		1
11	Motor fans have sufficient clearance	motors only	X		
12	Installation clearly labelled	i	X	X	1
13	Safety barriers/isolators installed as per certification and securely earthed where required	i	x	x	
14	Entity calculation/documentation is available	i	X	X	1

B Installation

1	Type of cable is appropriate, cables are undamaged	all	X	05
2	Sealing of ducts and/or conduits is satisfactory	all	X	T T
3	Stopper boxes or barrier glands are properly filled	d	X	
4	Integrity of conduit system and interface with mixed system is maintained	all	X	
	Earthing and bonding connections are tight, in good condition and of sufficient cross section	all	X	(3)
	Fault loop impedance is satisfactory	power outlets	X -	
	Insulation resistance is satisfactory (check only during initial inspection)	all	X	1
	Automatic electrical protective devices are set correctly and operate within permitted limits	all	x	
	Special certification conditions U,X or B have been complied with	ali	X	
)	Cables/spare cores are terminated satisfactorily	all	X	
	No obstructions adjacent to flameproof flanged joint	d	X	(x)
2	Ducts, pipes and enclosures are in good condition	р	X	X
3	Protective gas is substantially free from contaminants (water, oil, dirt)	р	X	X
4	Protective gas flow/pressure is adequate	p	X	
5	Pressure and/or flow indicators, alarms and interlocks function correctly	р	X	
6	Pre-energising purge period is adequate	р	X	
,	Condition of spark/particle barriers of ducts exhausting the gas into hazardous area are satisfactory	p	х	



18	Cables are installed and screens are earthed in accordance with the documentatio0n	ì	X	
19	The circuit is isolated from earth or earthed at one point only	ì	Х	
20	Separation is maintained with non-IS circuits	i	X	
21	As applicable, short circuit protection of the power supply is in accordance with	i	Y	
	the documentation		^	
		-		
	C Environment			

1	Apparatus adequately protected from corrosion, weather, vibration, other	all	X	\otimes
2	No undue accumulation of dust or dirt	all	X	8
3	Electrical insulation is clean and dry	all	Х	

Faults found? (circle as appropriate)

No:		
Yes: List action required		
Contractor (write): Inspector Su	upervisor	Client (write): Inspector
Date: <u>slq/11</u>		Date:

Device ID or tag

Action required to make device compliant:	
- Equipment + cable ID required	
- correction exists to equipment + condit	
- N:1 equipment / conduit certification mailable	

Reviewed by: D. GREEN Date: Priority: 14/9/11

		_	
Comments:			
	_		
All action items now completed:			
Job closed:			
Device now fully compliant, spreadsheet i	register has been undated		
Supervisor (write):	egioter nus seen apaatea		
Date:			



Based on AS/NZS 60079 part 17

permitted limits

area are satisfactory

9

10

11

12

13

14

15

16

17

Special certification conditions U,X or B have been complied with

Protective gas is substantially free from contaminants (water, oil, dirt)

Pressure and/or flow indicators, alarms and interlocks function correctly

Condition of spark/particle barriers of ducts exhausting the gas into hazardous

Cables/spare cores are terminated satisfactorily

No obstructions adjacent to flameproof flanged joint

Ducts, pipes and enclosures are in good condition

Protective gas flow/pressure is adequate

Pre-energising purge period is adequate

Ref: I:\data\sitz\encompany operations\darwin\tenders\sbsj11\fy11 - haz area inspections\hazardous area inspection forms\hazardous area device inspection sheet for ex-d.ex-e,ex-

i,ex-n,ex-p and other ex devices.doc						
Specifications						
General						_
Device ID or tag: - 736	256 031	Asset:	V 31 -WB	HTRAI		7
Circuit ID: 3016)	Physical location:	KATHERINE			1
Area classification :		Environment: (hot?)			_	1
	-			_		_
Data from Label						-
Apparatus type: (light, JB, Motor)	MIT SWITCH	Type of protection: etc)	(d,e, i, n, p			
Manufacturer: RETIS		Gas group: (IIA/B/C	.)			1
	DZZ AFC	Temp class: (T1-T6) _	_		1
Serial number:		Certificate number:	Ex 77241			1
IP Class	_	Test authority: (BAS SAA etc)				1
Number of cables:	_					-
For each cable entry	gland 1	gland 2	<u>2 other</u>	s		-
Gland manufacturer: Model:	2					-
Gland type of protection: (d,e)						1
A Equipment			Applicable to protection type:	Internal	External	
	d temp class) is appropriate	for area classification	alí	X	X]
2 Equipment ID or circuit ID			all	X	Ø	ER
	ts or compounds are satisfac		all	X	Ø	-
	evidence of unauthorised mo lanking elements are correct		all	X		1
6 Flange facings are clean			d	X		1
7 Lamp rating, type and pos			all	X		1
8 Electrical connections are			all	X]
9 Hermetically sealed device	Hermetically sealed devices are undamaged		n	X		-
	Restricted breathing enclosure is satisfactory to enclosure and/or covers		n	X		-
	Motor fans have sufficient clearance		motors only	X	8	BIL
	unstalled as per certification a	and securely earthed where	j	x	82	0.00
required 14 Entity calculation/docume			i	× -	X	-
14 Entity calculation # docume			I			1
B Installation			-11			7
	ype of cable is appropriate, cables are undamaged		all	X	-	con
	Sealing of ducts and/or conduits is satisfactory Stopper boxes or barrier glands are properly filled		d	X X		SEP
	Integrity of conduit system and interface with mixed system is maintained		all	X		- OF
	Earthing and bonding connections are tight, in good condition and of sufficient		all	X	60]
6 Fault loop impedance is s	atisfactory		power outlets	Х		-
	Insulation resistance is satisfactory (check only during initial inspection)		all	X		
	Automatic electrical protective devices are set correctly and operate within		all	V		7

SHEATH constr. SEALING

Х

Х

Х

Х

X X

Х

Х Х

Х

X

Х

Х

all

all

d

р

р

р

р

р

p



18	Cables are installed and screens are earthed in accordance with the documentatio0n	i	Х	
19	The circuit is isolated from earth or earthed at one point only	i	Х	
20	Separation is maintained with non-IS circuits	i	Х	
21	As applicable, short circuit protection of the power supply is in accordance with the documentation	i	х	

	C Environment		_	
1	Apparatus adequately protected from corrosion, weather, vibration, other	all	Х	8
2	No undue accumulation of dust or dirt	all	X	Ø
3	Electrical insulation is clean and dry	all	Х	

Faults found? (circle as appropriate)

 Vest List action required

 Contractor (write): Inspector

 N. GREEN

 Date:

 Supervisor

 Date:

Device ID or tag

No:

	required to make device compliant:
-	Replace cable sheath + provide cable support
-	Ensure shouth repharement (due).
-	Seal conduit surrounding cable to prevent gas transmission.
-	provide equipment label.

Reviewed by: D. GREEN Date: 14/9/11 Priority:

Comments:			
All action items now completed:			
Job closed:			
-		-	
Device now fully compliant, spreadshee	et register has bee	en updated	
Supervisor (write):	-	-	
Date:			

Hazardous area device inspection sheet for Ex-d, Ex-e, Ex-i, Ex-n, Ex-p and other Ex devices



Circle as checked

Based on AS/NZS 60079 part 17

Ref. I:\data\sitzlencompany operations\darwin\tenders\sbsj11\fy/1 - haz area inspections\hazardous area inspection forms\hazardous area device inspection sheet for ex-d.ex-e,ex-i,ex-n.ex-p and other ex devices.doc

Specifications

General

Device ID or tag: - (250/256 073)	Asset: AOVJJ - WIS WEATER # 2.
Circuit ID: Jo27	Physical location: KATHERINE MS
Area classification :	Environment: (hot?)

Data from Label

Apparatus type: (ligh Motor)	it, JB,	SWITCH	Type of protection: (d,e, i, n, p etc)	
Manufacturer:	REHIS		Gas group: (IIA/B/C)	
Full model number:	3R 022	AFC	Temp class: (T1-T6)	
Serial number:			Certificate number: Ex 7724	
IP Class)		Test authority: (BAS, PTB, SAA etc)	

Number of cables:

For each cable entry	gland 1	gland 2	others	
Gland manufacturer:	1			
Model:				
Gland type of protection: (d,e)				

Inspection -

	A Equipment	Applicable to protection type:	Internal	External	_
1	Equipment (incl group and temp class) is appropriate for area classification	all	X	X	
2	Equipment ID or circuit ID is correct	all	X	00	Eq
3	Enclosure, sealing gaskets or compounds are satisfactory	all	X	15	
4	There are no damage or evidence of unauthorised modifications	all	X	(X)	
5	Bolts, cable entries and blanking elements are correct and tight	all	Х	The]
6	Flange facings are clean and undamaged	d	X _	-]
7	Lamp rating, type and position correct	all	X		1
8	Electrical connections are tight	ali	Х]
9	Hermetically sealed devices are undamaged	n	X]
10	Restricted breathing enclosure is satisfactory to enclosure and/or covers	· n	X		1
11	Motor fans have sufficient clearance	motors only	Х		1
12	Installation clearly labelled	i	X	3	BLUE
13	Safety barriers/isolators installed as per certification and securely earthed where required	i	×	Ø	
14	Entity calculation/documentation is available	i	X	X]
	B Installation				
1	Type of cable is appropriate, cables are undamaged	all	×	10	-SHEATH
2	Sealing of ducts and/or conduits is satisfactory	all	X	BR	-CONDOLT
2	Stopper boxes or barrier glands are properly filled	4	X		c 10

2	Sealing of ducts and/or conduits is satisfactory	all	X	BR	- CONDOLT
3	Stopper boxes or barrier glands are properly filled	d	X		- CONDOLT SEAL (Suppo
4	Integrity of conduit system and interface with mixed system is maintained	all	X		
5	Earthing and bonding connections are tight, in good condition and of sufficient cross section	all	х	15	
6	Fault loop impedance is satisfactory	power outlets	X		1
7	Insulation resistance is satisfactory (check only during initial inspection)	all	X]
8	Automatic electrical protective devices are set correctly and operate within permitted limits	alt	x		
Э	Special certification conditions U,X or B have been complied with	all	X]
10	Cables/spare cores are terminated satisfactorily	all	X _		7
11	No obstructions adjacent to flameproof flanged joint	d	X	X	7
12	Ducts, pipes and enclosures are in good condition	p	X	X]
13	Protective gas is substantially free from contaminants (water, oil, dirt)	p	X	X]
14	Protective gas flow/pressure is adequate	p	X]
15	Pressure and/or flow indicators, alarms and interlocks function correctly	р	X]
16	Pre-energising purge period is adequate	р	X _]
17	Condition of spark/particle barriers of ducts exhausting the gas into hazardous area are satisfactory	р	х]

Annadeus Pipe line Electrical Inspections



18	Cables are installed and screens are earthed in accordance with the documentatio0n	i	x	
19	The circuit is isolated from earth or earthed at one point only	j j	X	
20	Separation is maintained with non-IS circuits	i	X	
21	As applicable, short circuit protection of the power supply is in accordance with the documentation	i	×	
	C Environment		-	
1	Apparatus adequately protected from corrosion weather vibration other	all	X	

1	Apparatus adequately protected from corrosion, weather, vibration, other	all	Х	\otimes
2	No undue accumulation of dust or dirt	all	Х	\otimes
3	Electrical insulation is clean and dry	all	Х	

Faults found? (circle as appropriate)

No:			
Yes: List action required			
Contractor (write): Inspector	Supervisor	Client (write): Inspector	
Date: slalu	_	Date:	

Device ID or tag

Action required to make device compliant:	
- Equipment label required - Replace cable sheath (blue) + provide cable support	
- seal undnit around cable.	

Reviewed by: N. LRZEN Date: 14/9/11 Priority:

Comments:			
	_		
All action items now completed:			
Job closed:			
Device now fully compliant, spreadsheet re	egister has been updat	ed	
Supervisor (write):	- ,		
Date:			

Hazardous area device inspection sheet for Ex-d, Ex-e, Ex-i, Ex-n, Ex-p and other Ex devices



Based on AS/NZS 60079 part 17

area are satisfactory

Ref. I:\data\sitzlercompany operations\darwin\tenders\sbsj11\fyf1 - haz area inspections\hazardous area inspection forms\hazardous area device inspection sheet for ex-d.ex-e.ex-i,ex-n.ex-p and other ex devices.doc

Specifications

|--|

Device ID or tag: J/BOX (MAIN)	Asset: ING HEARTEN	ar) skio
Circuit ID:	Physical location:	KAMMERINE MS
Area classification :	Environment: (hot?)	

Data from Label - FADED NAME Apparatus type: (light, JB, Motor) 3 C	Type of protection: (d,e, i, n, p etc)
Manufacturer: CROUSE MMPJ	Gas group: (IIA/B/C)
Full model number: EJBA 161608 104 5598	Temp class: (T1-T6)
Serial number:	Certificate number:
IP Class	Test authority: (BAS, PTB, SAA etc)
Number of cables: 12	PLUGSX8 COMPANY

For each cable entry	gland-1 LAMP	gland 2 ×7	others	Con Dell' Al
Gland manufacturer:	(MIMPS	ALCO 1	2	
Model:	EMP GNUE MEV	FLPW 207	~	
Gland type of protection: (d,e)		Ex d.	2-	
Inspection	la loose caeve	manos.		as checked

	Participant	Applicable to		↓ Cutamal
	Equipment quipment (incl group and temp class) is appropriate for area classification	protection type: all	Internal X	External
두	quipment ID or circuit ID is correct		1 x	X
			X	
	nclosure, sealing gaskets or compounds are satisfactory	all	X	_Ø
	here are no damage or evidence of unauthorised modifications	all		Ø
	olts, cable entries and blanking elements are correct and tight	ali	X	<u>()</u>
	lange facings are clean and undamaged	d	X	-
	amp rating, type and position correct	all	X	
	lectrical connections are tight	all	Х	
	lermetically sealed devices are undamaged	n	Х	
	estricted breathing enclosure is satisfactory to enclosure and/or covers	n	X	
	totor fans have sufficient clearance	motors only	X	
	nstallation clearly labelled	i	X	X
	afety barriers/isolators installed as per certification and securely earthed where equired	i	×	x
_	ntity calculation/documentation is available	i	X	X
S	ype of cable is appropriate, cables are undamaged ealing of ducts and/or conduits is satisfactory	all all	X X	
	topper boxes or barrier glands are properly filled	d	X	<u> </u>
	tegrity of conduit system and interface with mixed system is maintained	alí	$\frac{1}{x}$	
E	arthing and bonding connections are tight, in good condition and of sufficient ross section	all	×	x
	ault loop impedance is satisfactory	power outlets	X	-
i Ir	sulation resistance is satisfactory (check only during initial inspection)	all	X	
A	utomatic electrical protective devices are set correctly and operate within ermitted limits	all	X	
	pecial certification conditions U,X or B have been complied with	all	X	
	ables/spare cores are terminated satisfactorily	all	X	
	lo obstructions adjacent to flameproof flanged joint	d	X	
	Ducts, pipes and enclosures are in good condition	p	X	<u> </u>
	rotective gas is substantially free from contaminants (water, oil, dirt)	p	X X	$\frac{x}{x}$
	rotective gas is substantially nee from contaminants (watch, on, only only only only only only only only	p	X	+ ^
	ressure and/or flow indicators, alarms and interlocks function correctly	p	X	
			x -	
	re-energising purge period is adequate	p		
- E - 1	condition of spark/particle barriers of ducts exhausting the gas into hazardous	p p	X	1



18	Cables are installed and screens are earthed in accordance with the documentatio0n	i	Х	
19	The circuit is isolated from earth or earthed at one point only	i	Х	
20	Separation is maintained with non-IS circuits	i	Х	
21	As applicable, short circuit protection of the power supply is in accordance with the documentation	i	х	
	C Environment			
4	An analysis and a sub-table processes of feature and an analysis of the state of th	- 11	V	60

1	Apparatus adequately protected from corrosion, weather, vibration, other	all	Х	8
2	No undue accumulation of dust or dirt	all	Х	8
3	Electrical insulation is clean and dry	all	Х	

Faults found? (circle as appropriate)

No:		
Yes: List action required		
Contractor (write): Inspector Supervisor	Client (write): Inspector	-
Date: 5/9/11	Date:	

Dévice ID or tag

Action required to make device compliant:	
- TIGHTON LOOSE CABUE	accords - provide undiat seal
- Equipment label requi	red. below JB.
- Replace uncertified pl	ugs Repair / replace of damaged
- Provide bolt missing to	2. Cubling.
- Identify + label all	
- JB certified with 2 label applied. Further	avestigation required.
- Confirm TIT-32 is come	conditions/inspections apply.
Reviewed by: N. GREEN Date: 14/9/11 Priority:	containonsy inspections apply.

Comments:				
All action items now completed:				
Job closed:			 	
Device new fully compliant, approaches	versieter has he		 	
Device now fully compliant, spreadsheet Supervisor (write):	register has be	en upuareo		
Date:				

Amadeus Pipeline Electrical Inspections

Hazardous area device inspection sheet for Ex-d, Ex-e, Ex-i, Ex-n, Ex-p and other Ex devices



Ref: I:\data\sitzlencompany operations\darwin\tenders\sbsj11\fy1 - haz area inspections\hazardous area inspection forms\hazardous area device inspection sheet for ex-d,ex-e,exi.ex-n,ex-p and other ex devices.doc

Specifications

General			
Device ID or tag: -	SBOX TESZA?)	Asset: WS	HEATER #1 - HEATER END LAS SHELL HE
Circuit ID:		Physical location:	KATHERINE MI
Area classification :	1	Environment: (hot?)	

SITZLER

Data from Label

Apparatus type: (light, JB, Motor) TC for RTO ?	Type of protection: (d,e, i, n, p etc)
Manufacturer: GOVAP	Gas group: (IIA/B/C)
Full model number: FW 6W	Temp class: (T1-T6) 76
Serial number:	Certificate number: AUS Ex 157
IP Class TP BS	Test authority: (BAS, PTB, SAA etc)

Number of cables:

For each cable entry	gland 1	gland 2	others	
Gland manufacturer:	NIL MARILING.		CHRIAL	
Model:				
Gland type of protection: (d,e)				

Insp	ection	─ →	Circle a	is checked	ł
	A Equipment	Applicable to protection type:	Internal	External	
1	Equipment (incl group and temp class) is appropriate for area classification	all	X	X]
2	Equipment ID or circuit ID is correct	all	X	\bigotimes	TO
3	Enclosure, sealing gaskets or compounds are satisfactory	all	X	8	
4	There are no damage or evidence of unauthorised modifications	all	X	\otimes	1
5	Bolts, cable entries and blanking elements are correct and tight	all	X	8	1
6	Flange facings are clean and undamaged	d	Х		1
7	Lamp rating, type and position correct	all	X		1
8	Electrical connections are tight	all	X		1
9	Hermetically sealed devices are undamaged	n	X		1
10	Restricted breathing enclosure is satisfactory to enclosure and/or covers	n	X		1
11	Motor fans have sufficient clearance	motors only	X		1
12	Installation clearly labelled	i	X	X]
13	Safety barriers/isolators installed as per certification and securely earthed where required	i	×	x	1
14	Entity calculation/documentation is available	i	X	X]
	B Installation				
1	Type of cable is appropriate, cables are undamaged	all	X	80	F
2	Sealing of ducts and/or conduits is satisfactory	all	X	(X)	

Binstanation			
Type of cable is appropriate, cables are undamaged	all	X	\bigotimes
Sealing of ducts and/or conduits is satisfactory	all	X	\otimes
Stopper boxes or barrier glands are properly filled	d	X	
Integrity of conduit system and interface with mixed system is maintained	all	X	
Earthing and bonding connections are tight, in good condition and of sufficient cross section	alí	x	8
Fault loop impedance is satisfactory	power outlets	Х	199 B
Insulation resistance is satisfactory (check only during initial inspection)	all	X	1.58
Automatic electrical protective devices are set correctly and operate within permitted limits	all	х	
Special certification conditions U,X or B have been complied with	all	X	
Cables/spare cores are terminated satisfactorily	all	X	
No obstructions adjacent to flameproof flanged joint	d	X _	3
Ducts, pipes and enclosures are in good condition	р	X	X
Protective gas is substantially free from contaminants (water, oil, dirt)	р	X	X
Protective gas flow/pressure is adequate	p	X	
Pressure and/or flow indicators, alarms and interlocks function correctly	р	X	
Pre-energising purge period is adequate	p	Х	
Condition of spark/particle barriers of ducts exhausting the gas into hazardous area are satisfactory	p	x	



18	Cables are installed and screens are earthed in accordance with the documentatio0n	i	X	
19	The circuit is isolated from earth or earthed at one point only	i	X	_
20	Separation is maintained with non-IS circuits	i	X	
	As applicable, short circuit protection of the power supply is in accordance with the documentation	i	×	

	C Environment			
1	Apparatus adequately protected from corrosion, weather, vibration, other	all	X	\otimes
2	No undue accumulation of dust or dirt	all	X	\otimes
3	Electrical insulation is clean and dry	all	x	

Faults found? (circle as appropriate)

No: List action required Contractor (write): Inspector Supervisor Client (write): Inspector

Contract	or (write): Inspector N. GREEN	Supervisor	Client (write): Inspector	
Date:	slalu		Date:	

Device ID or tag

Action req	uired to make device compliant:
	Repair cable from 5/Box to main j/Box.
-	Essue conduit / gland in Adlation complies Excl in certified adaptors, if within harandous zone. Equipment + cable ID required.
-	Equipment + cable ID required.

Reviewed by: N. GREEN Date: 14/9/11Priority:

,

Comments:				
	_			
All action items now completed:				
Job closed:				_
Device now fully compliant, spreadshee	et register has be	en updated		
Supervisor (write):				
Date:				

Hazardous area device inspection sheet for Ex-d, Ex-e, Ex-i, Ex-n, Ex-p and other Ex devices



Circle as checked

Based on AS/NZS 60079 part 17

Ref. (:\data\sitz\encompany operations\\darwin\\tenders\\sbsj11\fyf1 - haz area inspections\hazardous area inspection forms\\hazardous area device inspection sheet for ex-d, ex-e, exi, ex-n, ex-p and other ex devices.doc

Specifications

Device ID or tag: 3, (TIT-32)	Asset: WB MEATER # 1 - HEATER END of SHEL
Circuit ID: ?	Physical location: KATMARINE MS
Area classification :	Environment: (hot?)
Data from Label	
Apparatus type: (light, JB, Motor) Temp Transition	Type of protection: (d,e, i, n, p Gp I g
Apparatus type: (light, JB, Temp Tranlinky Motor) Manufacturer: Rosement.	Gas group: (IIA/B/C)
	Gas group: (IIA/B/C)

SAA etc)

Test authority: (BAS, PTB,

Number of cables:

66

For each cable entry	gland 1	gland 2	others ADATON
Gland manufacturer:	ALCO		QOSEMOULT
Model:	ws 202		1/2-14 to M20
Gland type of protection: (d,e)			Exade 116
			KEMAOZATEX 229/U

Inspection -

IP Class

A Equipment		Applicable to protection type:	Internal	▼ External	
Equipment (incl group and temp class)	is appropriate for area classification	all	X	X	1
Equipment (D or circuit ID is correct	is appropriate for area crassingation	all	X	Ô	1
Enclosure, sealing gaskets or compour	nde ere entiefactory	all	X	(A)	NIL
		all	X		-
There are no damage or evidence of u				Ø	-
Bolts, cable entries and blanking eleme		all	X	B	-
Flange facings are clean and undamage			X	100	-
Lamp rating, type and position correct		all	Х		-
Electrical connections are tight		all	X		1
Hermetically sealed devices are undar		n	X		
Restricted breathing enclosure is satis	actory to enclosure and/or covers	n	X]
Motor fans have sufficient clearance		motors only	X]
Installation clearly labelled		i	x	Ø	IS LAR
Safety barriers/isolators installed as per required	er certification and securely earthed where	i	x	B	
Entity calculation/documentation is available	uilable	ii	Х	Х	NO
B Installation Type of cable is appropriate, cables an	e undamaged	all	x	05	UV)540
Sealing of ducts and/or conduits is sati		all	X	R	
Stopper boxes or barrier glands are pro		d	X		-
Integrity of conduit system and interfac		all	X	1	-
	tight, in good condition and of sufficient	all	×	Ø	-
Fault loop impedance is satisfactory		power outlets	X		-
Insulation resistance is satisfactory (ch	eck only during initial inspection)	all	x -		-
Automatic electrical protective devices permitted limits		all	×	1	1
Special certification conditions U,X or I	3 have been complied with	all	X	-	-
Cables/spare cores are terminated sat	isfactorily	all	X		-
No obstructions adjacent to flameproof		d	- <u>x</u>	Ø	-
		0			
Ducts, pipes and enclosures are in goo	d condition	p	X	X	

13	Protective gas is substantially free from contaminants (water, oil, dirt)	p	Х	X
14	Protective gas flow/pressure is adequate	р	Х	
15	Pressure and/or flow indicators, alarms and interlocks function correctly	p	X	
16	Pre-energising purge period is adequate	р	X	
17	Condition of spark/particle barriers of ducts exhausting the gas into hazardous	р	x	
	area are satisfactory		~	

Amadeus Pipeline Electrical Inspections



18	Cables are installed and screens are earthed in accordance with the documentatio0n	í	Х	
19	The circuit is isolated from earth or earthed at one point only	i	Х	
20	Separation is maintained with non-IS circuits	i	X	
21	As applicable, short circuit protection of the power supply is in accordance with the documentation	i	Х	

	C Environment			
1	Apparatus adequately protected from corrosion, weather, vibration, other	all	X	\otimes
2	No undue accumulation of dust or dirt	all	X	Co
3	Electrical insulation is clean and dry	all	Х	

Faults found? (circle as appropriate)

No:

Yes: List action required	_	
Contractor (write): Inspector	Supervisor	Client (write): Inspe

Contractor (write): Inspector	Supervisor	Client (write): Inspector	
Date: 5/9/11		Date:	

Device ID or tag

Actio	n required to ma	ke device com	pliant:		
-	Equipment	t cabl	e label r	required	
-	Provide	blue st	eath to	calle	

Reviewed by: N. GREEP Date: 14/9/11 Priority:

Comments:			
	_		
All action items now completed:			
Job closed:			
Device now fully compliant, spreads	heet register has been up	dated	
Supervisor (write):			
Date:			

Hazardous area device inspection sheet for Ex-d, Ex-e, Ex-i, Ex-n, Ex-p and SITZLER other Ex devices Based on AS/NZS 60079 part 17

Ref: 1:\data\sitzler\company operations\darwin\tenders\sbsj11\fyf1 - haz area inspections\hazardous area inspection forms\hazardous area device inspection sheet for ex-d,ex-e,exi,ex-n,ex-p and other ex devices.doc

Specifications

General	
Device ID or tag: - (LSL - 32?)	Asset: WATER BATH WEDNER # 1 (Hect End
Circuit ID:	Physical location: KATHERINE MS
Area classification :	Environment: (hot?)

Data from Label

Type of protection: (d,e, i, n, p etc)
Gas group: (IIA/B/C) CLI GRC.O. IF B
Temp class: (T1-T6) T6
Certificate number: AUSEX 609
Test authority: (BAS, PTB, SAA etc)

Number of cables:

For each cable entry	-gland-1 J/RDX	gland 2 🤊	-others ADAPTOR ?
Gland manufacturer:	PHROTENAX	Ĵ.	
Model:		1	
Gland type of protection: (d,e)	1		

Inspection

all all all all d all all all n	X X X X X X X X X		CC EQ
all all d all all all	X X X X X X X	8	
all all d all all	X X X X X X	8	eq
all d all all	X X X X		
d all all	X X X X		
all	X X		
all	X		
n			
	X		
n	X		
motors only	X		
i	X	X	
i	x	×	
i	Х	X	
	i i i	i X i X	i X X i X X

Type of cable is appropriate, cables are undamaged	all	X	Ø	UV
Sealing of ducts and/or conduits is satisfactory	all	X	\otimes	
Stopper boxes or barrier glands are properly filled	d	X		
Integrity of conduit system and interface with mixed system is maintained	all	X		
Earthing and bonding connections are tight, in good condition and of sufficient cross section	all	x	Ø	
Fault loop impedance is satisfactory	power outlets	X		1
Insulation resistance is satisfactory (check only during initial inspection)	ail	X		1
Automatic electrical protective devices are set correctly and operate within permitted limits	all	x]
Special certification conditions U,X or B have been complied with	all	Х		
Cables/spare cores are terminated satisfactorily	all	X		
No obstructions adjacent to flameproof flanged joint	d	X		
Ducts, pipes and enclosures are in good condition	p	X	X	7
Protective gas is substantially free from contaminants (water, oil, dirt)	p	X	X	1
Protective gas flow/pressure is adequate	p	X		1
Pressure and/or flow indicators, alarms and interlocks function correctly	р	X		
Pre-energising purge period is adequate	р	X		
Condition of spark/particle barriers of ducts exhausting the gas into hazardous area are satisfactory	р	x		
	Stopper boxes or barrier glands are properly filled Integrity of conduit system and interface with mixed system is maintained Earthing and bonding connections are tight, in good condition and of sufficient cross section Fault loop impedance is satisfactory Insulation resistance is satisfactory (check only during initial inspection) Automatic electrical protective devices are set correctly and operate within permitted limits Special certification conditions U,X or B have been complied with Cables/spare cores are terminated satisfactorily No obstructions adjacent to flameproof flanged joint Ducts, pipes and enclosures are in good condition Protective gas is substantially free from contaminants (water, oil, dirt) Pressure and/or flow indicators, alarms and interlocks function correctly Pre-energising purge period is adequate Condition of spark/particle barriers of ducts exhausting the gas into hazardous	Stopper boxes or barrier glands are properly filled d Integrity of conduit system and interface with mixed system is maintained all Earthing and bonding connections are tight, in good condition and of sufficient all Fault loop impedance is satisfactory power outlets Insulation resistance is satisfactory (check only during initial inspection) all Automatic electrical protective devices are set correctly and operate within all Special certification conditions U,X or B have been complied with all Cables/spare cores are terminated satisfactorily all No obstructions adjacent to flameproof flanged joint d Ducts, pipes and enclosures are in good condition p Protective gas is substantially free from contaminants (water, oil, dirt) p Pressure and/or flow indicators, alarms and interlocks function correctly p Pre-energising purge period is adequate p Pre-energising purge period is adequate p	Stopper boxes or barrier glands are properly filleddXIntegrity of conduit system and interface with mixed system is maintainedallXEarthing and bonding connections are tight, in good condition and of sufficientallXEarthing and bonding connections are tight, in good condition and of sufficientallXFault loop impedance is satisfactorypower outletsXInsulation resistance is satisfactory (check only during initial inspection)allXAutomatic electrical protective devices are set correctly and operate withinallXSpecial certification conditions U,X or B have been complied withallXCables/spare cores are terminated satisfactorilyallXNo obstructions adjacent to flameproof flanged jointdXDucts, pipes and enclosures are in good conditionpXProtective gas is substantially free from contaminants (water, oil, dirt)pXPressure and/or flow indicators, alarms and interlocks function correctlypXPre-energising purge period is adequatepXPre-energising purge period is adequatepXPre-energising purge period is adequatepXPressure and/or flow indicators, alarms and interlocks function correctlypXPre-energising purge period is adequatepXPre-energising purge period is adequatepXPressure and/or flow indicators, alarms and interlocks function correctlypPXPCondition of spark/particle barriers of duct	Sealing of ducts and/or conduits is satisfactory all X X Stopper boxes or barrier glands are properly filled d X Integrity of conduit system and interface with mixed system is maintained all X Earthing and bonding connections are tight, in good condition and of sufficient all X Fault loop impedance is satisfactory power outlets X Insulation resistance is satisfactory (check only during initial inspection) all X Automatic electrical protective devices are set correctly and operate within permitted limits all X Special certification conditions U,X or B have been complied with all X Cables/spare cores are terminated satisfactorily all X No obstructions adjacent to flameproof flanged joint d X Protective gas is substantially free from contaminants (water, oil, dirt) p X Protective gas flow/pressure is adequate p X Pressure and/or flow indicators, alarms and interlocks function correctly p X Pre-energising purge period is adequate p X Pre-energising purge period is adequate p X

Circle as checked



18	Cables are installed and screens are earthed in accordance with the documentatio0n	i	Х	
19	The circuit is isolated from earth or earthed at one point only	ì	X	
20	Separation is maintained with non-IS circuits	j	X	
21	As applicable, short circuit protection of the power supply is in accordance with the documentation	ĩ	Х	

	O ERANOIMIENC			
1	Apparatus adequately protected from corrosion, weather, vibration, other	all	X	\bigotimes
2	No undue accumulation of dust or dirt	all	X	8
3	Electrical insulation is clean and dry	all	Х	

Faults found? (circle as appropriate)

No:

Yes:	List action required

Contrac	tor (write): Inspector N. ほんをさい	Supervisor	Client (write): Inspector	
Date:	519/11		Date:	

Device ID or tag					
	ake device complian		,		
- Eyup	ment + cabl	e Io m	equired		
- Nil c	entitication	detail for	, adapter J	vB , suggest	replacement.
- UV d	lamaye to	cable she	ath, sugget	ve-sheath	as minimum
24					

Reviewed by:	N. SREEDN
Date: 129/1	
Priority:	

Comments:		 	
Comments.			
All action items now completed:			
Job closed:			

Device now fully compliant, spreadsheet register has been updated Supervisor (write): Date:

Hazardous area device inspection sheet for Ex-d, Ex-e, Ex-i, Ex-n, Ex-p and SITZLER

Based on AS/NZS 60079 part 17

Ref. (\data\sitzler\company operations\darwin\tenders\sbsj11\fyf1 - haz area inspections\hazardous area inspection forms\hazardous area device inspection sheet for ex-d, ex-e, exi, ex-n, ex-p and other ex devices.doc

Specifications

General							
Device ID or tag:	-	(TSH-32)	Ass	et:	WB	hearran #) - VENS SHELL M.E
Circuit ID:	1		Phy	sical loc	ation:	KATHINE	ms
Area classification :			Env	ironmer	nt: (hot?)		

Data from Label

Apparatus type: (light, JB, Motor) Tenne . Smitch	Type of protection: (d,e, i, n, p etc) $\mathcal{E}_{X} \mathcal{A}$
Manufacturer: UNITED EVBLATER L.	Gas group: (IIA/B/C)
Full model number: C120 18 86	Temp class: (T1-T6) T
Serial number:	Certificate number: Aus Ex 542 X
IP Class IP66	Test authority: (BAS, PTB, SAA etc)

Number of cables:

For each cable entry	-gland-1	gland 2	exters Reduces
Gland manufacturer:	i	palo	<u> </u>
Model:	FILTS	FLPW 2002	7
Gland type of protection: (d,e)	Ench	ex 1	~ .
	AUS & 492 x		

Inspection -

A Equipment	Applicable to protection type:	↓ Internal	External	
Equipment (incl group and temp class) is appropriate for area classification	all	X	X]
Equipment ID or circuit ID is correct	all	X	X	JD
Enclosure, sealing gaskets or compounds are satisfactory	all	Х	1×	
There are no damage or evidence of unauthorised modifications	all	Х	8	
Bolts, cable entries and blanking elements are correct and tight	all	X	(X)	THIE
Flange facings are clean and undamaged	d	X		TAPI
Lamp rating, type and position correct	all	Х		
Electrical connections are tight	all	Х		
Hermetically sealed devices are undamaged	n	Х		
Restricted breathing enclosure is satisfactory to enclosure and/or covers	n	Х		
Motor fans have sufficient clearance	motors only	X.	~1	
Installation clearly labelled	i	X	X	
Safety barriers/isolators installed as per certification and securely earthed where required	i	×	X	
Entity calculation/documentation is available	ł	Х	X	7

1	Type of cable is appropriate, cables are undamaged	all	X	(X	30
2	Sealing of ducts and/or conduits is satisfactory	all	X	No.	
3	Stopper boxes or barrier glands are properly filled	d	Х		
4	Integrity of conduit system and interface with mixed system is maintained	all	X		
5	Earthing and bonding connections are tight, in good condition and of sufficient cross section	ali	Х	8	
6	Fault loop impedance is satisfactory	power outlets	X		
7	Insulation resistance is satisfactory (check only during initial inspection)	all	X		
8	Automatic electrical protective devices are set correctly and operate within permitted limits	all	x		
9	Special certification conditions U,X or B have been complied with	all	X		-
	Cables/spare cores are terminated satisfactorily	all	- -		
10		all	<u>^</u>		-
11	No obstructions adjacent to flameproof flanged joint	a	Х	<u>x</u>	_
12	Ducts, pipes and enclosures are in good condition	р	X	×	
13	Protective gas is substantially free from contaminants (water, oil, dirt)	р	Х	X	
14	Protective gas flow/pressure is adequate	р	Х		
15	Pressure and/or flow indicators, alarms and interlocks function correctly	P	X		
16	Pre-energising purge period is adequate	р	X		
17	Condition of spark/particle barriers of ducts exhausting the gas into hazardous area are satisfactory	p	х		

Circle as checked

-



18	Cables are installed and screens are earthed in accordance with the documentatio0n	i	Х	
19	The circuit is isolated from earth or earthed at one point only	i	Х	
20	Separation is maintained with non-IS circuits	i	Х	
21	As applicable, short circuit protection of the power supply is in accordance with the documentation	j	х	

	C Environment			
1	Apparatus adequately protected from corrosion, weather, vibration, other	all	Х	Ø
2	No undue accumulation of dust or dirt	all	Х	B
3	Electrical insulation is clean and dry	all	Х	

Faults found? (circle as appropriate)

No: Ves List action required

Contractor (write): Inspector	Supervisor	Client (write): Inspector
Date: 5/9/11		Date:

Device ID or tag

Action required to make device compliant: - Equipment + cable I.D required - Uncertified reducer requires replacement - Remove white thread type and ensure minimum thread ongagement is provided.

Reviewed by: N. G. EEO Date: 14/9/11 Priority:

Date:

			_	
Comments:				
All action items now completed:				
Job closed:	Ē			
Device now fully compliant, spreadshee	t register has b	een updated		
Supervisor (write):				

Amadeus Pipeline Electrical Inspections

Hazardous area device inspection sheet for Ex-d, Ex-e, Ex-i, Ex-n, Ex-p and other Ex devices

Based on AS/NZS 60079 part 17

Ref: IAdata\sitzler\company operations\darwin\tenders\sbsj11\fyf1 - haz area inspections\hazardous area Inspection forms\hazardous area device inspection sheet for ex-d,ex-e,ex-i,ex-n,ex-p and other ex devices.doc

Specifications

Gen	eral							
Dev	ce ID or tag: -	(SV1 + ?)	Asset: WR A	EATEN	++ 1	FUEL	GAS	s)pown
Circ	uit ID:		Physical location:	KATHE				Rues FHEIL 4
Area	a classification :		Environment: (hot?)					-
	\sim			_				
	from Label							_
	aratus type: (light, JB,	LENDID · VALVE	Type of protection: (a	d,e, i, n, p				
Mote			etc)		m			-
Man	ufacturer: ASLOMA	TION.	Gas group: (IIA/B/C)		-			
Full	model number: EAS	00342	Temp class: (T1-T6)		T3_		_	
Seri	al number:		Certificate number:		-			
IPC	lass		Test authority: (BAS,	PTB,				-
	1855 -		SAA etc)					
Num	ber of cables:							
				-				
	each cable entry	gland 1 ADAPTOR	-gland 2	22	others	GLAND	2	-
	nd manufacturer:	2	2					-
Mod	ei: ad type of protection: (d,e)	NHM 1	2					-
Insp	ection ———			Applicable	→	Circle a	s checked	i
	A Equipment			Applicable protection i		▼ Internal	▼ External	
1		temp class) is appropriate for area	a classification	all	, , , , , , , , , ,	X	X	
2	Equipment ID or circuit ID			all		Х	B	Fa
3		s or compounds are satisfactory		all		Х	Ø	CCT
4		evidence of unauthorised modificati		all		X	Ø	1000
5		anking elements are correct and tig	ght	all		<u>X</u>	×–	
6	Flange facings are clean a			d all		<u> </u>		
7 8	Lamp rating, type and pos Electrical connections are			all				
9	Hermetically sealed device					X		
10		osure is satisfactory to enclosure ar	nd/or covers	n		<u> </u>		
11	Motor fans have sufficient			motors	only	X –		
12	Installation clearly labelled			i		X	X	
13		stalled as per certification and sec	urely earthed where	i		Х	x	
14	_required Entity calculation/document	ntation is available		i		Х	x	
								1
	B Installation	L				V	<u></u>	ע ר
1	Sealing of ducts and/or co	te, cables are undamaged		all all		X	<u></u>	00
2 3	Stopper boxes or barrier g			d		<u> </u>	<u>&</u>	-
4		and interface with mixed system is	s maintained	all				4
5		nections are tight, in good condition		all		х	6A	1
	cross section						Ø	_
6	Fault loop impedance is s	atisfactory		power o	utlets	X		4
7		tisfactory (check only during initial		all		Х		4
8	permitted limits	ctive devices are set correctly and o	operate within	alł		Х		
9		tions U,X or B have been complied	with	all		X		-
10	Cables/spare cores are te	rminated satisfactorily		all		X		
11		to flameproof flanged joint		d		Х	X	4
12	Ducts, pipes and enclosur			р		X	X	4
13		ially free from contaminants (water	, oil, dirt)	р		X	X	4
14	Protective gas flow/pressu			p		<u>X</u>		4
15		ators, alarms and interlocks function	an correctly	p		X		4
16	Pre-energising purge perio	od is adequate	an into homordavia	p		Х		4
17	area are satisfactory	barriers of ducts exhausting the ga	as muo nazaruous	þ		Х		
								_

SITZLER



18	Cables are installed and screens are earthed in accordance with the documentatio0n	i	х	
19	The circuit is isolated from earth or earthed at one point only	i	Х	
20	Separation is maintained with non-IS circuits	i	X	
21	As applicable, short circuit protection of the power supply is in accordance with the documentation	i	x	

	C Environment			
1	Apparatus adequately protected from corrosion, weather, vibration, other	all	X	TX)
2	No undue accumulation of dust or dirt	all	X	X
3	Electrical insulation is clean and dry	all	Х	

Faults found? (circle as appropriate)

No:	
Yes: List action required	
Contractor (write): Inspector Supervisor	Client (write): Inspector
Date: 579/4	Date:

Device I	D or	tag
----------	------	-----

tion required to make device compliant:
- Equipment & cable ID required - ILLEGIBLE (POOR) Labels to solenoids, unable to reify
- ILLEGISLE (POOR) Labels to solenoids, unable to evity
Certification
- Uncertified adaptors + JB nameplate details covered.
- Uncertisized adapters + JR nameplate details covered. - Cables installed through structural member without
- Recommend replacement of soleroids with new, direct connect, cabling without JB, Remadiate UV damaged cable.
- recommend replacement of soleroids with new, direct
connat cabling without JB. Remadiate UV damaged cable.

Reviewed by: N. GREEN Date: 146 11 Priority:

Comments:		
All action items now completed:		
Job closed:		
Device now fully compliant, spreadsheet reg	gister has been updated	
Supervisor (write):		
Date:		

Amadeus Pipeline Electrical Inspections

Hazardous area device inspection sheet for Ex-d, Ex-e, Ex-i, Ex-n, Ex-p and other Ex devices



Based on AS/NZS 60079 part 17

Ref: I:\data\sitzlencompany operations\darwin\tenders\sbsj11\fyf1 - haz area inspections\hazardous area inspection forms\hazardous area device inspection sheet for ex-d,ex-e,ex-i,ex-n.ex-p and other ex devices.doc

Specifications

Gen	eral							
Devi	ce ID or tag:		Asset: WS	NEARDA	4 1	Ŧu	el has	Rus
Circ	uit ID:		Physical location:	KATHER			EL FO	HE.
Area	classification :		Environment: (hot?)	primer	10 E 10			1
~102								
	from Label	2)	Turn of participations (d . :				-
Appa Moto	aratus type: (light, JB,	STS for Solenoidst	(+?etc)	d,e, I, n, p	1			
Man	ufacturer: CROU		Gas group: (IIA/B/C)		1			
Full	model number:		Temp class: (T1-T6)		-			
Seria	al number:		Certificate number:		1			
IP C	lass 🚽		Test authority: (BAS SAA etc)	, PTB, -	1			
Num	ber of cables:							-
For	each cable entry	gland 1	gland 2		others			
	d manufacturer:	ALCO	giana z				_	1
Mod	el:	FL 8W 202						1
Glan	d type of protection: (d,e)							
nspe	ection ———			Applicable	to	Circle a	s checked	I
	A Equipment		15 - C	protection	ype:	Internal	External	
	Equipment (Incl group and Equipment ID or circuit ID	d temp class) is appropriate for an	rea classification	all		<u>X</u>	X.	
		ts or compounds are satisfactory	· · ·	all all		<u> </u>	- Co	JD
		evidence of unauthorised modification	ations	all		X		
		lanking elements are correct and		all		X	Â	
	Flange facings are clean a		ogra	d		X		
	Lamp rating, type and pos			all		X		
	Electrical connections are	e tight		all		Х		
	Hermetically sealed devic	es are undamaged		п		Х		
) כ		osure is satisfactory to enclosure	and/or covers			Х		
1	Motor fans have sufficient			motors	only	Х		
2	Installation clearly labelled			i		X	X	
3	Safety barriers/isolators in required	nstalled as per certification and se	ecurely earthed where	ŕ		Х	×	
4	Entity calculation/docume	ntation is available		i	_	Х	X	
	B Installation							GROME
ļ		ate, cables are undamaged		ałl		Х		TO CA
ļ	Sealing of ducts and/or co			all		Х	R	THAL
	Stopper boxes or barrier g			d		X		BRAC
		n and interface with mixed system		all		Χ		
	cross section	inections are tight, in good conditi	on and of sufficient	all		Х	€≯	ļ
	Fault loop impedance is s	atisfactory		power o	utiets	X		4
		tisfactory (check only during initia		all		Х		4
	permitted limits	ctive devices are set correctly and		all		Х		
		tions U,X or B have been complie	ed with	alł		X	<u> </u>	
	Cables/spare cores are te			ali		X		4
		to flameproof flanged joint		d		X	X	4
2	Ducts, pipes and enclosur		or oil did)	p		X	X	-
3	Protective gas is substant Protective gas flow/pressu	ially free from contaminants (wate	er, olt, ality	p		X	X	-
4 5		ators, alarms and interlocks func	tion correctly	p		X X		4
6	Pre-energising purge perio		uon conecuy	p		X		1
7		barriers of ducts exhausting the	gas into hazardous	p			-	4
·	area are satisfactory	sources of ducia exitatisting (ne	gas into nazaruous	р		Х		



				and the second second
18	Cables are installed and screens are earthed in accordance with the documentatio0n	i	х	
19	The circuit is isolated from earth or earthed at one point only	i	Х	
20	Separation is maintained with non-IS circuits	i	Х	
21	As applicable, short circuit protection of the power supply is in accordance with the documentation	i	Х	

	C Environment			
1	Apparatus adequately protected from corrosion, weather, vibration, other	all	X	\otimes
2	No undue accumulation of dust or dirt	all	X	(X)
3	Electrical insulation is clean and dry	all	X	

Faults found? (circle as appropriate)

 No:
 Ves:
 List action required

 Contractor (write): Inspector
 Supervisor
 Client (write): Inspector

 Date:
 \$10/n
 Date:

Device	ID.	or	tag
Device	1	0	lay

	quired to make device						
-	Remove JV Solenoid val	ve.	conned	cuble	directly	to new	
1	Eccuipment Nil evidence	t cable	IO rey	mired	to an		
L.	pal environ	e at a	ik variad	(certi		alle	

Reviewed by: 10 · GREENS Date: 14/9/11 Priority:

Comments:				
All action items now completed:				
Job closed:	H			
Job closed.			 	
Device now fully compliant, spreadsheet	register has b	een updated		
Supervisor (write):				
Date:			 	

Amadeus Pipeline Electrical Inspections

Hazardous area device inspection sheet for Ex-d, Ex-e, Ex-i, Ex-n, Ex-p and other Ex devices



Based on AS/NZS 60079 part 17

Ref: I\datasitzler/company operations\darwin\tenders\sbsj11\fyf1 - haz area inspections\hazardous area inspection forms\hazardous area device inspection sheet for ex-d, ex-e, ex-i, ex-n, ex-p and other ex devices.doc

Specifications

General	
---------	--

Device ID or tag: - (PILOT LAS VALVES.)	Asset: WB wearon	+)- REAR ENS SHEN
Circuit ID:	Physical location: KATHERINE	2 M
Area classification :	Environment: (hot?)	

Data from Label

Apparatus type: (light, JB, SOLENOID VALVES X2	Type of protection: (d,e, i, n, p etc)	Ex m
Manufacturer: ASIOMATION	Gas group: (IIA/B/C)	-
Full model number: K302-027, EAB 262040	Temp class: (T1-T6)	-
Serial number: ER801661	Certificate number:	-
IP Class 65	Test authority: (BAS, PTB, SAA etc)	-

Number of cables:

For each cable entry	gland 1	-gland 2/JR	others	(current to shapp
Gland manufacturer:		1	FILLA	NEK_
Model:	F1235	<u>N</u>	> Refer e	hoto . 1310-417
Gland type of protection: (d,e)	d	3,1		
	Gx 1262 3			

Inspection -

Insp	ection	>	Circle a	s checked	i
	A Equipment	Applicable to protection type:	Internal	External	
1	Equipment (incl group and temp class) is appropriate for area classification	all	X	X	
2	Equipment ID or circuit ID is correct	all	X	$\overline{\otimes}$	EQ
3	Enclosure, sealing gaskets or compounds are satisfactory	all	X	8	cos
4	There are no damage or evidence of unauthorised modifications	all	X	2	
5	Bolts, cable entries and blanking elements are correct and tight	all	Х	\otimes	
6	Flange facings are clean and undamaged	d	X		
7	Lamp rating, type and position correct	all	X		
8	Electrical connections are tight	all	X		
9	Hermetically sealed devices are undamaged	n	X		
10	Restricted breathing enclosure is satisfactory to enclosure and/or covers	n	X		
11	Motor fans have sufficient clearance	motors only	X		
12	Installation clearly labelled	i	Х	X	
13	Safety barriers/isolators installed as per certification and securely earthed where required	j	x	×	
14	Entity calculation/documentation is available	i	Х	X	

B Installation

	Binotanation			
1	Type of cable is appropriate, cables are undamaged	all	X	\otimes
2	Sealing of ducts and/or conduits is satisfactory	ail	X	\$
3	Stopper boxes or barrier glands are properly filled	d	X	
4	Integrity of conduit system and interface with mixed system is maintained	all	X	
5	Earthing and bonding connections are tight, in good condition and of sufficient	all	х	8
	cross section		~	6
6	Fault loop impedance is satisfactory	power outlets	Х	
7	Insulation resistance is satisfactory (check only during initial inspection)	all	Х	
8	Automatic electrical protective devices are set correctly and operate within	alí	X	
	permitted limits		<u>^</u>	
9	Special certification conditions U,X or B have been complied with	all	Х	
10	Cables/spare cores are terminated satisfactorily	all	X	
11	No obstructions adjacent to flameproof flanged joint	d	Х	X
12	Ducts, pipes and enclosures are in good condition	р	Х	X
13	Protective gas is substantially free from contaminants (water, oil, dirt)	р	Х	X
14	Protective gas flow/pressure is adequate	р	Х	
15	Pressure and/or flow indicators, alarms and interlocks function correctly	р	Х	
16	Pre-energising purge period is adequate	Р	X	
17	Condition of spark/particle barriers of ducts exhausting the gas into hazardous area are satisfactory	ρ	х	
	· · · · · · · · · · · · · · · · · · ·			

Amadeus Pipeline Electrical Inspections

UV



18	Cables are installed and screens are earthed in accordance with the documentatio0n	i	X	
19	The circuit is isolated from earth or earthed at one point only	i	X	
20	Separation is maintained with non-IS circuits	i	X	
21	As applicable, short circuit protection of the power supply is in accordance with the documentation	i	Х	

1	Apparatus adequately protected from corrosion, weather, vibration, other	all	X	Х
2	No undue accumulation of dust or dirt	all	Х	Х
3	Electrical insulation is clean and dry	all	X	

Faults found? (circle as appropriate)

No:

Yes:

List action required

Contractor (write): Inspector Supervisor Client (write)	e): Inspector
N. GREEN	
Date: 3(9/1) Date:	

Device ID or tag

Action r	equired to make device compliant:
-	Equipment + cable ID required
-	Certification detail to solenoids unnavailable
	Adaptars (JJS not certified.
-	Cabling has UV damage.
-	Suggest to replace cable + in stall now solenaids only.

Reviewed by: N. GREEN Date: 14[9] 1. Priority:

Comments:			
	_		
All action items now completed:			
Job closed:			
Device now fully compliant, spreadsheet	t register has bee	n updated	
Supervisor (write):	•	•	
Date:			

Hazardous area device inspection sheet for Ex-d, Ex-e, Ex-i, Ex-n, Ex-p and other Ex devices

Based on AS/NZS 60079 part 17

Ref. 1:\data\sitzle/company operations\darwin\lenders\sbsj11\fyf1 - haz area inspections\hazardous area inspection forms\hazardous area device inspection sheet for ex-d,ex-e,ex-i,ex-n,ex-p and other ex devices.doc

Specifications

General		$\langle \cdot \cdot \cdot \rangle$			
Device ID or tag:	1	(I/P1)	Asset: NE UK	CATERA FUEL GAS	IP-RNI WELL HE
Círcuit ID:	-		Physical location:	KAMERINE MS	
Area classification	:		Environment: (hot?)		

Data from Label

	Type of protection: (d.o. i. p. p.	
Apparatus type: (light, JB, Motor) T/P Tonu arte Jox	Type of protection: (d,e, i, n, p etc)	7
Manufacturer: Fox Bo Ro	Gas group: (IIA/B/C)	7.
Full model number: (m 40 9) E69 F - TI2	Temp class: (T1-T6)	7.
Serial number:	Certificate number:	2
IP Class	Test authority: (BAS, PTB, SAA etc)	k

Number of cables:

For each cable entry	-gland 1 ELBOW	gland 2	-others niedle + plug
Gland manufacturer:	IP.	(J180x)	1
Model:	elkow ?	F1235	7
Gland type of protection: (d,e)			2

Inspection -

12

13

14

15

16

17

Ducts, pipes and enclosures are in good condition

Protective gas flow/pressure is adequate

Pre-energising purge period is adequate

area are satisfactory

Protective gas is substantially free from contaminants (water, oil, dirt)

Pressure and/or flow indicators, alarms and interlocks function correctly

Condition of spark/particle barriers of ducts exhausting the gas into hazardous

	, , , , , , , , , , , , , , , , , , ,			-
A Equipment	Applicable to		External	
	all	X		1
	all			ID
	all	X	TX I	
	all	X	8	1
	all	X		1
	d	X		1
	all	X	1	1
	alt	X	1	1
	n	X	1	1
	n	X	1	1
Motor fans have sufficient clearance	motors only	X		
Installation clearly labelled	i	X	X	2
Safety barriers/isolators installed as per certification and securely earthed where	i	X	X	2
	i	X	×	Č
BInstallation				
			<u> </u>	IO
			6	
	*			
		X		_
Earthing and bonding connections are tight, in good condition and of sufficient cross section	all	×	8	
Fault loop impedance is satisfactory	power outlets	X		
Insulation resistance is satisfactory (check only during initial inspection)	all	X		
Automatic electrical protective devices are set correctly and operate within	all	X]
	all	X	+	1
Cables/spare cores are terminated satisfactorily	all	X		1
No obstructions adjacent to flameproof flanged joint	d	X	K	2
	Installation clearly labelled Safety barriers/isolators installed as per certification and securely earthed where required Entity calculation/documentation is available B Installation Type of cable is appropriate, cables are undamaged Sealing of ducts and/or conduits is satisfactory Stopper boxes or barrier glands are properly filled Integrity of conduit system and interface with mixed system is maintained Earthing and bonding connections are tight, in good condition and of sufficient cross section Fault loop impedance is satisfactory Insulation resistance is satisfactory (check only during initial inspection) Automatic electrical protective devices are set correctly and operate within permitted limits Special certification conditions U,X or B have been complied with Cables/spare cores are terminated satisfactorily	A Equipment protection type: Equipment (incl group and temp class) is appropriate for area classification all Equipment ID or circuit ID is correct all Enclosure, sealing gaskets or compounds are satisfactory all There are no damage or evidence of unauthorised modifications all Bolts, cable entries and blanking elements are correct and tight all Flange facings are clean and undamaged d Lamp rating, type and position correct all Electrical connections are tight all Hermetically sealed devices are undamaged n Restricted breathing enclosure is satisfactory to enclosure and/or covers n Motor fans have sufficient clearance motors only Installation clearly labelled i Safety barriers/isolators installed as per certification and securely earthed where i required i B Installation all Stoppe boxes or barrier glands are properly filled d Integrity of conduit system and interface with mixed system is maintained all Eating and bonding connections are tight, in good condition and of sufficient cross section all Fau	A Equipment protection type: Internal Equipment (incl group and temp class) is appropriate for area classification all X Equipment (incl group and temp class) is appropriate for area classification all X Enclosure, sealing gaskets or compounds are satisfactory all X There are no damage or evidence of unauthorised modifications all X Bolts, cable entries and blanking elements are correct and tight all X Flange facings are clean and undamaged d X Lamp rating, type and position correct all X Electrical connections are tight all X Hermetically sealed devices are undamaged n X Restricted breathing enclosure is satisfactory to enclosure and/or covers n X Motor fans have sufficient clearance motors only X Installation clearly labelled i X Safety barriers/isolators installed as per certification and securely earthed where i X Entity calculation/documentation is available i X Type of cable is appropriate, cables are undamaged all X <td>A Equipment protection type: Internal External Equipment (incl group and temp class) is appropriate for area classification all X X Equipment ID or circuit ID is correct all X X Enclosure, sealing gaskets or compounds are satisfactory all X X Boits, cable entries and blanking elements are correct and tight all X X Flange facings are clean and undarnaged d X X Lamp rating, type and position correct all X X Electrical connections are tight all X X Hermetically sealed devices are undamaged n X X Restricted breathing enclosure is satisfactory to enclosure and/or covers n X Installation cleary labelled i X X Safety barriers/isolators installed as per certification and securely earthed where required i X X B Installation i X X X X Stepper boxes or barrier glands are properly filled d X X Installation i X X X <</td>	A Equipment protection type: Internal External Equipment (incl group and temp class) is appropriate for area classification all X X Equipment ID or circuit ID is correct all X X Enclosure, sealing gaskets or compounds are satisfactory all X X Boits, cable entries and blanking elements are correct and tight all X X Flange facings are clean and undarnaged d X X Lamp rating, type and position correct all X X Electrical connections are tight all X X Hermetically sealed devices are undamaged n X X Restricted breathing enclosure is satisfactory to enclosure and/or covers n X Installation cleary labelled i X X Safety barriers/isolators installed as per certification and securely earthed where required i X X B Installation i X X X X Stepper boxes or barrier glands are properly filled d X X Installation i X X X <

 $\frac{X}{X}$

Х

X

X

Х

X

р

р

р

р

р

p

SITZLER

Circle as checked



			-	and an an an an an an an an an an an an an
18	Cables are installed and screens are earthed in accordance with the	i	X	
	documentatio0n			
19	The circuit is isolated from earth or earthed at one point only	i	Х	
20	Separation is maintained with non-IS circuits	i	Х	
21	As applicable, short circuit protection of the power supply is in accordance with	i	×	
	the documentation		^	

1	Apparatus adequately protected from corrosion, weather, vibration, other	all	Х	\bigotimes
2	No undue accumulation of dust or dirt	all	Х	8
3	Electrical insulation is clean and dry	atl	Х	

Faults found? (circle as appropriate)

No:

Yes. List action required

Client (write): Inspector
Date:

Device ID or tag
Action required to make device compliant:
- Equipment + cable IO required
- 17:1 has area cert. to legible for IlP, JB and
- Web detail = FM approved explosion proof CL GR C.D DIVS. T Refer Cart. Ref. CS-EIFO-A.
- Recomment replacement with AUS. certified equipment.

Reviewed by: No-GREEN Date: 149/11 Priority:

Comments:	
All action items now completed:	
Job closed:	
Job closed.	
The second secon	
Device now fully compliant, spreadsheet	register has been updated

Supervisor (write): Date:

Hazardous area device inspection sheet for Ex-d, Ex-e, Ex-i, Ex-n, Ex-p and Other Ex devices Based on AS/NZS 60079 part 17

Ref: 1:\data\sitziencompany operations\darwin\tenders\sbsj11\fy1 - haz area inspections\hazardous area inspection forms\hazardous area device inspection sheet for ex-d,ex-e,exi,ex-n,ex-p and other ex devices.doc

Specifications

General

Device ID or tag:	73	MAIN	×	Asset:	WB	HEATER	42	SKID	
Circuit ID:	-			Physical	location:	LAT	MORIN	E MS.	
Area classification :				Environ	nent: (ho	t?)			

Data from Label NAMERIANE FADED		
Apparatus type: (light, JB, Motor) 78	Type of protection: (d,e, i, n, p etc)	Exd
Manufacturer: CROUSE LANOS	Gas group: (IIA/B/C)	-
Full model number: EJBA161608 NY 5598	Temp class: (T1-T6)	-
Serial number:	Certificate number:	-
IP Class	Test authority: (BAS, PTB, SAA etc)	

Number of cables:

For each cable entry	gland 1 LAMPS	gland 2 🛪 💋	others
Gland manufacturer:	C-UWDS	ALCO	
Model:	EMP SERVES.	2	
Gland type of protection: (d.e)			

Insp	ection		Circle a	as checke	d
	A Equipment	Applicable to protection type:	Internal	External	
4		all	X		7
1	Equipment (incl group and temp class) is appropriate for area classification			<u>X</u>	-EQ
2	Equipment ID or circuit ID is correct	all	X	8	
3	Enclosure, sealing gaskets or compounds are satisfactory	all	X	2	- cor
4	There are no damage or evidence of unauthorised modifications	all	X	0×	
5	Bolts, cable entries and blanking elements are correct and tight	ali	_ X _	Ø	110 4.2
6	Flange facings are clean and undamaged	d	Х		VS. 24 d.c.
7	Lamp rating, type and position correct	all	X		1
8	Electrical connections are tight	all	X		•
9	Hermetically sealed devices are undamaged	n	X		
10	Restricted breathing enclosure is satisfactory to enclosure and/or covers	n	X		
11	Motor fans have sufficient clearance	motors only	X		
12	Installation clearly labelled	i i	X	X	1
13	Safety barriers/isolators installed as per certification and securely earthed where required	Í	x	X	THE
14	Entity calculation/documentation is available	i	X	X	
	B Installation				_
1	Type of cable is appropriate, cables are undamaged	all	X	\bigotimes	TOV
2	Sealing of ducts and/or conduits is satisfactory	all	X	8	-conduc
2	Stopper boyes or barrier glands are properly filled	d	Y		JEAL.

2	Sealing of ducts and/or conduits is satisfactory	alí	X	8	- CONDULT
3	Stopper boxes or barrier glands are properly filled	d	Х		SEAL.
4	Integrity of conduil system and interface with mixed system is maintained	all	X		
5	Earthing and bonding connections are tight, in good condition and of sufficient cross section	all	х	\otimes	
6	Fault loop impedance is satisfactory	power outlets	X		
7	Insulation resistance is satisfactory (check only during initial inspection)	all	X		
8	Automatic electrical protective devices are set correctly and operate within permitted limits	all	х		
9	Special certification conditions U,X or B have been complied with	all	Х		
10	Cables/spare cores are terminated satisfactorily	all	X		
11	No obstructions adjacent to flameproof flanged joint	d	X	\otimes	
12	Ducts, pipes and enclosures are in good condition	р	X	X	
13	Protective gas is substantially free from contaminants (water, oil, dirt)	р	X	X	
14	Protective gas flow/pressure is adequate	р	Х		
15	Pressure and/or flow indicators, alarms and interlocks function correctly	р	X		
16	Pre-energising purge period is adequate	р	X		
17	Condition of spark/particle barriers of ducts exhausting the gas into hazardous area are satisfactory	P	х		



18	Cables are installed and screens are earthed in accordance with the documentatio0n	i	х	
19	The circuit is isolated from earth or earthed at one point only	i	Х	
20	Separation is maintained with non-IS circuits	i	X	
21	As applicable, short circuit protection of the power supply is in accordance with the documentation	í	Х	

	C Environment			
1	Apparatus adequately protected from corrosion, weather, vibration, other	all	X	\otimes
2	No undue accumulation of dust or dirt	all	X	80
3	Electrical insulation is clean and dry	all	X	

Faults found? (circle as appropriate)

No:

Yes: List action required

Contractor (write): Inspector	Supervisor	Client (write): Inspector	
D. GREEN			
D. ARCEN			
Date: 5 9/11		Date:	
Date: at it it			

Device ID or tag Action required to make device compliant: - Equipment + cuble labels required - Tighten cable glands as required - Verify Klanking plags and replace with certified as required. - JB certified with 2424.c. however 110Va.c. label applied. - further investigation required. - Repair I replace damaged (U.V.) calling. - Provide conduit sear below IB. - Consim TIT-34 is connected to IB. It so, further I.S. labelling and conditions/inspections apply. Reviewed by: N. GREEN Date: 14 9 11

Priority:

Comments:		
All action items now completed:		
Job closed:		

Device now fully compliant, spreadsheet register has been updated Supervisor (write): Date:

Hazardous area device inspection sheet for Ex-d, Ex-e, Ex-i, Ex-n, Ex-p and SITZLER other Ex devices Based on AS/NZS 60079 part 17

Ref: I:\data\sitzlencompany operations\darwin\tenders\sbsj11\fyf1 - haz area inspections\hazardous area inspection forms\hazardous area device inspection sheet for ex-d,ex-e,exi,ex-n,ex-p and other ex devices.doc

Specifications

General Device ID or tag: - (JB,TC24?) Asset: WB WEATER # 2_ U.G. LAS [HELL] Circuit ID: Physical location: Area classification : Environment: (hot?)

Data from Label

Apparatus type: (light, JB, PTD JR?.	Type of protection: (d,e, i, n, p
Manufacturer: 60VAs	Gas group: (IIA/B/C)
Fuli model number: F-v 4 W	Temp class: (T1-T6)
Serial number:	Certificate number: Ex157-
IP Class TP65	Test authority: (BAS, PTB, SAA etc)

Number of cables:

For each cable entry	gland 1		gland 2	others	
Gland manufacturer:	?.				
Model:		F			
Gland type of protection: (d,e)					_

Insp	ection		Circle a	is checked	ł
	A Equipment	Applicable to protection type:	Internal	▼ External	
1	Equipment (incl group and temp class) is appropriate for area classification	all	X	X	1
2	Equipment ID or circuit ID is correct	all	X	0	-242
3	Enclosure, sealing gaskets or compounds are satisfactory	all	X	*-	ree
4	There are no damage or evidence of unauthorised modifications	all	Х	00	1
5	Bolts, cable entries and blanking elements are correct and tight	all 🗸 🖌 all	Х	*	1
6	Flange facings are clean and undamaged	d	X		
7	Lamp rating, type and position correct	all	X]
8	Electrical connections are tight	all	X]
9	Hermetically sealed devices are undamaged	n	X –]
10	Restricted breathing enclosure is satisfactory to enclosure and/or covers	л	X]
11	Motor fans have sufficient clearance	motors only	X]
12	Installation clearly labelled	i	X	X]
13	Safety barriers/isolators installed as per certification and securely earthed where required	i	×	Х]
14	Entity calculation/documentation is available	i	X	X]
	B Installation				
1	Type of cable is appropriate, cables are undamaged	all	X	8	UV

Casting of ducto and/or conduite is actisfactory			8	UV
Sealing of ducts and/or conduits is satisfactory	all	X	K	
Stopper boxes or barrier glands are properly filled	d	X		7
Integrity of conduit system and interface with mixed system is maintained	all	X		1
Earthing and bonding connections are tight, in good condition and of sufficient cross section	all	х	8	
Fault loop impedance is satisfactory	power outlets	X		1
Insulation resistance is satisfactory (check only during initial inspection)	all	X		1
Automatic electrical protective devices are set correctly and operate within permitted limits	all	х		1
Special certification conditions U,X or B have been complied with	all	X		7
Cables/spare cores are terminated satisfactorily	all	X]
No obstructions adjacent to flameproof flanged joint	d	X	X]
Ducts, pipes and enclosures are in good condition	p	X	X]
Protective gas is substantially free from contaminants (water, oil, dirt)	р	X	X]
Protective gas flow/pressure is adequate	р	X		
Pressure and/or flow indicators, alarms and interlocks function correctly	р	×		
Pre-energising purge period is adequate	р	X		
Condition of spark/particle barriers of ducts exhausting the gas into hazardous area are satisfactory	p	х		
	Stopper boxes or barrier glands are properly filled Integrity of conduit system and interface with mixed system is maintained Earthing and bonding connections are tight, in good condition and of sufficient cross section Fault loop impedance is satisfactory Insulation resistance is satisfactory (check only during initial inspection) Automatic electrical protective devices are set correctly and operate within permitted limits Special certification conditions U,X or B have been complied with Cables/spare cores are terminated satisfactorily No obstructions adjacent to flameproof flanged joint Ducts, pipes and enclosures are in good condition Protective gas is substantially free from contaminants (water, oil, dirt) Protective gas flow/pressure is adequate Pre-energising purge period is adequate Condition of spark/particle barriers of ducts exhausting the gas into hazardous	Stopper boxes or barrier glands are properly filled d Integrity of conduit system and interface with mixed system is maintained all Earthing and bonding connections are tight, in good condition and of sufficient all Fault loop impedance is satisfactory power outlets Insulation resistance is satisfactory (check only during initial inspection) all Automatic electrical protective devices are set correctly and operate within all Special certification conditions U,X or B have been complied with all Cables/spare cores are terminated satisfactorily all No obstructions adjacent to flameproof flanged joint d Ducts, pipes and enclosures are in good condition p Protective gas is substantially free from contaminants (water, oil, dirt) p Pressure and/or flow indicators, alarms and interlocks function correctly p Pre-energising purge period is adequate p Pcondition of spark/particle barriers of ducts exhausting the gas into hazardous p	Stopper boxes or barrier glands are properly filleddXIntegrity of conduit system and interface with mixed system is maintainedallXEarthing and bonding connections are tight, in good condition and of sufficient cross sectionallXFault loop impedance is satisfactorypower outletsXInsulation resistance is satisfactory (check only during initial inspection)allXAutomatic electrical protective devices are set correctly and operate within permitted limitsallXSpecial certification conditions U,X or B have been complied withallXCables/spare cores are terminated satisfactorilyallXNo obstructions adjacent to flameproof flanged jointdXDucts, pipes and enclosures are in good conditionpXProtective gas is substantially free from contaminants (water, oil, dirt)pXPressure and/or flow indicators, alarms and interlocks function correctlypXPre-energising purge period is adequatepXPre-energising purge period is adequatepXPre-energising purge period is adequatepXPreseries of ducts exhausting the gas into hazardouspX	Stopper boxes or barrier glands are properly filled d X Integrity of conduit system and interface with mixed system is maintained all X Earthing and bonding connections are tight, in good condition and of sufficient cross section all X Fault loop impedance is satisfactory power outlets X Insulation resistance is satisfactory (check only during initial inspection) all X Automatic electrical protective devices are set correctly and operate within permitted limits all X Special certification conditions U,X or B have been complied with all X Cables/spare cores are terminated satisfactorily all X No obstructions adjacent to flameproof flanged joint d X Ducts, pipes and enclosures are in good condition p X Protective gas flow/pressure is adequate p X Pressure and/or flow indicators, alarms and interlocks function correctly p X Pre-energising purge period is adequate p X Pre-energising purge period is adequate p X



18	Cables are installed and screens are earthed in accordance with the documentatio0n	i	х	
19	The circuit is isolated from earth or earthed at one point only	i	X	
20	Separation is maintained with non-IS circuits	ì	X	
21	As applicable, short circuit protection of the power supply is in accordance with the documentation	i	х	

1	Apparatus adequately protected from corrosion, weather, vibration, other	all	X	\otimes
2	No undue accumulation of dust or dirt	all	X	\bigotimes
3	Electrical insulation is clean and dry	all	Х	

Faults found? (circle as appropriate)

Ν	ο	:
14		•

List action required

Contractor (write): Inspector	Supervisor	Client (write): Inspector	
Date: 9/10</td <td></td> <td>Date:</td> <td></td>		Date:	

Device ID or tag

Action required to make device compliant:	
- Remadiate cable between more	JIS
- Equipment + cable I.O.	
- Verify adapter ratings to suit	has installation (it any.).

Reviewed by: N. G.A. CEN Date: 14/9/11 Priority:

Comments:		
Comments.		
All action items now completed:		
Job closed:		

Device now fully compliant, spreadsheet register has been updated Supervisor (write): Date:

SITZLER Hazardous area device inspection sheet for Ex-d, Ex-e, Ex-i, Ex-n, Ex-p and other Ex devices Based on AS/NZS 60079 part 17

Ref: I:\data\sitzler\company operations\darwin\tenders\sbsj11\fyf1 - haz area inspections\hazardous area inspection forms\hazardous area device inspection sheet for ex-d,ex-e,ex-i,ex-n,ex-p and other ex devices.doc

Specifications

General				
Device ID or tag:	3 ((TIT-34)	Asset: WB HEATER + 2	
Circuit ID:	5.070		Physical location: KATHERINE MS	
Area classification	:		Environment: (hot?)	

Data from Label	ulch ble		
Apparatus type: (light, JB, TEMP. TRANSMITTER	Type of protection: (d,e, i, n, p etc)	-	
Manufacturer: ROSEMOJUT	Gas group: (IIA/B/C)	~	
Full model number: (3174)22 " DITIMSFS"	Temp class: (T1-T6)	-	
Serial number: 0185485 ?	Certificate number:	-	
IP Class	Test authority: (BAS, PTB, SAA etc)	-	

Number of cables:

15

16

17

For each cable entry	gland 1	gland 2	others ADAPTOR
Gland manufacturer:	ALCO		3
Model:	FLPW		2
Gland type of protection: (d,e)			

Insp	ection		Circle a	as checke	đ
	A Equipment	Applicable to protection type:	Internal	External	
1	Equipment (incl group and temp class) is appropriate for area classification	all	X	X	CO
2	Equipment ID or circuit ID is correct	all	X	\otimes	~690
3	Enclosure, sealing gaskets or compounds are satisfactory	all	X	00	
4	There are no damage or evidence of unauthorised modifications	all	X	Ø	
5	Bolts, cable entries and blanking elements are correct and tight	all	X	(X)	
6	Flange facings are clean and undamaged	d	X		1
7	Lamp rating, type and position correct	all	Х		1
8	Electrical connections are tight	all	X		1
9	Hermetically sealed devices are undamaged	n	X	<u> </u>	1
10	Restricted breathing enclosure is satisfactory to enclosure and/or covers	n	X		1
11	Motor fans have sufficient clearance	motors only	Х		1
12	Installation clearly labelled	i	X	\otimes	BLUE
13	Safety barriers/isolators installed as per certification and securely earthed where required	i	х	X	
14	Entity calculation/documentation is available	i	X	Х	-
1	B Installation	all	X	0	VU
2	Sealing of ducts and/or conduits is satisfactory	all	Х	Co	
3	Stopper boxes or barrier glands are properly filled	d	X		7
4	Integrity of conduit system and interface with mixed system is maintained	all	Х		7
5	Earthing and bonding connections are tight, in good condition and of sufficient cross section	all	×	⊘	
6	Fault loop impedance is satisfactory	power outlets	X		7
7	Insulation resistance is satisfactory (check only during initial inspection)	all	X		7
8	Automatic electrical protective devices are set correctly and operate within permitted limits	all	x		
9	Special certification conditions U,X or B have been complied with	all	Х		7
10	Cables/spare cores are terminated satisfactorily	all	X		
11	No obstructions adjacent to flameproof flanged joint	d	X	Х	
12	Ducts, pipes and enclosures are in good condition	р	X	X	7
13	Protective gas is substantially free from contaminants (water, oil, dirt)	p	Х	X	
14	Protective gas flow/pressure is adequate	p	X		
16	Dressure and/or flaw indicators, plarma and interfactor function correctly		V		

Pressure and/or flow indicators, alarms and interlocks function correctly

Condition of spark/particle barriers of ducts exhausting the gas into hazardous

Pre-energising purge period is adequate

area are satisfactory

р

р

р

Х

x

Х



18	Cables are installed and screens are earthed in accordance with the documentatio0n	i	x	
19	The circuit is isolated from earth or earthed at one point only	i	Х	
20	Separation is maintained with non-IS circuits	i	Х	
21	As applicable, short circuit protection of the power supply is in accordance with the documentation	i	X	

	C Environment			
1	Apparatus adequately protected from corrosion, weather, vibration, other	all	X	0
2	No undue accumulation of dust or dirt	all	Х	8
3	Electrical insulation is clean and dry	all	X	

Faults found? (circle as appropriate)

No:

Yes:	List	action	required
------	------	--------	----------

Contractor (write): Inspector	Supervisor	Client (write): Inspector	
N.G.ROEN			
Date: \$ 9/11		Date:	

Device ID or tag
Action required to make device compliant:
- Equipment and cable label required. - Equipment and cable label required. - Provide blue sheath to cable. - Transmitter label inegible; replace in Strumant.

Reviewed by: D. CRZ€N Date: 14/9/11 Priority:

Comments:			
			1
All action items now completed: Job closed:			
	<u>L</u>]		

Device now fully compliant, spreadsheet register has been updated Supervisor (write): Date:

Hazardous area device inspection sheet for Ex-d, Ex-e, Ex-i, Ex-n, Ex-p and SITZLER other Ex devices Based on AS/NZS 60079 part 17

Ref: I:\data\sitzler\company operations\darwin\tenders\sbsj11\fyl1 - haz area inspections\hazardous area inspection forms\hazardous area device inspection sheet for ex-d,ex-e,exi,ex-n,ex-p and other ex devices.doc

Specifications

General Device ID or tag: (LSL-34) Asset: WATER RATH WENTER Circuit ID: Physical location: Area classification : Environment: (hot?)

Data from Label

Type of protection: (d,e, i, n, p etc) <u>Ex</u> d
Gas group: (IIA/B/C)
Temp class: (T1-T6) 7.6
Certificate number: AUS Ex 609
Test authority: (BAS, PTB, SAA etc)
-

Number of cables:

For each cable entry	gland 1 38	gland 2 🙎	others an APTOR :
Gland manufacturer:	PYROTENAN	<u>,</u>	
Model:	-	7.	
Gland type of protection: (d,e)			

Insp	ection		Circle a	as checke	di
	A Equipment	Applicable to protection type:	Internal	External	
1	Equipment (incl group and temp class) is appropriate for area classification	all	X	X	
2	Equipment ID or circuit ID is correct	all	X	00	-60
3	Enclosure, sealing gaskets or compounds are satisfactory	all	X	R	-CCT
4	There are no damage or evidence of unauthorised modifications	all	Х	×	1
5	Bolts, cable entries and blanking elements are correct and tight	all	X	R	1
6	Flange facings are clean and undamaged	ď	X		1
7	Lamp rating, type and position correct	all	X		1
8	Electrical connections are tight	all	X		1
9	Hermetically sealed devices are undamaged	n	X		1
10	Restricted breathing enclosure is satisfactory to enclosure and/or covers	n	X		1
11	Motor fans have sufficient clearance	motors only	Х		1
12	Installation clearly labelled	i	X	X	1
13	Safety barriers/isolators installed as per certification and securely earthed where required	i	X	×	1
14	Entity calculation/documentation is available	i	X	X	
	B Installation				
1	Type of cable is appropriate, cables are undamaged	all	X	8	UV
2	Sealing of ducts and/or conduits is satisfactory	ail	X		
3	Stopper boxes or barrier glands are properly filled	d	X	~	l.
4	Integrity of conduit system and interface with mixed system is maintained	all	X		
5	Earthing and honding connections are tight in good condition and of sufficient			0	

4	Integrity of conduit system and interface with mixed system is maintained	all	X	
5	Earthing and bonding connections are tight, in good condition and of sufficient	all	х	Ø
	cross section		~	0
;	Fault loop impedance is satisfactory	power outlets	X	
,	Insulation resistance is satisfactory (check only during initial inspection)	all	X	
}	Automatic electrical protective devices are set correctly and operate within	all	х	
	permitted limits			
9	Special certification conditions U,X or B have been complied with	all	X	
10	Cables/spare cores are terminated satisfactorily	all	X	
1	No obstructions adjacent to flameproof flanged joint	d	X	\otimes
2	Ducts, pipes and enclosures are in good condition	р	X	Х
3	Protective gas is substantially free from contaminants (water, oil, dirt)	р	X	Х
4	Protective gas flow/pressure is adequate	р	X	
5	Pressure and/or flow indicators, alarms and interlocks function correctly	р	X _	
16	Pre-energising purge period is adequate	р	X	
7	Condition of spark/particle barriers of ducts exhausting the gas into hazardous area are satisfactory	р	x	



18	Cables are installed and screens are earthed in accordance with the documentatio0n	i	х	
19	The circuit is isolated from earth or earthed at one point only	i	X	
20	Separation is maintained with non-IS circuits	í	Х	
21	As applicable, short circuit protection of the power supply is in accordance with the documentation	i	х	

	O Environment			
1	Apparatus adequately protected from corrosion, weather, vibration, other	all	X	\bigotimes
2	No undue accumulation of dust or dirt	all	X	8
3	Electrical insulation is clean and dry	all	X	
-			73	

Faults found? (circle as appropriate)

No:

Kes? List action required

Contrac	tor (write): Inspector	Supervisor	Client (write): Inspector	
Date:	slaln		Date:	

Device ID or tag	
Action required to make device compliant:	
- Equipment & cable I.O. required - N:1 Aus certis for adaptar IB, hence replace. - Remediate cable sheath.	

Reviewed by: N. GREEN	
Date: (4/9/11	
Priority:	

Device now fully compliant, spreadsheet register has been updated Supervisor (write): Date:

Hazardous area device inspection sheet for Ex-d, Ex-e, Ex-i, Ex-n, Ex-p and other Ex devices Based on AS/NZS 60079 part 17

Ref: I:\data\sitzlencompany operations\darwin\lenders\sbsj11\fy1 - haz area inspections\hazardous area inspection forms\hazardous area device inspection sheet for ex-d,ex-e,ex-i,ex-n,ex-p and other ex devices.doc

Specifications

General Device ID or tag: - (TSH-34) Asset: WB HEATER # 2 (RHJ SMELL). Circuit ID: Physical location: Area classification : Environment: (hot?)

Data from Label Type of protection: (d,e, i, n, p Apparatus type: (light, JB, Exa Switch Temp Motor) etc) Gas group: (IIA/B/C) Manufacturer: UNITED ILC ELECTRIC Temp class: (T1-T6) Full model number: C120 120 T6 Certificate number: Serial number: AUS EX 542-2 Test authority: (BAS, PTB, IP Class 1P66 SAA etc)

Number of cables:

Pre-energising purge period is adequate

area are satisfactory

Condition of spark/particle barriers of ducts exhausting the gas into hazardous

16

17

For each cable entry	gland 1	gland 2 ADAPTOR	others
Gland manufacturer:	ALO	7	
Model:	FLOW	~	
Gland type of protection: (d,e)			

Insp	ection		Circle a	is checked	
	A Equipment	Applicable to protection type:	Internal	External	
1	Equipment (incl group and temp class) is appropriate for area classification	all	X	X	
2	Equipment ID or circuit ID is correct	all	X	10-60	
3	Enclosure, sealing gaskets or compounds are satisfactory	8	X		T
4	There are no damage or evidence of unauthorised modifications	all	X	× ×	
5	Bolts, cable entries and blanking elements are correct and tight	all	X	8	
6	Flange facings are clean and undamaged	d	X		
7	Lamp rating, type and position correct	all	Х		
8	Electrical connections are tight	all	X		
9	Hermetically sealed devices are undamaged	п	X		
10	Restricted breathing enclosure is satisfactory to enclosure and/or covers	'n	Х		
11	Motor fans have sufficient clearance	motors only	X		
12	Installation clearly labelled	i	X	X	
13	Safety barriers/isolators installed as per certification and securely earthed where required	i	X	X	
14	Entity calculation/documentation is available	i	X	X	
	B Installation				
1	Type of cable is appropriate, cables are undamaged	all	X	- R	
2	Sealing of ducts and/or conduits is satisfactory	all	X		
3	Stopper boxes or barrier glands are properly filled	d	X		
4	Integrity of conduit system and interface with mixed system is maintained	all	X		
5	Earthing and bonding connections are tight, in good condition and of sufficient cross section	all	X	TR.	
6	Fault loop impedance is satisfactory	power outlets	X		
7	Insulation resistance is satisfactory (check only during initial inspection)	all	X		
8	Automatic electrical protective devices are set correctly and operate within permitted limits	all	×		
9	Special certification conditions U,X or B have been complied with	all	X		
10	Cables/spare cores are terminated satisfactorily	all	X		
11	No obstructions adjacent to flameproof flanged joint	d	X	10	
12	Ducts, pipes and enclosures are in good condition	р	X		
13	Protective gas is substantially free from contaminants (water, oil, dirt)	p	X	X	
14	Protective gas flow/pressure is adequate	p	X		
15	Pressure and/or flow indicators, alarms and interlocks function correctly	р	X		

р

р

Х

Х

ZLER



18	Cables are installed and screens are earthed in accordance with the documentatio0n	i	х	
19	The circuit is isolated from earth or earthed at one point only	i	Х	
20	Separation is maintained with non-IS circuits	ì	X	
21	As applicable, short circuit protection of the power supply is in accordance with the documentation	i	Х	

	C Environment			
1	Apparatus adequately protected from corrosion, weather, vibration, other	all	Х	00
2	No undue accumulation of dust or dirt	all	X	\bigotimes
3	Electrical insulation is clean and dry	all	X	

Faults found? (circle as appropriate)

No:

Yes: List action required

Contractor (write): Inspector	Supervisor	Client (write): Inspector	
Date: 5/9/11		Date:	

Device ID or tag

Action required to make device compliant:			bliant:
-	Equipmon	A & call	e JO required.
-	Replace	uncertified	adaptor.

Reviewed by: N. GREEN Date: 14/7/11 Priority:

Comments:		
All action items now completed: Job closed:		

Device now fully compliant, spreadsheet register has been updated Supervisor (write): Date:

Hazardous area device inspection sheet for Ex-d, Ex-e, Ex-i, Ex-n, Ex-p and other Ex devices

Based on AS/NZS 60079 part 17

Ref: I:\data\sitzler\company operations\darwin\tenders\sbsj11\yf1 - haz area inspections\hazardous area inspection forms\hazardous area device inspection sheet for ex-d,ex-e,ex-i,ex-n,ex-p and other ex devices.doc

Specifications

General	
Device ID or tag: 🥢 ∽	Asset: WB MEATER # 2 FUEL GAS
Circuit ID:	Physical location: KATHERINE MS
Area classification :	Environment: (hot?)
-)	

Data from Lab	pel $(\times 2)$				
Apparatus type: Motor)	(light, JB,	O VALVE.	Type of protection: (d,e etc)	, i, n, p ~ /	?
Manufacturer:	ASCOMATION	1? (ASCO!)	Gas group: (IIA/B/C)	IC 1	?
Full model num	Der: EA8016GI	13	Temp class: (T1-T6)	74	1 ?
Serial number:	90244A-1	1 3	Certificate number:	AUS Ex 3032	1 ?
IP Class	IP65		Test authority: (BAS, P SAA etc)	TB,	

Number of cables:

Number of cables:		1	
For each cable entry	-gland 1- paparon	gland 2 ADAPTOR	others JRox.
Gland manufacturer:	CLIPSAL	CUPIAL ? SERLESAGE?	2
Model:	FAILNM		<u>,</u>
Gland type of protection: (d,e)	Exd	d	2
	AUS 5x 14880	AUS Ex 2341U	
Inspection ———			Circle as checked

Insp	ection		Circle a	as checked
	A Equipment	Applicable to protection type:	Internal	External
1	Equipment (incl group and temp class) is appropriate for area classification	all	Х	X
2	Equipment ID or circuit ID is correct	all	X	\otimes
3	Enclosure, sealing gaskets or compounds are satisfactory	all	X	8
4	There are no damage or evidence of unauthorised modifications	all	X	8
5	Bolts, cable entries and blanking elements are correct and tight	all	Х	8
6	Flange facings are clean and undamaged	d	x	
7	Lamp rating, type and position correct	all	X	
8	Electrical connections are tight	all	X	
9	Hermetically sealed devices are undamaged	n	X	
10	Restricted breathing enclosure is satisfactory to enclosure and/or covers	n	X	
11	Motor fans have sufficient clearance	motors only	X	
12	Installation clearly labelled	1	X	X
13	Safety barriers/isolators installed as per certification and securely earthed where required	i	×	X
14	Entity calculation/documentation is available	i	X	X

B Installation

Туре	e of cable is appropriate, cables are undamaged	all	X	\otimes
Seal	ing of ducts and/or conduits is satisfactory	all	X	×
Stop	per boxes or barrier glands are properly filled	d	X	
Integ	prity of conduit system and interface with mixed system is maintained	all	X	
	hing and bonding connections are tight, in good condition and of sufficient s section	all	×	\bigotimes
Faul	t loop impedance is satisfactory	power outlets	X	
Insu	lation resistance is satisfactory (check only during initial inspection)	all	X	
Auto	matic electrical protective devices are set correctly and operate within nitted limits	all	X	
Spec	cial certification conditions U,X or B have been complied with	all	X	
	les/spare cores are terminated satisfactorily	all	Х	
Noo	obstructions adjacent to flameproof flanged joint	d	Х	\otimes
Duct	ts, pipes and enclosures are in good condition	p	X	X
Prote	ective gas is substantially free from contaminants (water, oil, dirt)	p	X	X
Prote	ective gas flow/pressure is adequate	р	X	
Pres	sure and/or flow indicators, alarms and interlocks function correctly	р	X	
Pre-	energising purge period is adequate	р	X	
Con	dition of spark/particle barriers of ducts exhausting the gas into hazardous are satisfactory	p	х	

SITZLER

EQ



			Mark I/ Col.	113413
18	Cables are installed and screens are earthed in accordance with the	i	x	
	documentatio0n		\sim	
19	The circuit is isolated from earth or earthed at one point only	i	X	
20	Separation is maintained with non-IS circuits	i	X	
21	As applicable, short circuit protection of the power supply is in accordance with	ì	~	
	the documentation			

					ULCOMT JA
1	Apparatus adequately protected from corrosion, weather, vibration, other	all	Х	8	Vasicacion
2	No undue accumulation of dust or dirt	all	X	3	
3	Electrical insulation is clean and dry	all	X		

Faults found? (circle as appropriate)

No:

Yes List action required

Contractor (write): Inspector Supervis	sor Client (write): Inspector
N. LAREN	
1.1.	
Date: 5/9/11	Date:

Device ID or tag

Action required to make device compliant:
- Equipment & cubie IO required.
In solenoid illegible (however is ASCO) suggest reprocement.
To End' conduit system is soverly perished and requires replacing.
a li collina dona sis ana piero sol choires
TR defail not available, lader register
rating and tiske assessment required.
- Calle laber to JB required.

Reviewed	by:	N.	GREEN	
Reviewed Date:	14/9/11			
Priority:				

Comments:	 	
All action items now completed: Job closed:		

Device now fully compliant, spreadsheet register has been updated Supervisor (write): Date:

Hazardous area device inspection sheet for Ex-d, Ex-e, Ex-i, Ex-n, Ex-p and TZLER S other Ex devices Based on AS/NZS 60079 part 17

Ref: I:\data\sitziencompany operations\darwin\tenders\sbsj11\fyf1 - haz area inspections\hazardous area inspection forms\hazardous area device inspection sheet for ex-d,ex-e,ex-i,ex-n,ex-p and other ex devices.doc

Specifications

General (RUS Device ID or tag: - (PLOT GAS VAWES) Asset: HEATER # 2 WB Circuit ID: Physical location: -KATHERINE MS Area classification : Environment: (hot?)

Apparatus type: (light, JB, Motor) SOLENOID VALVES x 2	Type of protection: (d,e, i, n, p etc)	ر.	(exm)
Manufacturer: ASCOMATION	Gas group: (IIA/B/C)	3	
Full model number:	Temp class: (T1-T6)	2	
Serial number:	Certificate number:	-	
IP Class	Test authority: (BAS, PTB, SAA etc)	1	

For each cable entry	gland 1 ALAPTOR	gland 2 ADAPTOR-	others 3/60+
Gland manufacturer:	CUPSAL	SEALSAFE	7
Model:	FAILNM		3
Gland type of protection: (d,e)	ErA	d).
Inspection	AUS in 14880	AUS 62 23410	Circle as checked

	· -				
		Applicable to	↓	. ↓	
	A Equipment	protection type:	Internal	External	_
1	Equipment (incl group and temp class) is appropriate for area classification	all	X	X	
2	Equipment ID or circuit ID is correct	all	X	8	CCT GQ
3	Enclosure, sealing gaskets or compounds are satisfactory	all	X		ea
4	There are no damage or evidence of unauthorised modifications	all	Х	8	
5	Bolts, cable entries and blanking elements are correct and tight	all	X	\otimes	
6	Flange facings are clean and undamaged	d	X		
7	Lamp rating, type and position correct	all	X		
8	Electrical connections are tight	all	X –		
9	Hermetically sealed devices are undamaged	n	X]
10	Restricted breathing enclosure is satisfactory to enclosure and/or covers	n	X]
11	Motor fans have sufficient clearance	motors only	X]
12	installation clearly labelled	i	Х	X	
13	Safety barriers/isolators installed as per certification and securely earthed where	i	X	X]
	required			^	J
14	Entity calculation/documentation is available	í	X	X	

B Installation

Type of cable is appropriate, cables are undamaged	all	Х	8
Sealing of ducts and/or conduits is satisfactory	all	X	
Stopper boxes or barrier glands are properly filled	d	X	
Integrity of conduit system and interface with mixed system is maintained	all	Х	
Earthing and bonding connections are tight, in good condition and of sufficient cross section	all	x	∞
Fault loop impedance is satisfactory	power outlets	X	
Insulation resistance is satisfactory (check only during initial inspection)	all	Х	
Automatic electrical protective devices are set correctly and operate within permitted limits	all	x	
Special certification conditions U,X or B have been complied with	all	X	
Cables/spare cores are terminated satisfactorily	all	Х	
No obstructions adjacent to flameproof flanged joint	d	Х	(X)
Ducts, pipes and enclosures are in good condition	р	Х	Х
Protective gas is substantially free from contaminants (water, oil, dirt)	_ p	X	Х
Protective gas flow/pressure is adequate	р	X	
Pressure and/or flow indicators, alarms and interlocks function correctly	р	Х	
Pre-energising purge period is adequate	р	Х	
Condition of spark/particle barriers of ducts exhausting the gas into hazardous area are satisfactory	р	Х	



		the second second second second second second second second second second second second second second second se		
18	Cables are installed and screens are earthed in accordance with the documentatio0n	j	Х	
19	The circuit is isolated from earth or earthed at one point only	i	X	
20	Separation is maintained with non-IS circuits	í	X	
21	As applicable, short circuit protection of the power supply is in accordance with the documentation		Х	

1	Apparatus adequately protected from corrosion, weather, vibration, other	all	X	\bigotimes
2	No undue accumulation of dust or dirt	all	X	\$
3	Electrical insulation is clean and dry	all	X	
3		- 11	X	

Faults found? (circle as appropriate)

No:

Yes List action required

Contractor (write): Inspector	Supervisor	Client (write): Inspector	
N. GREEN			
Date: 5 9/11		Date:	_

Device ID or tag

Action required to make device compliant: - Equipment + cable ID. required. - TBoth solonoids inlegitle, sugget replacement. - Conduit system is severally perished requiring replacement? Lo SUBBEST New cable to new solenoids from JB. - JB detail illegible (due to 110 Var.c. lobel) here further asselfment required - Cable to JB required.

Reviewed by:	N.	GREED
Date: 14 6	alu	
Priority:	1	

		_	 	•
Comments:				
All action items now completed:				
Job closed:	H			

Device now fully compliant, spreadsheet register has been updated Supervisor (write): Date:

Hazardous area device inspection sheet for Ex-d, Ex-e, Ex-i, Ex-n, Ex-p and other Ex devices Based on AS/NZS 60079 part 17

Ref: I:\data\sitziencompany operations\darwin\tenders\sbsj11\fy11 - haz area inspections\hazardous area inspection forms\hazardous area device inspection sheet for ex-d,ex-e,ex-i,ex-p and other ex devices.doc

Specifications

General	
Device ID or tag:	Asset: W.B. MEATER 2-FVEL GAS
Circuit ID:	Physical location: KATHERIME M.S.
Area classification :	Environment: (hot?)

Data from Label

Data from Label		111261862.
Apparatus type: (light, JB, JP Converter Motor)	Type of protection: (d,e, i, n, p etc)	0.
Manufacturer: Forboro ?.	Gas group: (IIA/B/C)	7.
Full model number:	Temp class: (T1-T6)	7=
Serial number:	Certificate number:	7.
IP Class	Test authority: (BAS, PTB, SAA etc)	73

Number of cables:

	each cable entry gland
pico?	nd manufacturer: 2
	tel:
	nd type of protection: (d,e)
-	

A Equipment	Applicable to protection type:	Internal	External	
Equipment (incl group and temp class) is appropriate for area classification	all	X	X	
Equipment ID or circuit ID is correct	all	X	Ø	-
Enclosure, sealing gaskets or compounds are satisfactory	all	X	8	
There are no damage or evidence of unauthorised modifications	all	X	\$	
Bolts, cable entries and blanking elements are correct and tight	all	X	8	
Flange facings are clean and undamaged	d	X]
Lamp rating, type and position correct	all	X]
Electrical connections are tight	all	X]
Hermetically sealed devices are undamaged	n	Х		
Restricted breathing enclosure is satisfactory to enclosure and/or covers	п	X]
Motor fans have sufficient clearance	motors only	X		
Installation clearly labelled	i	Х	X	1
Safety barriers/isolators installed as per certification and securely earthed where required	í	x	×	
Entity calculation/documentation is available	i	X	X	1

B Installation

Binstallation				
Type of cable is appropriate, cables are undamaged	all	X	<u> </u>	
Sealing of ducts and/or conduits is satisfactory	all	Х	<u> </u>	
Stopper boxes or barrier glands are properly filled	d	X	0	
Integrity of conduit system and interface with mixed system is maintained	all	X		
Earthing and bonding connections are tight, in good condition and of sufficient cross section	alł	х	⊘	
Fault loop impedance is satisfactory	power outlets	Х		1
Insulation resistance is satisfactory (check only during initial inspection)	all	Х		1
Automatic electrical protective devices are set correctly and operate within permitted limits	all	х		1
Special certification conditions U,X or B have been complied with	all	Х]
Cables/spare cores are terminated satisfactorily	all	X]
No obstructions adjacent to flameproof flanged joint	d	X	\otimes	
Ducts, pipes and enclosures are in good condition	р	X	×	
Protective gas is substantially free from contaminants (water, oil, dirt)	р	X	X]
Protective gas flow/pressure is adequate	p	X		1
Pressure and/or flow indicators, alarms and interlocks function correctly	p	X]
Pre-energising purge period is adequate	p	Х		
Condition of spark/particle barriers of ducts exhausting the gas into hazardous area are satisfactory	p	х]

SITZLER

Circle as checked



18 Cables are installed and screens are earthed in accordance with the documentatio0n i 19 The circuit is isolated from earth or earthed at one point only i	X	
19 The circuit is isolated from earth or earthed at one point only i		
	X	
20 Separation is maintained with non-IS circuits i	X	
21 As applicable, short circuit protection of the power supply is in accordance with i	X	
the documentation	^	

	C Environment			
1	Apparatus adequately protected from corrosion, weather, vibration, other	all	X	all a
2	No undue accumulation of dust or dirt	alí	X	8
3	Electrical insulation is clean and dry	all	Х	

Faults found? (circle as appropriate)

N	0	٠
11	U	

1	1	6	2	_	
/	1	Y	ę	\$	ļ
	C.	1	/		

List action required

 Contractor (write): Inspector
 Supervisor
 Client (write): Inspector

 Date:
 5/9/11
 Date:

Device ID or tag

Action required to make device compliant: -Equipment + code JP required - Remodiate cable showth - Nil har. area certification to Aus standards available. - Suggets to replace JIP, JS = adaptors with new JIP certified Aus Ex.

Reviewed by: D. GREEN Date: 14 1 u Priority:

Commenter .		-		 	
Comments:					
	-				
All action items now completed:					
Job closed:					

Device now fully compliant, spreadsheet register has been updated Supervisor (write): Date:

Hazardous area device inspection sheet for Ex-d, Ex-e, Ex-i, Ex-n, Ex-p and other Ex devices Based on AS/NZS 60079 part 17



Circle as checked

Ref: 1:\data\sitzler\company operations\darwin\lenders\sbsj11\fyf1 - haz area inspections\hazardous area inspection forms\hazardous area device inspection sheet for ex-d, ex-e, exi, ex-n, ex-p and other ex devices.doc

Specifications

General

Device ID or tag: TSH 38	Asset: KATHERINE MS
Circuit ID: Jozq	Physical location: WATER BATH UTR 1+2 DISCHARGE
	Environment: (hot?) OUT DOOK

Data from Label

Apparatus type: (light, JB, TEMP_ SWITCH Motor)	Type of protection: (d,e, i, n, p N/A etc)
Manufacturer: ASH CROFT	Gas group: (IIA/B/C)
Full model number: 「42ダ て ダ S ダ 3 ご	Temp class: (T1-T6) N/A
Serial number: G7ØØ1669	Certificate number:
IP Class	Test authority: (BAS, PTB, SAA etc)

Number of cables:

A

For each cable entry	gland 1	gland 2	others
Gland manufacturer:	TO TE	ALCO	CLIPSAL
Model:	NO DATA	480 392 WG203	1244 /20
Gland type of protection: (d,e)			~

Inspection	

-	A Equipment	Applicable to protection type:	Internal	External	
1	Equipment (incl group and temp class) is appropriate for area classification	all	X	X	1
2	Equipment ID or circuit ID is correct	all	X	Ø	1
3	Enclosure, sealing gaskets or compounds are satisfactory	all	X	8	1
4	There are no damage or evidence of unauthorised modifications	all	X	(X)	1
5	Bolts, cable entries and blanking elements are correct and tight	all	X	0	1
6	Flange facings are clean and undamaged	d	Х]
7	Lamp rating, type and position correct	all	X]
8	Electrical connections are tight	all	X]
9	Hermetically sealed devices are undamaged	п	X		1
10	Restricted breathing enclosure is satisfactory to enclosure and/or covers	n	X		1
11	Motor fans have sufficient clearance	motors only	X		1
12	Installation clearly labelled	i	X	Q]
13	Safety barriers/isolators installed as per certification and securely earthed where required	i	x	6	1
14	Entity calculation/documentation is available	i	X	Ø	po

B Installation

				170	
	Type of cable is appropriate, cables are undamaged	all	X	\otimes	MANL 27
	Sealing of ducts and/or conduits is satisfactory	all	X	00	
	Stopper boxes or barrier glands are properly filled	d	X		
	Integrity of conduit system and interface with mixed system is maintained	all	X]
	Earthing and bonding connections are tight, in good condition and of sufficient cross section	all	×	\bigotimes	
	Fault loop impedance is satisfactory	power outlets	X		1
	Insulation resistance is satisfactory (check only during initial inspection)	all	X		1
	Automatic electrical protective devices are set correctly and operate within permitted limits	all	х		
	Special certification conditions U,X or B have been complied with	all	Х		1
0	Cables/spare cores are terminated satisfactorily	all	X		1
1	No obstructions adjacent to flameproof flanged joint	d	X	X	1
2	Ducts, pipes and enclosures are in good condition	р	X	X	1
3	Protective gas is substantially free from contaminants (water, oil, dirt)	р	X	X	1
1	Protective gas flow/pressure is adequate	р	- <u>x</u>		1
5	Pressure and/or flow indicators, alarms and interlocks function correctly	р	Х]
6	Pre-energising purge period is adequate	р	Х		7
7	Condition of spark/particle barriers of ducts exhausting the gas into hazardous area are satisfactory	p	х		



18	Cables are installed and screens are earthed in accordance with the documentatio0n	i	х	
19	The circuit is isolated from earth or earthed at one point only		Х	
20	Separation is maintained with non-IS circuits		X	
21	As applicable, short circuit protection of the power supply is in accordance with the documentation	i	х	

	CEnvironment			
1	Apparatus adequately protected from corrosion, weather, vibration, other	all	Х	8
2	No undue accumulation of dust or dirt	all	Х	X
3	Electrical insulation is clean and dry	all	Х	

Faults found? (circle as appropriate)

No:

Yes:

List action required

Contractor (write): Inspector	Supervisor	Client (write): Inspector	
Date: 5/9/11		Date:	

Device	ID	or	tan
Device	ID	Or	lay

Device I					_	
Action r	equired to m	ake device	compliant:			
-	Cable	sheak	(line)	required		
						_

Reviewed by	19/11
Date: 15	19/11
Priority'	

Comments:				
1				
All action items now completed:				
Job closed:				
Device now fully compliant, spreadsheet re	egister has been undat	ed	-	
Supervisor (write):				
Date:				

Hazardous area device inspection sheet for Ex-d, Ex-e, Ex-i, Ex-n, Ex-p and SITZLER



Based on AS/NZS 60079 part 17

Ref: 1:\data\sitzler\company operations\darwin\tenders\sbsj11\fyf1 - haz area inspections\hazardous area inspection forms\hazardous area device inspection sheet for ex-d,ex-e,ex-i,ex-n,ex-p and other ex devices.doc

Specifications

	Gen	eral					
	Dev	ce ID or tag: - /2.5 c/c	Asset: KATI-	IGEINE	MS GOV	39A)	
	Circ	uit ID: 7	Physical location:	METER			
	Area	classification: 11A Ti	Environment: (hot?)	Environment: (hot?) OUT DOOR			
	Data	from Label					
	App: Moto	aratus type: (light, JB, AZTUATOR/LIMITS	Type of protection: (etc)	đ,e, (, n, p	 ,		
	Man	ufacturer: NORBRD	Gas group: (IIA/B/C)			
	_	model number: 40R / 3 SWITCH	Temp class: (T1-T6)		~~		
Actuator	ator Serial number: * 35 RKA 401561 00B NC				7 5136 133	/23-1_	
	IP C	ass IP 66	Test authority: (BAS SAA etc)	C	E		
	Number of cables: I For each cable entry gland 1		-+ LSWITCHS	42R1	ROES-15J	4 X 29	
			gland 2		others		
	Glar Mod	d manufacturer:					
		d type of protection: (d.e)					
	Inspe	ection			Circle a	as checked	
				Applicable to			
		A Equipment		protection typ	pe: Internal	External	
	1	Equipment (incl group and temp class) is appropriat	e for area classification	all	X	<u>×</u>	
	2 3	Equipment ID or circuit ID is correct Enclosure, sealing gaskets or compounds are satisf	actory	all all	X X	8	
	4	There are no damage or evidence of unauthorised a		all	X	8	
	5	Bolts, cable entries and blanking elements are corre		all	X	10	
	6	Flange facings are clean and undamaged		d	X		
	7	Lamp rating, type and position correct		all	X		
	8	Electrical connections are tight	-	all	X		
	9	Hermetically sealed devices are undamaged		n	X		
	10	Restricted breathing enclosure is satisfactory to enc	losure and/or covers	n	X		
	11	Motor fans have sufficient clearance		motors or	nly X		
	12	Installation clearly labelled		i	X	∞	
	13	Safety barriers/isolators installed as per certification required	and securely earthed where	i	X	0	
	14	Entity calculation/documentation is available		Ì	X	X	
		B Installation					
	1	Type of cable is appropriate, cables are undamaged	<u> </u>	all	X	\otimes	
	2	Sealing of ducts and/or conduits is satisfactory		ali	X	()	
	3	Stopper boxes or barrier glands are properly filled		6	X		
	4	Integrity of conduit system and interface with mixed		all	X		
	5	Earthing and bonding connections are tight, in good cross section	condition and of sufficient	all	X	Ø	
	6	Fault loop impedance is satisfactory		power out			
	7	Insulation resistance is satisfactory (check only duri		all	X		
	8	Automatic electrical protective devices are set corre permitted limits		all	X		
	9	Special certification conditions U,X or B have been	complied with	all	X		
	10	Cables/spare cores are terminated satisfactorily			X		
	11	No obstructions adjacent to flameproof flanged joint		d	X	X	
	12	Ducts, pipes and enclosures are in good condition		р	X	X	
	13	Protective gas is substantially free from contaminan	ts (water, oil, dirt)	Р	X	X	
	14	Protective gas flow/pressure is adequate	for the second difference of the	р	X	 	
	15	Pressure and/or flow indicators, alarms and interiod	ks runction correctly	p	<u> </u>	<u>ا</u>	
	16 17	Pre-energising purge period is adequate Condition of spark/particle barriers of ducts exhaust	ing the gas into hazardaun	p	X		
	.,	area are satisfactory	ing the gas into hazardous	۹	X		



18	Cables are installed and screens are earthed in accordance with the documentatio0n	i	x	
19	The circuit is isolated from earth or earthed at one point only	í	Х	
20	Separation is maintained with non-IS circuits	i	X	
21	As applicable, short circuit protection of the power supply is in accordance with the documentation	i	х	
	C Environment			
1	Apparatus adequately protected from corrosion, weather, vibration, other	all	Х	Ø
2	No undue accumulation of dust or dirt	all	X	X
3	Electrical insulation is clean and dry	all	X	

Faults found? (circle as appropriate)

No:		
Fes: List action required		
Contractor (write): Inspector Supervisor	Client (write): Inspector	
Date: 5/9/4	Date:	

		ke device comp	liont		-	
		+ equipm		1 And	100m al	
-	Blue	sheath	to	calle	required .	

Reviewed by: N. LREEN Date: 15/9/11 Priority:

Comments:				
	_			
All action items now completed:				
Job closed:				
Device now fully compliant, spreadshee	et register has be	en updated	_	
Supervisor (write):				
Date:				
Date.				

Hazardous area device inspection sheet for Ex-d, Ex-e, Ex-i, Ex-n, Ex-p and other Ex devices Based on AS/NZS 60079 part 17



Specifications

	vice ID or tag:	- least acal	Asset: HATIN		. [1000
		- (25clo 398)		GRINE M		1393)
Circ	cuit ID:		Physical location:	METER S	KID	
Аге	a classification :		Environment: (hot?)	DUTDOOR		
Dat	a from Label					
App Mot	oaratus type: (light, JB, Act tor)	WATOR /LIMIT SWITCH	Type of protection: (t etc)	d,e, i, n, p 🗕 🗕		
	nufacturer: Nod	40R	Gas group: (IIA/B/C)) —		
Full			Temp class: (T1-T6)	<u> </u>		
o Ser	ial number: 35 K	KA 4015G100BMN		~		
IP C	Class	-	Test authority: (BAS SAA etc)			
Nur	mber of cables:		Refer Aov	139A for L	imits.	
For	r each cable entry	gland 1	 gland 2	others		
	nd manufacturer:	VILCO	giand Z			
Mod		FLPW 204				
Gla	nd type of protection: (d,e)	·				
Insp	ection —				Circle a	is checked
				Applicable to		
	A Equipment			protection type:	Internal	External
1		d temp class) is appropriate for an	ea classification	all	X	X
2	Equipment ID or circuit ID			all	X	Ø.
3		s or compounds are satisfactory		all	X	8
4		vidence of unauthorised modifica		all	X	Ø
5		anking elements are correct and	tight	all	X	Ø
6	Flange facings are clean a			d	X	
7	Lamp rating, type and pos			all	X	L
8	Electrical connections are			all	X	
9	Hermetically sealed devic			ń	X	ļ
10		osure is satisfactory to enclosure	and/or covers	n	X	
11	Motor fans have sufficient			motors only	Х	
12	Installation clearly labelled			i	X	8
13	Safety barriers/isolators in required	stalled as per certification and se	ecurely earthed where	à	X	8
14	Entity calculation/docume	ntation is available		Ì	X	X
	B Installation					
1	Type of cable is appropria	ite, cables are undamaged		all	X	\otimes
2	Sealing of ducts and/or co	onduits is satisfactory		all	Х	Ø
3	Stopper boxes or barrier g	lands are properly filled		d	X _	
4	Integrity of conduit system	and interface with mixed system	is maintained	all	X	
5		nections are tight, in good conditi		all	x	Ø
6	Fault loop impedance is s	atisfactory		power outlets	X	
7		tisfactory (check only during initia		all	Х	ļ
8	Automatic electrical protect permitted limits	ctive devices are set correctly and	d operate within	all	x	
9		tions U,X or B have been complie	ed with	all	Х	
10	Cables/spare cores are te			all	Х	
11	No obstructions adjacent			d	X	X
12	Ducts, pipes and enclosur			Р	X	X
		ially free from contaminants (wate	er, oil, dirt)	p	X	X
13	get it the total of total of the total of		.,,	p p	<u>x</u>	1 ^
13 14	Protective gas flow/press	ire is adequate				
14	Protective gas flow/pressu Pressure and/or flow indic		tion correctly			
14 15	Pressure and/or flow indic	ators, alarms and interlocks func	tion correctly	p	X	-
14	Pressure and/or flow indic Pre-energising purge period	ators, alarms and interlocks func				-



18	Cables are installed and screens are earthed in accordance with the documentatio0n	i	х	
19	The circuit is isolated from earth or earthed at one point only	i	Х	
20	Separation is maintained with non-IS circuits	ì	X	
21	As applicable, short circuit protection of the power supply is in accordance with	j	X	
	the documentation		~	
	C Environment			

	C Environment			
1	Apparatus adequately protected from corrosion, weather, vibration, other	all	X	A
2	No undue accumulation of dust or dirt	all	X	8
3	Electrical insulation is clean and dry	all	X	

Faults found? (circle as appropriate)

No:

Yes.

List action required

Contractor (write): Inspector Supervisor	Client (write): Inspector
N. GREEN	. , .
Date: $\subseteq \left(\frac{q}{N}\right)$	Date:

Device ID or tag

Action required to make device compliant:
I.S INSTAN?
- Equipment + cable label required.
- Blue sheath to cable and reterminate expaled armour.

	1)		
Reviewed by:	15/9/	11	N.GREEN	
	1 - 1 - 1			
Date:				
Drigritur				
Priority:				

Comments:		
All action items now completed:		
Job closed:		
Job closed.		
Device now fully compliant, spreadsheet re	gister has been updated	
Supervisor (unite):	V	
Supervisor (write):		
Date:		
Date.		

Hazardous area device inspection sheet for Ex-d, Ex-e, Ex-i, Ex-n, Ex-p and other Ex devices



Circle as checked

Based on AS/NZS 60079 part 17

Ref: I:\data\sitzlencompany operations\darwin\lenders\sbsj11\fyf1 - haz area inspections\hazardous area inspection forms\hazardous area device inspection sheel for ex-d,ex-e,ex-i,ex-n,ex-p and other ex devices.doc

Specifications

General	
Device ID or tag: - SVO 39	Asset: METER RUN IL INCET. HOR
Circuit ID:	Physical location: KATHERINE MS
Area classification :	Environment: (hot?)

Data from Label

Apparatus type: (light, JB, SOLGNOID / 58.	Type of protection: (d,e, i, n, p etc)	R/A	FRAME PRT.
Manufacturer: ASCO / SAE	Gas group: (IIA/B/C)	NIA !	IB
Full model number: FA80 163 / FNJ1	Temp class: (T1-T6)	NA T	TG
Serial number: FA-320 A20 / -	Certificate number:	/FLP	693
IP Class	Test authority: (BAS, PTB, SAA etc)	/ SAF	7 —

Number of cables:

Number of cables:			
		TIB IXY ADAP	
For each cable entry	gland 1	gland 2 *	others
Gland manufacturer:	MOAE ?.	2	
Model:	1	2	
Gland type of protection: (d,e)			

Inspection -

A Equipment	Applicable to protection type:	Internal	↓ External	
Equipment (incl group and temp class) is appropriate for area classification	all	X	X	
Equipment ID or circuit ID is correct	all	X	(75)	- EQ
Enclosure, sealing gaskets or compounds are satisfactory	all	X	(3)	- Pankled
There are no damage or evidence of unauthorised modifications	all	X	8	galket.
Bolts, cable entries and blanking elements are correct and tight	all	X	X	
Flange facings are clean and undamaged	d	X	-	
Lamp rating, type and position correct	all	X		
Electrical connections are tight	all	X]
Hermetically sealed devices are undamaged	n	X]
Restricted breathing enclosure is satisfactory to enclosure and/or covers	n	X]
Motor fans have sufficient clearance	motors only	. X]
Installation clearly labelled	i	X	X	
Safety barriers/isolators installed as per certification and securely earthed where required	i	×	x	
Entity calculation/documentation is available	i	Х.	X	1

B Installation

[Type of cable is appropriate, cables are undamaged	all	Х	8
1	Sealing of ducts and/or conduits is satisfactory	all	X	Ø
	Stopper boxes or barrier glands are properly filled	d	Х	
[Integrity of conduit system and interface with mixed system is maintained	all	X	
	Earthing and bonding connections are tight, in good condition and of sufficient cross section	all	Х	8
Ì	Fault loop impedance is satisfactory	power outlets	X	
Ì	Insulation resistance is satisfactory (check only during initial inspection)	all	X	
ĺ	Automatic electrical protective devices are set correctly and operate within	all	X	
	permitted limits			
[Special certification conditions U,X or B have been complied with	all	Х	
[Cables/spare cores are terminated satisfactorily	all	X	-
[No obstructions adjacent to flameproof flanged joint	d	Х	\otimes
	Ducts, pipes and enclosures are in good condition	р	Х	X
	Protective gas is substantially free from contaminants (water, oil, dirt)	р	Х	X
ĺ	Protective gas flow/pressure is adequate	р	Х	
[Pressure and/or flow indicators, alarms and interlocks function correctly	р	Х	
[Pre-energising purge period is adequate	р	X	
	Condition of spark/particle barriers of ducts exhausting the gas into hazardous area are satisfactory	P	Х	



18	Cables are installed and screens are earthed in accordance with the documentatio0n	i	X	
19	The circuit is isolated from earth or earthed at one point only	i	X	
20	Separation is maintained with non-IS circuits	i	X	
21	As applicable, short circuit protection of the power supply is in accordance with the documentation	i	x	
	C Environment			
4	Apparatus adaquately protected from corresion weather vibration other	1	V	M

1	Apparatus adequately protected from corrosion, weather, vibration, other	all	Х	(X)
2	No undue accumulation of dust or dirt	all	X	X
3	Electrical insulation is clean and dry	all	Х	

Faults found? (circle as appropriate)

No:

Yes.

List action required

Contractor (write): Inspector	Supervisor	Client (write): Inspector	
N.GREEN			
-lal.			
Date: 5/9/11		Date:	

	ID or tag					
Action	required to ma	ke device comp	liant:			
		cable si				
-	Illegible to age.	Solenoid	certification	, Inggelt	replaceme	out due
2	provide	eymipment	t t cable]	r.0,		
			l terminate		at now	solonoid.

Reviewed	by:	N.	GREEN	
Date:	151	9/11		
Priority:				

Comments:			
All action items now completed:			
Job closed:			
Device now fully compliant, spreadsheet	register has be	en updated	
Supervisor (write):			
Date:			

Hazardous area device inspection sheet for Ex-d, Ex-e, Ex-i, Ex-n, Ex-p and SITZLER

Based on AS/NZS 60079 part 17

Ref: I:\data\sitzier\company operations\darwin\tenders\sbsj11\fyf1 - haz area inspections\hazardous area inspection forms\hazardous area device inspection sheet for ex-d,ex-e,ex-i,ex-n,ex-p and other ex devices.doc

Specifications

General	
Device ID or tag: -: (5 cv -41)	Asset: SSV41 METER RUN + 1
Circuit ID: JOGI	Physical location: KATUERWE MS
Area classification :	Environment: (hot?)

Data from Label

Apparatus type: (light, JB, SOLENOID / JB	Type of protection: (d,e, i, n, p etc)		
Manufacturer: ASCO / SAE	Gas group: (IIA/B/C)	?	IIB
Full model number: FA80163 / FN J1	Temp class: (T1-T6)	2	CLASS 1211 DIVILZ
Serial number: 539791-4 / -	Certificate number:	1	/FLP 693
IP Class - T6	Test authority: (BAS, PTB, SAA etc)	2	/SAA

Number of cables:

JELKY ARAPTOR

;

Circle as checked

For each cable entry	gland 1	-gland-2	others	
Gland manufacturer:	MOAE 2	2		
Model:	2	2		
Gland type of protection: (d,e)				

	A Equipment	Applicable to protection type:	Internal	External	
1	Equipment (incl group and temp class) is appropriate for area classification	all	X	X	
2	Equipment ID or circuit ID is correct	all	X	00	エク
3	Enclosure, sealing gaskets or compounds are satisfactory	all	X	\otimes	JIRGY GASKET
4	There are no damage or evidence of unauthorised modifications	all	X	CS	GASKET
5	Bolts, cable entries and blanking elements are correct and tight	all	X	8]
6	Flange facings are clean and undamaged	d	X]
7	Lamp rating, type and position correct	all	Х]
8	Electrical connections are tight	all	X]
9	Hermetically sealed devices are undamaged	п	Х]
10	Restricted breathing enclosure is satisfactory to enclosure and/or covers	n	X]
11	Motor fans have sufficient clearance	motors only	Х		
12	Installation clearly labelled	i	X	×	
13	Safety barriers/isolators installed as per certification and securely earthed where required	i	×	×	
14	Entity calculation/documentation is available	i	Х	X]

B Installation

1	Type of cable is appropriate, cables are undamaged	all	Y	X	SUBATH
2	Sealing of ducts and/or conduits is satisfactory	all	X	X	SARATH
_			<u> </u>	0	-
3	Stopper boxes or barrier glands are properly filled	d	<u> </u>		
4	Integrity of conduit system and interface with mixed system is maintained	all	X		
5	Earthing and bonding connections are tight, in good condition and of sufficient	all	v	24	
	cross section		X	U D	
6	Fault loop impedance is satisfactory	power outlets	X		
7	Insulation resistance is satisfactory (check only during initial inspection)	all	Х		
8	Automatic electrical protective devices are set correctly and operate within	all	х		
	permitted limits		^		
9	Special certification conditions U,X or B have been complied with	all	X		
10	Cables/spare cores are terminated satisfactorily	all	X		
11	No obstructions adjacent to flameproof flanged joint	d	Х	\bigotimes	
12	Ducts, pipes and enclosures are in good condition	р	X	X	
13	Protective gas is substantially free from contaminants (water, oil, dirt)	р	X	X	
14	Protective gas flow/pressure is adequate	p	Х		
15	Pressure and/or flow indicators, alarms and interlocks function correctly	p	X		
16	Pre-energising purge period is adequate	р	X		
17	Condition of spark/particle barriers of ducts exhausting the gas into hazardous area are satisfactory	P	х		



18	Cables are installed and screens are earthed in accordance with the	i	X	
	documentatio0n		~	
19	The circuit is isolated from earth or earthed at one point only	i	Х	
20	Separation is maintained with non-IS circuits	í	Х	
21	As applicable, short circuit protection of the power supply is in accordance with	í	v	
	the documentation		^	

	C Ellalionnen			
1	Apparatus adequately protected from corrosion, weather, vibration, other	all	X	0
2	No undue accumulation of dust or dirt	all	Х	8
3	Electrical insulation is clean and dry	all	Х	

Faults found? (circle as appropriate)

No:

Yes: List action required			
Contractor (write): Inspector	Supervisor	Client (write): Inspector	
Date: 5/9/11 N.GREE	N	Date:	

Device ID or tag

Actio	n re	equired to make	e device co	mpliant:					
	-	Replace /	lemove	3/802	gashet.				
	-	Repace	cable	orter	sheath	v			
	1	Provide	ennip	ment	J.D.		a set i A	Б	·Achi
	-	Replace	solen	oid V	alve due				internation.
	-	Remove	7K 0	nd t	minato	directly	at solom	d-	
	-	prov.de	new	caue	support	+ DV	protection	•	

Reviewed by: N. GREEN Date: $1 \le \lfloor q \rfloor$ in Priority:

9

Comments:			
All action items now completed: Job closed:			
Device now fully compliant, spreadshe	et register has be	en undated	

Supervisor (write): Date:

Hazardous area device inspection sheet for Ex-d, Ex-e, Ex-i, Ex-n, Ex-p and other Ex devices



Circle as checked

Based on AS/NZS 60079 part 17

Ref. 1:\data\sitzle/company operations\darwin\tenders\sbsj11\fyf1 - haz area inspections\hazardous area inspection forms\hazardous area device inspection sheet for ex-d,ex-e,ex-i,ex-n,ex-p and other ex devices.doc

Specifications

General

General	
Device ID or tag: ZSO/ZSC 41	Asset: METER RIN + (
Circuit ID: 3026 or 3028 ??	Physical location: KATHERINE MS
Area classification :	Environment: (hot?)

/
Type of protection: (d,e, i, n, p etc)
Gas group: (IIA/B/C)
Temp class: (T1-T6) ~
Certificate number:
Test authority: (BAS, PTB, SAA etc)

Number of cables:

For each cable entry	gland 1	gland 2	others	
Gland manufacturer:	ALCO /			
Model:	w 6 2 0 4			
Gland type of protection: (d,e)			_	

Inspection -

	A Equipment	Applicable to protection type:	Internal	External	
1	Equipment (incl group and temp class) is appropriate for area classification	all	X	X	
2	Equipment ID or circuit ID is correct	ali	X	\otimes	JO
3	Enclosure, sealing gaskets or compounds are satisfactory	all	X	N N	
4	There are no damage or evidence of unauthorised modifications	all	X	Ø	1
5	Bolts, cable entries and blanking elements are correct and tight	all	X	\otimes	1
6	Flange facings are clean and undamaged	d	X		1
7	Lamp rating, type and position correct	all	X		1
8	Electrical connections are tight	all	X		1
9	Hermetically sealed devices are undamaged	n	X		
10	Restricted breathing enclosure is satisfactory to enclosure and/or covers	n	X		
11	Motor fans have sufficient clearance	motors only	X		
12	Installation clearly labelled	i	X	8	BLUE
13	Safety barriers/isolators installed as per certification and securely earthed where required	i	x	8	
14	Entity calculation/documentation is available	i	X	X	

B Installation

Type of cable is appropriate, cables are undamaged		V	<u></u>	SHEAT
	all	<u>X</u>	<u> </u>	
Sealing of ducts and/or conduits is satisfactory	all	X	<u>^</u>	Suppole
Stopper boxes or barrier glands are properly filled	6	X		
Integrity of conduit system and interface with mixed system is maintained	all	X]
Earthing and bonding connections are tight, in good condition and of sufficient cross section	all	×	×	
Fault loop impedance is satisfactory	power outlets	X		1
Insulation resistance is satisfactory (check only during initial inspection)	all	X	_	1
Automatic electrical protective devices are set correctly and operate within permitted limits	all	X]
Special certification conditions U,X or B have been complied with	all	X		1
Cables/spare cores are terminated satisfactorily	all	X		1
No obstructions adjacent to flameproof flanged joint	d	X	X	1
Ducts, pipes and enclosures are in good condition	р	X	X	1
Protective gas is substantially free from contaminants (water, oil, dirt)	р	Х	X]
Protective gas flow/pressure is adequate	p	X]
Pressure and/or flow indicators, alarms and interlocks function correctly	p	Х		1
Pre-energising purge period is adequate	p	X		1
Condition of spark/particle barriers of ducts exhausting the gas into hazardous area are satisfactory	P	x		1



18	Cables are installed and screens are earthed in accordance with the documentatio0n	i	х	
19	The circuit is isolated from earth or earthed at one point only	i	Х	
20	Separation is maintained with non-IS circuits	i	Х	
21	As applicable, short circuit protection of the power supply is in accordance with the documentation	i	х	

	C Environment			
1	Apparatus adequately protected from corrosion, weather, vibration, other	all	Х	X
2	No undue accumulation of dust or dirt	all	Х	Х
3	Electrical insulation is clean and dry	all	X	

Faults found? (circle as appropriate)

No:		
List action required		
Contractor (write): Inspector S	Supervisor	Client (write): Inspector
Date: 5 9/11		Date:

Device ID or tag

.

Action	n required t	to make device of	compliant:		
-	CAble	+ equips	ment J.	O. leymi	ed.
_	Carble	support	+ Une	sheath	required.

Reviewed by: N. GREEN Date: 14/9/11 Priority:

Comments:			
•			
All action items now completed:			
Job closed:			
Device now fully compliant, spreadshee	at radictor has he	en undated	
Device now runy compliant, spreadshed	et register mas be	en upualeu	
Supervisor (write):			
Date:			

Hazardous area device inspection sheet for Ex-d, Ex-e, Ex-i, Ex-n, Ex-p and other Ex devices

Based on AS/NZS 60079 part 17

Ref: It\datasizier\company operations\darwin\tenders\sbsj11\fyf1 - haz area inspections\hazardous area inspection forms\hazardous area device inspection sheet for ex-d, ex-e, ex-i, ex-n, ex-p and other ex devices.doc

Specifications

General	
Device ID or tag: PSL 44	Asset: KATHERINE MS
Circuit ID: JO27	Physical location: METER SKID RUN I
Area classification :	Environment: (hot?)

Apparatus type: (light, JB, PRESSULE SWITCH	Type of protection: (d,e, i, n, p etc)	-
Manufacturer: ASH CROFT	Gas group: (IIA/B/C)	-
Full model number: 3424B XJL	Temp class: (T1-T6)	-
Serial number: 72842	Certificate number:	1
IP Class	Test authority: (BAS, PTB, SAA etc)	-

Number of cables: 1

For each cable entry	gland 1	gland 2	others
Gland manufacturer:	SWAGELOK Macksy	ALCO	
Model:			
Gland type of protection: (d,e)			

Inspection ·

Insp	ection	Circle a	is checked	d	
	A Equipment	Applicable to protection type:	Internal	External	
1	Equipment (incl group and temp class) is appropriate for area classification	all	X	X	
2	Equipment ID or circuit ID is correct	all	X	0	LOCAMON .
3	Enclosure, sealing gaskets or compounds are satisfactory	all	X	Ø	LASEL
4	There are no damage or evidence of unauthorised modifications	all	X	CX.	LOCAMON .
5	Bolts, cable entries and blanking elements are correct and tight	all	X	C	
6	Flange facings are clean and undamaged	d	X _		
7	Lamp rating, type and position correct	all	X _		
8	Electrical connections are tight	all	X		
9	Hermetically sealed devices are undamaged	n	X		
10	Restricted breathing enclosure is satisfactory to enclosure and/or covers	n	X		
11	Motor fans have sufficient clearance	motors only	X		
12	Installation clearly labelled	i	X	8	RLUE .
13	Safety barriers/isolators installed as per certification and securely earthed where required	i	×	\bigotimes	
14	Entity calculation/documentation is available	i	Х	X]

B Installation

	B Installation		_		SUPPORT.
1	Type of cable is appropriate, cables are undamaged	all	X	C\$	100-0010 6
2	Sealing of ducts and/or conduits is satisfactory	all	X	(A)	
3	Stopper boxes or barrier glands are properly filled	d	X		
4	Integrity of conduit system and interface with mixed system is maintained	all	X		
5	Earthing and bonding connections are tight, in good condition and of sufficient cross section	alí	x	0	
6 ·	Fault loop impedance is satisfactory	power outlets	X		
7	Insulation resistance is satisfactory (check only during initial inspection)	all	Х		
8	Automatic electrical protective devices are set correctly and operate within permitted limits	all	X		
9	Special certification conditions U,X or B have been complied with	all	X		
10	Cables/spare cores are terminated satisfactorily	all	X		
11	No obstructions adjacent to flameproof flanged joint	d	X	X	
12	Ducts, pipes and enclosures are in good condition	p	X	X	
13	Protective gas is substantially free from contaminants (water, oil, dirt)	p	X	X	
14	Protective gas flow/pressure is adequate	p	X		
15	Pressure and/or flow indicators, alarms and interlocks function correctly	p	X		
16	Pre-energising purge period is adequate	р	X		
17	Condition of spark/particle barriers of ducts exhausting the gas into hazardous area are satisfactory	p	x		

Amadeus Pipeline Electrical Inspections

SITZLER



18	Cables are installed and screens are earthed in accordance with the documentatio0n	i	X	
19	The circuit is isolated from earth or earthed at one point only	i	X	
20	Separation is maintained with non-IS circuits	i	X	
21	As applicable, short circuit protection of the power supply is in accordance with the documentation	i	x	

	C Environment			
1	Apparatus adequately protected from corrosion, weather, vibration, other	all	X	80
2	No undue accumulation of dust or dirt	all	Х	8
3	Electrical insulation is clean and dry	all	X	

Faults found? (circle as appropriate)

No:

Yes: List action required			
Contractor (write): Inspector	Supervisor	Client (write): Inspector	
Date: $S(9/n)$		Date:	

Device ID or tag

Action rec	uired to make	device compliant:	2		
- 5	provide	blue sheath	cent indicat	ort to cable.	
	_				

Reviewed by: N. CREEN Date: ISLALI Priority:

Comments:			
All action items now completed:			
All action items now completed.			
Job closed:			
Device now fully compliant, spreadsheet	t register has bee	en updated	
Supervisor (write):			
Date:			

Hazardous area device inspection sheet for Ex-d, Ex-e, Ex-i, Ex-n, Ex-p and other Ex devices

Based on AS/NZS 60079 part 17

Ref. 1:\data\sitzler\company operations\darwin\tenders\sbsj11\fyf1 - haz area inspections\hazardous area inspection forms\hazardous area device inspection sheet for ex-d, ex-e, exi, ex-n, ex-p and other ex devices.doc

Specifications

General

editeral		
Device ID or tag:	ISB JB3	Asset: KATHERINE MS
Circuit ID:	JO 25 (TOCONT ROOM)	Physical location: METGR RUN
Area classification :	/	Environment: (hot?) OUTDOOR

Data from Label

Apparatus type: (light, JB, JB Motor)	Type of protection: (d,e, i, n, p e []
Manufacturer: 2	Gas group: (IIA/B/C)
Full model number:	Temp class: (T1-T6)
Serial number:	Certificate number: Ex 83312-90
IP Class 1	Test authority: (BAS, PTB, BASEGFA
Number of cables:	

For each cable entry	gland 1	gland 2	others	
Gland manufacturer:	HLLO	EXILO		
Model:	W/4 254	FLPBN 204		
Gland type of protection: (d,e)				

Insp	ection — — — — — — — — — — — — — — — — — — —		Circle a	is checked	H I
	A Equipment	Applicable to protection type:	Internal	External	
1	Equipment (incl group and temp class) is appropriate for area classification	all	X	X	1
2	Equipment ID or circuit ID is correct	all	X	Ø	1
3	Enclosure, sealing gaskets or compounds are satisfactory	all	X	X	SGAL .
4	There are no damage or evidence of unauthorised modifications	all	X	8	
5	Bolts, cable entries and blanking elements are correct and tight	all	X	(<u>k</u> ?]
6	Flange facings are clean and undamaged	d	X		
7	Lamp rating, type and position correct	all	X]
8	Electrical connections are tight	all	X]
9	Hermetically sealed devices are undamaged	n	X]
10	Restricted breathing enclosure is satisfactory to enclosure and/or covers	л	X		
11	Motor fans have sufficient clearance	motors only	X		LABEL
12	Installation clearly labelled	i	X	\otimes	LASEL
13	Safety barriers/isolators installed as per certification and securely earthed where required	í	x	×	I
14	Entity calculation/documentation is available	i	Х	X]

B Instal	llation
----------	---------

	Difficulation			
1	Type of cable is appropriate, cables are undamaged	all	X	\otimes
2	Sealing of ducts and/or conduits is satisfactory	all	X	8
3	Stopper boxes or barrier glands are properly filled	d	X	
4	Integrity of conduit system and interface with mixed system is maintained	all	X	
5	Earthing and bonding connections are tight, in good condition and of sufficient	alí	X	\otimes
	cross section			~
6	Fault loop impedance is satisfactory	power outlets	X	
7	Insulation resistance is satisfactory (check only during initial inspection)	aíl	X	
8	Automatic electrical protective devices are set correctly and operate within	all	X	
	permitted limits			
9	Special certification conditions U,X or B have been complied with	all	X	
10	Cables/spare cores are terminated satisfactorily	all	X	
11	No obstructions adjacent to flameproof flanged joint	d	X	X
12	Ducts, pipes and enclosures are in good condition	р	X	X
13	Protective gas is substantially free from contaminants (water, oil, dirt)	р	X	X
14	Protective gas flow/pressure is adequate	р	X	
15	Pressure and/or flow indicators, alarms and interlocks function correctly	р	X	
16	Pre-energising purge period is adequate	р	X	
17	Condition of spark/particle barriers of ducts exhausting the gas into hazardous area are satisfactory	р	×	

Amadeus Pipeline Electrical Inspections

SWEATIN

SITZLER



Х

Х

Х

8

all

all

all

Cables are installed and screens are earthed in accordance with the documentatio0n	i	х	
The circuit is isolated from earth or earthed at one point only	i	X	
Separation is maintained with non-IS circuits	i	X	
As applicable, short circuit protection of the power supply is in accordance with the documentation	ì	x	

1	Apparatus adequately protected from corrosion, weather, vibration, other
2	No undue accumulation of duct or dirt

No undue accumulation of dust or dirt
 Electrical insulation is clean and dry

Faults found? (circle as appropriate)

No:

Yes: List action required

Contractor (wr		Supervisor	Client (write): Inspector	
	N.G	REEN		
Date: 5/9	11		Date:	_

Device ID or tag

Action required to make device compliant:	
- Identify cables to ensure at I.S. circuits	
- Provide I.S. labol to front door.	
- Applace JB door seal. - support cables via covered cable tray below	⊐ <i>€</i> .

Reviewed by: N. GROZN Date: (Slaly Priority:

Comments:			
All action items now completed:			
All action items now completed.			
Job closed:			
Device new fully compliant approaches	t so sistay hos he	a ma u matata at	
Device now fully compliant, spreadsheet	t register has be	en updated	
Supervisor (write):			
Date:			
Bater			

Hazardous area device inspection sheet for Ex-d, Ex-e, Ex-i, Ex-n, Ex-p and other Ex devices

Based on AS/NZS 60079 part 17

Ref: 1:\data\sitzlercompany operations\darwin\tenders\sbsj11\fyf1 - haz area inspections\hazardous area inspection forms\hazardous area device inspection sheet for ex-d.ex-e.exi.ex-n.ex-p and other ex devices.doc

Specifications

General		
Device ID or tag: F	FT 48	Asset: KATHGRING MS
Circuit ID:	J035	Physical location: METGR RUN (
Area classification :	ZONE 2	Environment: (hot?) OUT DOOR

Data from Label

Apparatus type: (light, JB, Motor)	Type of protection: (d,e, i, n, p i a
Manufacturer: 2055MOUN7	Gas group: (IIA/B/C)
Full model number: 30 SI PD2 A22A1AMS17 L404	Temp class: (T1-T6)
Serial number: 0459792	Certificate number: 1249 🗡
IP Class	Test authority: (BAS, PTB, Aus Ey

Number of cables:

		A DAPTOR / PI	.04	
For each cable entry	gland 1	gland 2	others	
Gland manufacturer:	ALCO	7.		
Model:	FLPW203,	2,		
Gland type of protection: (d,e)		2		

Inspection -

	A Equipment	Applicable to protection type:	Internal	External
			Internal	External
1	Equipment (incl group and temp class) is appropriate for area classification	all	X	X
2	Equipment ID or circuit ID is correct	all	X	\otimes
3	Enclosure, sealing gaskets or compounds are satisfactory	all	X	R
4	There are no damage or evidence of unauthorised modifications	all	X	Ø
5	Bolts, cable entries and blanking elements are correct and tight	all	X	Ø
6	Flange facings are clean and undamaged	d	Х	
7	Lamp rating, type and position correct	all	X	
8	Electrical connections are tight	all	Х	
9	Hermetically sealed devices are undamaged	n	X	
10	Restricted breathing enclosure is satisfactory to enclosure and/or covers	n	X	
11	Motor fans have sufficient clearance	motors only	X	
12	Installation clearly labelled	ì	X	Ø
13	Safety barriers/isolators installed as per certification and securely earthed where required	ì	×	R
14	Entity calculation/documentation is available	i	X	X

B Installation

1	Type of cable is appropriate, cables are undamaged	all	Х	X
2	Sealing of ducts and/or conduits is satisfactory	all	X	(X)
3	Stopper boxes or barrier glands are properly filled	d	Х	
4	Integrity of conduit system and interface with mixed system is maintained	all	X	
5	Earthing and bonding connections are tight, in good condition and of sufficient cross section	all	Х	Ø
6	Fault loop impedance is satisfactory	power outlets	X	
7	Insulation resistance is satisfactory (check only during initial inspection)	all	X	
3	Automatic electrical protective devices are set correctly and operate within permitted limits	all	×	
)	Special certification conditions U,X or B have been complied with	all	X	
0	Cables/spare cores are terminated satisfactorily	all	X	
1	No obstructions adjacent to flameproof flanged joint	d	Х	X
2	Ducts, pipes and enclosures are in good condition	р	Х	X
3	Protective gas is substantially free from contaminants (water, oil, dirt)	р	Х	X
4	Protective gas flow/pressure is adequate	p	Х	
5	Pressure and/or flow indicators, alarms and interlocks function correctly	р	Х	
6	Pre-energising purge period is adequate	p	X	
7	Condition of spark/particle barriers of ducts exhausting the gas into hazardous area are satisfactory	p	Х	

SWEATH/ ARMOUR SUPPORT

SITZLER

Circle as checked



18	Cables are installed and screens are earthed in accordance with the documentatio0n	i	Х	
19	The circuit is isolated from earth or earthed at one point only	i	X	
20	Separation is maintained with non-IS circuits	i	x	
21	As applicable, short circuit protection of the power supply is in accordance with the documentation	i	х	

	CERARONNEIL				- the second man second
1	Apparatus adequately protected from corrosion, weather, vibration, other	all	X	8	COREO SION
2	No undue accumulation of dust or dirt	all	X	\otimes	
3	Electrical insulation is clean and dry	all	Х		

Faults found? (circle as appropriate)

No:		
List action required		
Contractor (write): Inspector Supervisor	Client (write): Inspector	
Date: 5/9/11	Date:	

Device ID or tag

Action re	equired to make device compliant:
	Replace line sheath and provide cable support.
	Reterminate cable due to suppled armour
	Visible evidence of corrolion at instrument; internal inspection recommanded a.s.a.p.

Reviewed by: D. GREEN Date: 15 9 4 Priority:

Comments:		
	× ·	
All action items now completed		
All action items now completed:		
Job closed:		
Device now fully compliant, spreadsheet re	gister has been updated	
Supervisor (write):		
Date:		

Hazardous area device inspection sheet for Ex-d, Ex-e, Ex-i, Ex-n, Ex-p and other Ex devices

Based on AS/NZS 60079 part 17

Ref. I:\data\sitzlencompany operations\darwin\\enders\sbsj11\fyf1 - haz area inspections\hazardous area inspection forms\\hazardous area device inspection sheet for ex-d,ex-e,exi,ex-n,ex-p and other ex devices.doc

Specifications

Ge	ne	ral
	116	1 01

Ochicial	
Device ID or tag: FT 48A	Asset: KATHERINE MS
Circuit ID: 7	Physical location: METER RUN (
Area classification :	Environment: (hot?)

Data from Label

Apparatus type: (light, JB, DPT×	Type of protection: (d,e, i, n, p etc)		
Manufacturer: ROSEMOUNT	Gas group: (IIA/B/C)		
Full model number: 3051PD2 A22AIA MSI7 L404	Temp class: (T1-T6)		
Serial number: 04597 93	Certificate number: 1249 ×		
IP Class T6	Test authority: (BAS, PTB, AUS EX		

Number of cables: (i)

PLUG + APAPTOR

SITZLER

Circle as checked

For each cable entry	gland 1	gland 2	others
Gland manufacturer:	ALCO	?	
Model:	FLPW 203		
Gland type of protection: (d,e)	~	~	

Inspection -

	A Equipment	Applicable to protection type:	Internal	External
1	Equipment (incl group and temp class) is appropriate for area classification	all	X	X
2	Equipment ID or circuit ID is correct	all	X	\otimes
3	Enclosure, sealing gaskets or compounds are satisfactory	all	X	\otimes
4	There are no damage or evidence of unauthorised modifications	all	X	Ø
5	Bolts, cable entries and blanking elements are correct and tight	all	X	\otimes
6	Flange facings are clean and undamaged	d	X	
7	Lamp rating, type and position correct	all	X	
8	Electrical connections are tight	all	X	
9	Hermetically sealed devices are undamaged	n	X	
10	Restricted breathing enclosure is satisfactory to enclosure and/or covers	n	X	
11	Motor fans have sufficient clearance	motors only	X	
12	Installation clearly labelled	i	X	\otimes
13	Safety barriers/isolators installed as per certification and securely earthed where required	i	×	Ø
14	Entity calculation/documentation is available	i	X	X

B Installation

1	Type of cable is appropriate, cables are undamaged	all		(A)	A
2	Sealing of ducts and/or conduits is satisfactory	alí	X	X	
2	Stopper boxes or barrier glands are properly filled	d	X	0	2
4	Integrity of conduit system and interface with mixed system is maintained	all	X		
5	Earthing and bonding connections are tight, in good condition and of sufficient cross section	all	x	8	
6	Fault loop impedance is satisfactory	power outlets	Х		1
7	Insulation resistance is satisfactory (check only during initial inspection)	all	Х		1
3	Automatic electrical protective devices are set correctly and operate within permitted limits	all	х		
)	Special certification conditions U,X or B have been complied with	all	X		7
0	Cables/spare cores are terminated satisfactorily	all	X		
1	No obstructions adjacent to flameproof flanged joint	d	X	X	
2	Ducts, pipes and enclosures are in good condition	р	X	X	1
3	Protective gas is substantially free from contaminants (water, oil, dirt)	p	X	X X	1
4	Protective gas flow/pressure is adequate	p	Х		7
5	Pressure and/or flow indicators, alarms and interlocks function correctly	P	X		1
6	Pre-energising purge period is adequate	р	Х	1	1
7	Condition of spark/particle barriers of ducts exhausting the gas into hazardous area are satisfactory	q	Х		1

NOUR/ EATU



18	Cables are installed and screens are earthed in accordance with the documentatio0n	i	x	
19	The circuit is isolated from earth or earthed at one point only	i	Х	
20	Separation is maintained with non-IS circuits	i	Х	
21	As applicable, short circuit protection of the power supply is in accordance with the documentation	i	Х	

	C Environment			
1	Apparatus adequately protected from corrosion, weather, vibration, other	all	Х	\otimes
2	No undue accumulation of dust or dirt	all	Х	\otimes
3	Electrical insulation is clean and dry	all	Х	

Faults found? (circle as appropriate)

No: List action required	
Contractor (write): Inspector Supervisor	Client (write): Inspector
Date: <u>claln</u>	Date:

Action required to make device compliant:	
- Replace blue cable sheath	
- Provide cable support	
- provide cable J.D.	
- Re- terminate due to orpased armour @ gland.	

Reviewed by: Date: 15/9/4	10-	GREEN
Date: 15/9/u Priority:		

Comments:			
	_		
All action items now completed: Job closed:			
Device now fully compliant, spreadshee	et register has bee	n updated	 <u>_</u>
Supervisor (write):	-	•	

Hazardous area device inspection sheet for Ex-d, Ex-e, Ex-i, Ex-n, Ex-p and other Ex devices

Based on AS/NZS 60079 part 17

Ref. I:\data\sitzler\company operations\darwin\tenders\sbsj11\fyf1 - haz area inspections\hazardous area inspection forms\hazardous area device inspection sheet for ex-d,ex-e,ex-i,ex-n,ex-p and other ex devices.doc

Specifications

General

o chier ui	
Device ID or tag: $PT48$	Asset: KATHERING MS
Circuit ID: Jo36	Physical location: METGR RUN (
Area classification :	Environment: (hot?) DUTDODE

Data from Label			TUE	ogible.
Apparatus type: (ligh Motor)	, JB, PRESSURE TX	Type of protection: (d,e, i, n, etc)	P +SC	
Manufacturer:	ROSEMOUNT	Gas group: (IIA/B/C)	H C	?
Full model number:	3051 PGSAZZAIA MST	7と Temp class: (T1-T6)		7.
Serial number:	0459867 40	Certificate number:	-1249	¥
IP Class	-T6	Test authority: (BAS, PTB, SAA etc)	AUS E+	FM Approval
Number of cables:	ł			only.

Number of cables:

gland 1 gland 2 For each cable entry others ADAPTOR Gland manufacturer: ALLO 2 Model: FLW 204 7 Gland type of protection: (d,e)

Inspection -

	A Equipment	Applicable to protection type:	Internal	External
1	Equipment (incl group and temp class) is appropriate for area classification	all	X	X
2	Equipment ID or circuit ID is correct	all	X	(X)
3	Enclosure, sealing gaskets or compounds are satisfactory	all	X	(K)
4	There are no damage or evidence of unauthorised modifications	all	X	(X)
5	Bolts, cable entries and blanking elements are correct and tight	all	X	X
6	Flange facings are clean and undamaged	d	X	
7	Lamp rating, type and position correct	alí	X	
8	Electrical connections are tight	all	X	
9	Hermetically sealed devices are undamaged	n	X	
10	Restricted breathing enclosure is satisfactory to enclosure and/or covers	n	X	
11	Motor fans have sufficient clearance	motors only	X	
1 2	Installation clearly labelled	i	X	8
13	Safety barriers/isolators installed as per certification and securely earthed where	i	X	(X)
	required			
14	Entity calculation/documentation is available	i	<u> </u>	X

B Installation

	Bilistanation			
1	Type of cable is appropriate, cables are undamaged	all	X	(X)
2	Sealing of ducts and/or conduits is satisfactory	all	X	Ø
3	Stopper boxes or barrier glands are properly filled	d	X	
4	Integrity of conduit system and interface with mixed system is maintained	all	X	
5	Earthing and bonding connections are tight, in good condition and of sufficient cross section	all	x	Ø
6	Fault loop impedance is satisfactory	power outlets	X _	
7	Insulation resistance is satisfactory (check only during initial inspection)	all	X	
8	Automatic electrical protective devices are set correctly and operate within permitted limits	all	x	
9	Special certification conditions U,X or B have been complied with	ail	X	
10	Cables/spare cores are terminated satisfactorily	all	X	
11	No obstructions adjacent to flameproof flanged joint	d	X _	X
12	Ducts, pipes and enclosures are in good condition	p	X _	X
13	Protective gas is substantially free from contaminants (water, oil, dirt)	P	X	X
14	Protective gas flow/pressure is adequate	p	X	
15	Pressure and/or flow indicators, alarms and interlocks function correctly	p	X	
16	Pre-energising purge period is adequate	р	X	
17	Condition of spark/particle barriers of ducts exhausting the gas into hazardous area are satisfactory	p	x	

shealt

SITZLER

Circle as checked



18	Cables are installed and screens are earthed in accordance with the	í	x	
	documentatioOn			
19	The circuit is isolated from earth or earthed at one point only	i	Х	
20	Separation is maintained with non-IS circuits	i	X	
21	As applicable, short circuit protection of the power supply is in accordance with the documentation	i	×	

	C Environment			
1	Apparatus adequately protected from corrosion, weather, vibration, other	alt	X	8
2	No undue accumulation of dust or dirt	all	X	X
3	Electrical insulation is clean and dry	all	Х	

Faults found? (circle as appropriate)

No:

 Contractor (write): Inspector
 Supervisor
 Client (write): Inspector

 $N \cdot 4REEN$.
 Date:

Device ID or tag

Date:

-	Replace	blue	cable	shealth	und	provi de	cable	Support.
1	Instru Certific	mest atim certifi	does . . is.	FM approx	y appe	in to inge	have p left tep	WStalion lacement

Reviewed by: N. GASEN Date: IS77/II Priority:

Comments:			
All action items now completed:			
Job closed:			
	<u>_</u>	-	
Device now fully compliant, spreadsheet	register has been upda	ated	
Supervisor (write):			

Hazardous area device inspection sheet for Ex-d, Ex-e, Ex-i, Ex-n, Ex-p and SITZLER other Ex devices



Circle as checked

Based on AS/NZS 60079 part 17

Ref. I:Idata/sitzler/company operations/darwin/lenders/sbsj11/lyf1 - haz area inspections/hazardous area inspection forms/hazardous area device inspection sheet for ex-d,ex-e,ex-i,ex-p and other ex devices.doc

Specifications

G	er	e	ral
G	Ċ1	e	a

oonora		
Device ID or tag:	TIT 48	Asset: KATHGRINE MS
Circuit ID:	-N/A	Physical location: METGR RUN (
Area classification :	ZONE 2	Environment: (hot?) OUTDOOL

Data from Label

Apparatus type: (light, JB, TEMP, TX Motor)	Type of protection: (d,e, i, n, p
Manufacturer: Ros GMOUNT	Gas group: (IIA/B/C)
Full model number: 3144 PDZA117M5 F5	Temp class: (T1-T6) T6 (50°C)
Serial number: OII 70769	Certificate number: O2. 3794 X
IP Class IP 66	Test authority: (BAS, PTB, SAA etc)

Number of cables: + ADAPTOR

For each cable entry	gland 1	gland 2	others
Gland manufacturer:	ALCO	ADAPTAFLEY	REQUCER.
Model:	FLPW 203		2
Gland type of protection: (d,e)			? LOOSE

Inspection -

		Applicable to			-
	A Equipment	protection type:	Internal	External	
1	Equipment (incl group and temp class) is appropriate for area classification	atl	X	X	1
2	Equipment ID or circuit ID is correct	all	X	Ø	20
3	Enclosure, sealing gaskets or compounds are satisfactory	all	X	()s	
4	There are no damage or evidence of unauthorised modifications	all	X	Ø	7
5	Bolts, cable entries and blanking elements are correct and tight	ali	X –	×	1
6	Flange facings are clean and undamaged	d	X		1
7	Lamp rating, type and position correct	all	X		1
В	Electrical connections are tight	all	X		1
)	Hermetically sealed devices are undamaged	n	X		1
10	Restricted breathing enclosure is satisfactory to enclosure and/or covers	n	X		1
1	Motor fans have sufficient clearance	motors only	X		
2	Installation clearly labelled	j	Х	\bigotimes	Cu
3	Safety barriers/isolators installed as per certification and securely earthed where	i	X	¢\$	1
	required		×	*	
14	Entity calculation/documentation is available		X	X	1

B Installation

	Binstallation				
1	Type of cable is appropriate, cables are undamaged	all	X	\otimes	JOL
2	Sealing of ducts and/or conduits is satisfactory	all	Х	Ø	
3	Stopper boxes or barrier glands are properly filled	d	X		supp
	Integrity of conduit system and interface with mixed system is maintained	all	Х		
	Earthing and bonding connections are tight, in good condition and of sufficient cross section	all	х	Ø	
	Fault loop impedance is satisfactory	power outlets	X		7
	Insulation resistance is satisfactory (check only during initial inspection)	all	X		-
	Automatic electrical protective devices are set correctly and operate within permitted limits	all	x		
	Special certification conditions U,X or B have been complied with	all	Х		1
	Cables/spare cores are terminated satisfactorily	all	Х		1
	No obstructions adjacent to flameproof flanged joint	d	X	X	7
	Ducts, pipes and enclosures are in good condition	p	X	X	1
	Protective gas is substantially free from contaminants (water, oil, dirt)	p	X	X	1
	Protective gas flow/pressure is adequate	p	X		1
	Pressure and/or flow indicators, alarms and interlocks function correctly	P	X		7
	Pre-energising purge period is adequate	p	Х		1
	Condition of spark/particle barriers of ducts exhausting the gas into hazardous area are satisfactory	P	х		



18	Cables are installed and screens are earthed in accordance with the documentatio0n	i	x	
19	The circuit is isolated from earth or earthed at one point only	i	Х	
20	Separation is maintained with non-IS circuits	i	X	
21	As applicable, short circuit protection of the power supply is in accordance with the documentation	i	х	

1	Apparatus adequately protected from corrosion, weather, vibration, other	all	X	Ø
2	No undue accumulation of dust or dirt	all	Х	0
3	Electrical insulation is clean and dry	all	Х	

Faults found? (circle as appropriate)

No:

Yes: List action required

Contractor (write): Inspector Supervisor	Client (write): Inspector	
N.GREEN		
1.1		
Date: 5(9/11	Date:	

Device ID or tag

Action	ı requ	iired to make d	evice com	pliant:					
	-	Replace	6 hre	cuble	sheah	and	provide	support.to	cable.
	-	Equipme	nt +	calle	J.D.	requir	red.		

Reviewed by:	N. GREEN
Reviewed by: Date: IS 9/It	10.44600
Priority:	

	_		
Comments:			
All action items now completed:			
Job closed:			
Device now fully compliant, spreadshee	t register has he	an undated	
Supervisor (write):	stregister nas be	ien upvaleu	
Date:			

Hazardous area device inspection sheet for Ex-d, Ex-e, Ex-i, Ex-n, Ex-p and other Ex devices



Based on AS/NZS 60079 part 17

Ref. I:\data\sitzlencompany operations\darwin\lenders\sbsj11\fyl1 - haz area Inspections\hazardous area inspection forms\hazardous area device inspection sheet for ex-d, ex-e, exi, ex-n, ex-p and other ex devices.doc

Specifications

Gen	eral							
Devi	ce ID or tag: 🚄 🚽	SSV 51 (250/25051)	Asset:	FATHGRING	MS	112 VZZ		
Circe	uit ID: Jo	32	Physical location: METER RUNZ					
Area	classification :		Environment: (hot?)	OUTI		R]	
Data	from Label			DIC	HALC O	ETAIL		
	aratus type: (light, JB,	-IMIT SWITCHES	Type of protection: (etc)		8]	
			Gas group: (IIA/B/C)				-	
Full	model number:	TTIS 022 AFC	Temp class: (T1-T6)	1.0	F6?			
Seria	al number:	1	Certificate number:	Ex 95				
IP C	lass		Test authority: (BAS SAA etc)	PTB, BASEE				
Num	ber of cables:		1				-	
				othorn				
	each cable entry d manufacturer:	gland 1 ALCO	gland 2	others	1		1	
Mod		16 204		_			1	
Glan	d type of protection: (d,e)]	
Inspe	ection			Applicable to	Ļ	as checked	i	
	A Equipment	d temp class) is appropriate for are	a alassification	protection type:	Internal X	External X	1	
1 2	Equipment ID or circuit ID		a classification	all	x x	× ×		
3		s or compounds are satisfactory		alí	X	8	ID, EQ	
4		evidence of unauthorised modificat	ions	all	X	Ŕ		
5		anking elements are correct and ti		all	X	Ø		
6	Flange facings are clean a		<u>g</u>	d	X			
7	Lamp rating, type and pos		-	all	X	+		
8	Electrical connections are			all	X			
9	Hermetically sealed devic			n	Х			
10		osure is satisfactory to enclosure a	nd/or covers	n	X			
11	Motor fans have sufficient			motors only	Х			
12	Installation clearly labelled			i	X	8	BLUE	
13	Safety barriers/isolators in required	nstalled as per certification and sec	urely earthed where	î	×	Ŷ		
14	Entity calculation/docume	ntation is available		i	X	Х		
	B Installation	to achieve the second		- 11			TOACAN	
1		ite, cables are undamaged		all	X	8	-SUPPORT	
2 3	Sealing of ducts and/or co Stopper boxes or barrier of			aíl d	X X	8	-204401-1	
3 4		and interface with mixed system i	is maintained	all	X		-	
5		nections are tight, in good condition		all		-	-	
5	cross section		and of sufficient		X	\bigotimes		
6	Fault loop impedance is s	atisfactory		power outlets	Х			
7		tisfactory (check only during initial		all	Х			
8	Automatic electrical protection permitted limits	ctive devices are set correctly and	operate within	all	x			
9		tions U,X or B have been complied	with	all	Х	1	1	
10	Cables/spare cores are te			all	X	1	1	
11	No obstructions adjacent	to flameproof flanged joint		d	X	Х]	
12	Ducts, pipes and enclosur			р	X	X	1	
13		ially free from contaminants (water	r, oil, dirt)	р	X	Х]	
14	Protective gas flow/press	ure is adequate		p	X			
15	Pressure and/or flow indic	ators, alarms and interlocks function	on correctly	р	X			
16	Pre-energising purge peri	od is adequate		р	Х		1	
17		e barriers of ducts exhausting the g	as into hazardous	p .	х			
	area are satisfactory]	



18	Cables are installed and screens are earthed in accordance with the documentatio0n	i	Х	
19	The circuit is isolated from earth or earthed at one point only	i	Х	
20	Separation is maintained with non-IS circuits	i	X	
21	As applicable, short circuit protection of the power supply is in accordance with	i	<	
	the documentation		^	

	C Ellanoinneile			
1	Apparatus adequately protected from corrosion, weather, vibration, other	ali	X	8
2	No undue accumulation of dust or dirt	all	Х	
3	Electrical insulation is clean and dry	all	X	

Faults found? (circle as appropriate)

 Contractor (write): Inspector
 Supervisor

 Date:
 SIGN

Device ID or tag

No:

Action	required to ma	ake devic	e com	pliant			_	
-	EQUIPMI	ENT	10	REC	ocen.es			
-	Cable	Sopp	ort	+	blue	sheath	required.	
				_				

Reviewed by: Date: 15 9 11	p.	GREEN		
Priority:				

			 _
Comments:			
All action items now completed:			
Job closed:	H		
Job closed:			
Device now fully compliant, spreadshee	t register has been	undated	
Superviser (units)	riegister has been	apoulou	
Supervisor (write):			
Date:			

Hazardous area device inspection sheet for Ex-d, Ex-e, Ex-i, Ex-n, Ex-p and other Ex devices

Based on AS/NZS 60079 part 17

Ref. I:\data\sitzlencompany operations\darwin\tenders\sbsj11\fyf1 - haz area inspections\hazardous area inspection forms\hazardous area device inspection sheet for ex-d, ex-e, exi, ex-n, ex-p and other ex devices.doc

Specifications

Gene	aral							
		VC SI)	Asset: KAT	HERING	- ms	(55)	151)]
<u> </u>		1062	Physical location:	METG	RR	IN 7		
Area	classification :		Environment: (hot?)		DOOR			
/ 100			2					
Data	from Label				Jol eno	s.d / :	3t	
Арра	aratus type: (light, JB, Sc ar)	DLENDID DB	Type of protection: (d,e, i, n, p	N			
			etc)			4	and the second	
Man	ufacturer: ASCC		Gas group: (IIA/B/C)		-		LINI DIVL	u ns
Full	model number: FA801		Temp class: (T1-T6)		\sim	14/	+6	
Seria	al number: 539791-	4 / TV/A	Certificate number:			693	2	
IP C	ass	1	Test authority: (BAS SAA etc)	, PTB,		/SAA	FLP	
					/	_	GASIRET?	J
Num	ber of cables:		- alua a	0.0000				
For	each cable entry	gland 1	38/24 4 -gland-2		others			
	d manufacturer:	ALCO	-gianu 2]
Mod		FLBW 20	2					
Glan	d type of protection: (d,e)					-]
Inspe	ction ———					Circle a	is checked	
				Applicable	to	Ļ	Ļ	
	A Equipment		_	protection (ype:	Internal	External	
1		d temp class) is appropriate for an	ea classification	all		<u>X</u>	X	- EQ
2	Equipment ID or circuit ID			all		<u> </u>		- GAINET
3	Enclosure, sealing gasket	ts or compounds are satisfactory		all		X	<u> </u>	
4		evidence of unauthorised modification		alí alí		<u> </u>		
5 6	Flange facings are clean	lanking elements are correct and the and updamaged	ugni	d d		X	8	
ъ 7	Lamp rating, type and pos			all		X	+	
8	Electrical connections are			all		X	+	
9	Hermetically sealed devic		_	n			11	
10		osure is satisfactory to enclosure a	and/or covers	n 1		X	+	
11	Motor fans have sufficient			motors	only	X	11	
12	Installation clearly labelled			i		Х	X	
13		nstalled as per certification and se	curely earthed where	i		х	X	
14	Entity calculation/docume	ntation is available	_	i		X	X	
	*							
	B Installation					X	pr-	SHEATH
1	Sealing of ducts and/or co	ate, cables are undamaged		all all		X	- QQ	SHOUND
2 3	Stopper boxes or barrier			d d			<u> </u>	
4		n and interface with mixed system	is maintained	all		X		
5		nections are tight, in good conditi		all				ĺ
•	cross section					Х	\bigotimes	
6	Fault loop impedance is s			power o	utlets	Х]
7	Insulation resistance is sa	atisfactory (check only during initia		all		Х		
8	Automatic electrical prote permitted limits	ctive devices are set correctly and	operate within	all		х		
9		tions U,X or B have been complie	d with	all		Х		
10	Cables/spare cores are te	erminated satisfactorily		all		Х		
11	No obstructions adjacent	to flameproof flanged joint		b		X	\otimes	
12	Ducts, pipes and enclosu	res are in good condition		р		Х	X	
13	Protective gas is substant	tially free from contaminants (wate	er, oil, dirt)	р		Х	Х]
14	Protective gas flow/press	ure is adequate		р		Х]
15	Pressure and/or flow indic	cators, alarms and interlocks funct	tion correctly	р		X		1
16	Pre-energising purge peri	od is adequate		р		X		1
17		e barriers of ducts exhausting the	gas into hazardous	p		x		
	area are satisfactory					.,		

SITZLER



18	Cables are installed and screens are earthed in accordance with the documentatio0n	i .	Х	
19	The circuit is isolated from earth or earthed at one point only	i	X	
20	Separation is maintained with non-IS circuits	i	X	
21	As applicable, short circuit protection of the power supply is in accordance with the documentation	i	×	
	C Environment			

	CEnvironment			
1	Apparatus adequately protected from corrosion, weather, vibration, other	alí	X	8
2	No undue accumulation of dust or dirt	all	Х	$\overline{\mathbf{x}}$
3	Electrical insulation is clean and dry	all	X	

Faults found? (circle as appropriate)

No:

Yes:

List action required

Contractor (write): Inspector Supervisor	Client (write): Inspector
N. GREENS	
Date: 5/9/W	Date:
Date. State	

Device ID or tag

Action rec	uired to make device compliant:
-	Equipment ID required
	Relaise cable outer sheath + - support cable
-	Replace solenoid value due to insutticient bx internation.
-	Inspect JB galket, however inggelt removal and direct termination @ now solenoid.
	termination la hour solano.n.

Reviewed by: N. GREEN Date: IS [9] II Priority:

Comments:			
	-		
All action items now completed:			
Job closed:			
Device now fully compliant, spreadsheet	register has he	an undated	
Currentiese (units):	register nas be	en upuateu	
Supervisor (write):			
Date:			

Hazardous area device inspection sheet for Ex-d, Ex-e, Ex-i, Ex-n, Ex-p and other Ex devices Based on AS/NZS 60079 part 17

Ref. 1:\data\sitzlencompany operations\\darwin\\enders\sbsj11\fyf1 - haz area inspections\hazardous area inspection forms\hazardous area device inspection sheet for ex-d,ex-e,exi,ex-n,ex-p and other ex devices.doc

Specifications

General

Solicia	
Device ID or tag: PSL -SY	Asset: KATHGRINE MS
Circuit ID: Jo33	Physical location: METGR RUN 2
Area classification :	Environment: (hot?) OUTDOOR

Data from Label TADED LASEL FADED		
Apparatus type: (light, JB, Motor) PRESSURE Switch	Type of protection: (d,e, i, л, р etc)	~ /A
Manufacturer: ASHCROFT	Gas group: (IIA/B/C)	NIA
Full model number: N /A	Temp class: (T1-T6)	NIA
Serial number: N/A	Certificate number:	N/A
IP Class N/A	Test authority: (BAS, PTB, SAA etc)	NIA
Number of cables:		
For each cable entry gland 1	gland 2	others
Gland manufacturer:		
Model:		
Gland type of protection: (d,e)		

Inspection -

	A Equipment	Applicable to protection type:		External	
1	Equipment (incl group and temp class) is appropriate for area classification	all	X X		1
2	Equipment (D or circuit ID is correct	all	T X	<u>Å</u>	1
3	Enclosure, sealing gaskets or compounds are satisfactory	all	X	8	1
4	There are no damage or evidence of unauthorised modifications	ali	X	8	1
5	Bolts, cable entries and blanking elements are correct and tight	all	X	R	1
6	Flange facings are clean and undamaged	d	X		1
7	Lamp rating, type and position correct	all	X		1
8	Electrical connections are tight	all	X		1
9	Hermetically sealed devices are undamaged	n	X		1
10	Restricted breathing enclosure is satisfactory to enclosure and/or covers	n	X		
11	Motor fans have sufficient clearance	motors only	X	1000 C 1000	
12	Installation clearly labelled	i	X	\otimes	BLUE
13	Safety barriers/isolators installed as per certification and securely earthed where required	i	x	8	
14	Entity calculation/documentation is available	i	Х	X]

	B Installation			-	IS.
1	Type of cable is appropriate, cables are undamaged	all	X	8	SHEATH
2	Sealing of ducts and/or conduits is satisfactory	all	X	\otimes	- support
3	Stopper boxes or barrier glands are properly filled	d	X		
4	Integrity of conduit system and interface with mixed system is maintained	all	X		
5	Earthing and bonding connections are tight, in good condition and of sufficient cross section	all	x	Ø	
6	Fault loop impedance is satisfactory	power outlets	X		7
7	Insulation resistance is satisfactory (check only during initial inspection)	all	X		7
8	Automatic electrical protective devices are set correctly and operate within permitted limits	ali	x		
9	Special certification conditions U,X or B have been complied with	all	X		
10	Cables/spare cores are terminated satisfactorily	all	X		
11	No obstructions adjacent to flameproof flanged joint	d	X	Х	
12	Ducts, pipes and enclosures are in good condition	р	X	Х	
13	Protective gas is substantially free from contaminants (water, oil, dirt)	p	X	X	
14	Protective gas flow/pressure is adequate	р	X		
15	Pressure and/or flow indicators, alarms and interlocks function correctly	р	X		
16	Pre-energising purge period is adequate	p	X		
17	Condition of spark/particle barriers of ducts exhausting the gas into hazardous area are satisfactory	ą	x		

Amadeus Pipeline Electrical Inspections

SITZLER

Circle as checked



18	Cables are installed and screens are earthed in accordance with the documentatio0n	i	Х	
19	The circuit is isolated from earth or earthed at one point only	i	X	
20	Separation is maintained with non-IS circuits	i	Х	
21	As applicable, short circuit protection of the power supply is in accordance with	j	×	
	the documentation		^	

	C Environment			
1	Apparatus adequately protected from corrosion, weather, vibration, other	all	X	8
2	No undue accumulation of dust or dirt	all	X	X
3	Electrical insulation is clean and dry	all	X	

Faults found? (circle as appropriate)

No:			
Yes: List action required		· · · · · · · · · · · · · · · · · · ·	
Contractor (write): Inspector	Supervisor	Client (write): Inspector	
Date: 5/9/11		Date:	

Device ID or tag

Action	required to ma	ke device	compliant:					
			sheath					
-	Re common	d rep	olacement	of	device	due	to illeg	ible labol.

Reviewed by: Date: 1591(N. GREEN	-
Priority:		

Comments:		
All action items now completed: Job closed:		

Supervisor (write): Date:

Hazardous area device inspection sheet for Ex-d, Ex-e, Ex-i, Ex-n, Ex-p and other Ex devices



Based on AS/NZS 60079 part 17

Ref: I:\data\s\Iz\er\company operations\darwin\lenders\sbsj11\fyf1 - haz area inspections\hazardous area inspection forms\hazardous area device inspection sheet for ex-d,ex-e,ex-i,ex-n,ex-p and other ex devices.doc

Specifications

	eral	2					_
Dev	Device ID or tag: 15 JB CL Asset: KA			ATHERING	ms		
Circ	uit ID: J031 (1	to control hot)	Physical location:	METER !	ZUN Z	-	
Area	a classification :		Environment: (hot?)	DUTD	OOR		
Data	a from Label			SEE OTH	IGR JB	2.	_
	aratus type: (light, JB,	UNCTION BOX	Type of protection: (d,e, i, n, p			7
	ufacturer: ?	00/1	etc) Gas group: (IIA/B/C				-
	model number:		Temp class: (T1-T6)				-
	al number: ?		Certificate number:		SI 290 ?	_	-
			Test authority: (BAS				-
			SAA etc)	PR	0		
Nun	ber of cables:]				
For	each cable entry	gland 1 🙀 S	gland 2	PLOG S othe	rs		
Glar	nd manufacturer:	ALCO	CUPIAL				
Mod		WG + FLPW					
Gia	nd type of protection: (d,e)						
Insp	ection ———				Circle a	s checked	Ŀ
				Applicable to			
	A Equipment			Applicable to protection type:	Internal	External	
1		d temp class) is appropriate for are	a classification	all	X	X	
2	Equipment ID or circuit ID			all	X	(X)	1
3		s or compounds are satisfactory		all	X	Ø	SEAL
4		evidence of unauthorised modificat		alì	X	<u>ĕ</u>	-
5		anking elements are correct and ti	ght	all	<u> </u>	20	1
6	Flange facings are clean a			d	<u> </u>		-
7 8	Lamp rating, type and pos			all	X		-
9	Electrical connections are Hermetically sealed device			all	X		-
9 10		es are undamaged osure is satisfactory to enclosure a	ndlar aquam	n n	X		-
11	Motor fans have sufficient				X		
12	Installation clearly labelled			motors only	$-\hat{\mathbf{x}}$	Ø	ISLABE
13		stalled as per certification and sec	urely earthed where	i			
14	required Entity calculation/document	ntation is quailable	,		X	X X	-
14	Entry calculation/document				X	<u> </u>	
	B Installation					-	-32
	Type of cable is appropria			all	X	\otimes	SHEATH
2	Sealing of ducts and/or co			all	X	D	
3	Stopper boxes or barrier g			đ	X		-
4		and interface with mixed system i		all	X		-
5	cross section	nections are tight, in good conditio	n and or sufficient	all	Х	∞	
6	Fault loop impedance is sa			power outlets	X		_
7		tisfactory (check only during initial		all	X		4
8	permitted limits	ctive devices are set correctly and	operate within	all	X		
9	Special certification condit	ions U,X or B have been complied	with	all	X		1
10	Cables/spare cores are te			all	X		
11	No obstructions adjacent t			d	X	X	
12	Ducts, pipes and enclosur			р	Х	X	
13		ially free from contaminants (water	, oil, dirt)	P	X	X	
14	Protective gas flow/pressu			, р	Х		
15		ators, alarms and interlocks function	on correctly	p	X		
16	Pre-energising purge perio			р	X		
17		barriers of ducts exhausting the g	as into hazardous	p	X		
	area are satisfactory					i	



18	Cables are installed and screens are earthed in accordance with the	í	X	
	documentatio0n			
19	The circuit is isolated from earth or earthed at one point only	i	Х	
20	Separation is maintained with non-IS circuits		X	
21	As applicable, short circuit protection of the power supply is in accordance with	i	~	
	the documentation		~	
				_
	C Environment			

					6
1	Apparatus adequately protected from corrosion, weather, vibration, other	all	Х	8	GUAND
2	No undue accumulation of dust or dirt	all	Х	\otimes	(DROALLON)
3	Electrical insulation is clean and dry	all	Х		Co Michard

Faults found? (circle as appropriate)

No:

 Ves:
 List action required

 Contractor (write): Inspector
 Supervisor
 Client (write): Inspector

 N. 4REEN Date:

Device ID or tag	
Action required to make device compliant:	
- Provide I.S. label to front door	
- Replace JB door seal. covered	
- Re-sheath cables and pounde tray type, support below J.B.	
- corrosion exists at gland plate.	

Reviewed by: D. CREEN Date: IS(9) II Priority:

Comments:			
All action items now completed:			
Job closed:			
Device now fully compliant, spreadshee	t register has he	en undated	
Supervisor (write):	st register nas be	en upuareu	
Date:		_	

Hazardous area device inspection sheet for Ex-d, Ex-e, Ex-i, Ex-n, Ex-p and other Ex devices Based on AS/NZS 60079 part 17



Circle as checked

Ref. I:\data\sitzlencompany operations\darwin\tenders\sbsj11\fyf1 - haz area inspections\hazardous area inspection forms\hazardous area device inspection sheet for ex-d, ex-e, exi, ex-n, ex-p and other ex devices.doc

Specifications

General		
Device ID or tag: PT 58	Asset:	KATHERINE MS
Circuit ID;	Physical location:	METER KUN 2
Area classification :	Environment: (hot?)	OUTDOOR

Data from Label

Apparatus type: (light, JB, PRESSURE TY	Type of protection: (d,e, i, n, p etc) े ५
Manufacturer: ROSEMOUNT	Gas group: (IIA/B/C)
Full model number: 3251 PTG4A2B29BK7M5799040	Temp class: (T1-T6) T 📅 (40°C)
Serial number: Ø2Ø43197 885	Certificate number: 1249×
IP Class	Test authority: (BAS, PTB, A いと E イ
Number of cables:	

For each cable entry	gland 1	gland 2 pw G	others
Gland manufacturer:	4400 -	ROSEMOUNT	
Model:	FLPW 203	MZO	
Gland type of protection: (d,e)		Exd	

Inspection -

A Equipment	Applicable to protection type:	↓ Internal	E xternal	_
Equipment (incl group and temp class) is appropriate for area classification	all	X	Х	
Equipment ID or circuit ID is correct	all	X	X	·CCT
Enclosure, sealing gaskets or compounds are satisfactory	all	X	X	
There are no damage or evidence of unauthorised modifications	all	X	X	
Bolts, cable entries and blanking elements are correct and tight	all	X	X]
Flange facings are clean and undamaged	đ	X		
Lamp rating, type and position correct	alí	X		
Electrical connections are tight	all	X		
Hermetically sealed devices are undamaged	n	X		
Restricted breathing enclosure is satisfactory to enclosure and/or covers	n	X		RUE
Motor fans have sufficient clearance	motors only	X		- SHEATH
Installation clearly labelled	i	X	×	- SHEATH
Safety barriers/isolators installed as per certification and securely earthed when required	e i	×	8	
Entity calculation/documentation is available	i	X	X	1

1	Type of cable is appropriate, cables are undamaged	all	X	X	- ARMOUR
2	Sealing of ducts and/or conduits is satisfactory	all	X	X	
3	Stopper boxes or barrier glands are properly filled	d	X		7
4	Integrity of conduit system and interface with mixed system is maintained	all	X		
5	Earthing and bonding connections are tight, in good condition and of sufficient cross section	all	×	х	
6	Fault loop impedance is satisfactory	power outlets	X		7
7	Insulation resistance is satisfactory (check only during initial inspection)	aíl	X		7
8	Automatic electrical protective devices are set correctly and operate within permitted limits	all	×		
9	Special certification conditions U,X or B have been complied with	all	X		7
10	Cables/spare cores are terminated satisfactorily	all	X		1
11	No obstructions adjacent to flameproof flanged joint	d	X	X	
12	Ducts, pipes and enclosures are in good condition	p	X	X	
13	Protective gas is substantially free from contaminants (water, oil, dirt)	р	X	X	
14	Protective gas flow/pressure is adequate	p	X		
15	Pressure and/or flow indicators, alarms and interlocks function correctly	p	X		
16	Pre-energising purge period is adequate	р	X		7
17	Condition of spark/particle barriers of ducts exhausting the gas into hazardous area are satisfactory	P	X		



18	Cables are installed and screens are earthed in accordance with the documentatio0n	i	Х	
19	The circuit is isolated from earth or earthed at one point only	ì	Х	
20	Separation is maintained with non-IS circuits	i	X	
21	As applicable, short circuit protection of the power supply is in accordance with the documentation	Ì	х	

	C Environment			
1	Apparatus adequately protected from corrosion, weather, vibration, other	all	X	0
2	No undue accumulation of dust or dirt	all	Х	\$
3	Electrical insulation is clean and dry	all	Х	

Faults found? (circle as appropriate)

 Yes:
 List action required

 Contractor (write): Inspector
 Supervisor

 Date:
 \$/9/11

Date:

Device ID or tag

No:

Action required to make device - Provide cuble - Provide cuble armour.	compliant: label and replace blue sheath. support and reterminate due to exposed.

Reviewed by: N. GREEN Date: ISLAN	
Date: IS QU	
Priority:	

Comments:			
All action items now completed:			
Job closed:			
Device now fully compliant, spreadsheet	t register has bee	n updated	 -
Supervisor (write):			
Date:			

Hazardous area device inspection sheet for Ex-d, Ex-e, Ex-i, Ex-n, Ex-p and other Ex devices



Based on AS/NZS 60079 part 17

Ref: 1:\data\sitzler/company operations\darwin\tenders\sbsj11\fyf1 - haz area inspections\hazardous area inspection forms\hazardous area device inspection sheet for ex-d.ex-e.ex-i,ex-n,ex-p and other ex devices.doc

Specifications

Spe	cifications						
Gen	eral						
Dev	ice ID or tag:	T 58A	Asset: ł	ATHERINE	MS]
Circuit ID: _ N (A		Physical location:	METER A	LUN Z)	1	
Area	a classification :		Environment: (hot?)				1
				0.0			
Data	from Label					_	_
App: Moto	arom Label aratus type: (light, JB, PL, c or) ufacturer: RoSc	ESSURE TX.	Type of protection: (etc)	19			
Man	ufacturer: Rose	EMOUNT	Gas group: (IIA/B/C)	ШС Тб			
Full	model number: 30514D	2A22A14M5172404	Temp class: (T1-T6)	16			
Seria	al number: 0459	741	Certificate number:	1240	ί¥		
IP C	lass 66		Test authority: (BAS SAA etc)	, PTB, AUS	Ε¥		
Nurr	ber of cables:		7				
_ Hun							
	each cable entry	gland 1	gland 2	others	ADAPT	DR.	-
Glar Mod	d manufacturer:	ALCO ?			2.		-
	id type of protection: (d,e)						-
0.0]
Inspe	ection				Circle a	as checked	l
				Applicable to		↓ .	
1	A Equipment	temp class) is appropriate for are	a classification	protection type:	Internal	External	
2	Equipment ID or circuit ID	is correct		all all		X	
3		s or compounds are satisfactory		all	$\frac{\hat{x}}{x}$	X	
4		evidence of unauthorised modificat	tions	all	$\frac{\pi}{X}$	X	
5	×	lanking elements are correct and t		ail	X	X	
6	Flange facings are clean a		•	d	X		
7	Lamp rating, type and pos	sition correct		all	X		
8	Electrical connections are			all	X		
9	Hermetically sealed device			n	Х		
10		osure is satisfactory to enclosure a	nd/or covers	n	X		
11	Motor fans have sufficient			motors only	Х		
12	Installation clearly labelled			i	X	X	
13	Safety barriers/isolators in required	stalled as per certification and sec	curely earthed where	İ	X	x	
14	Entity calculation/docume	ntation is available		i	X	Х	
	B Installation						
1		te, cables are undamaged		all	X	Y	-SUEATH
2	Sealing of ducts and/or co			all	X		LABEL
3	Stopper boxes or barrier g			d	X		- SUPPORT
4		and interface with mixed system	is maintained	all	X		
5		nections are tight, in good condition		all			1
	cross section				X	X	
6	Fault loop impedance is satisfactory			power outlets	X		
7	Insulation resistance is satisfactory (check only during initial inspection)		all	Х			
8	Automatic electrical protective devices are set correctly and operate within permitted limits			all	x		
9	Special certification conditions U.X or B have been complied with		all	x			
10	Cables/spare cores are terminated satisfactorily			all	X		1
11				ď	X	X	1
12				p	X	X	1
13	Protective gas is substant	ially free from contaminants (water	r, oil, dirt)	р	X	X	
14	Protective gas flow/pressu			р	X		
15	Pressure and/or flow indicators, alarms and interlocks function correctly p X						
16	Pre-energising purge perio			р	X		
17		barriers of ducts exhausting the g	jas into hazardous	р	X		
	area are satisfactory					1	



18	Cables are installed and screens are earthed in accordance with the documentatio0n	i	Х	
19	The circuit is isolated from earth or earthed at one point only	i	Х	
20	Separation is maintained with non-IS circuits	i	X	
21	As applicable, short circuit protection of the power supply is in accordance with the documentation	í	Х	

	C Environment				and a second second
1	Apparatus adequately protected from corrosion, weather, vibration, other	all	X	8	CORDINON
2	No undue accumulation of dust or dirt	all	Х	\bigotimes	
3	Electrical insulation is clean and dry	all	Х		

Faults found? (circle as appropriate)

Con	tractor (write): Inspector	Supervisor	Client (write): Inspector	
Yes:	List action required			-
No:				

Contractor (write): Inspector	Supervisor N. GRECU	Client (write): Inspector	
	5/9/11	Date:	

Device	ID	or	tag
000000		0	ug

Action r	equired to mak	e device com	pliant:	1		1	
-	Replace	blue sh	eath \$	provide	cable	support.	
-	Provide	cable li	abel.		1.	en in cel	
	Lorros.ion	evident	t, interna	h inspe	tion	seymed.	
				_			

Reviewed by: N. GREEN Date: (5/9/). Priority:

Comments:		
All action items now completed:		
Job closed:	H	
JOD Closed.		
Device now fully compliant, spreadsheet reg	gister has been updated	
Supervisor (write):		
Date:		

Amadeus Pipeline Electrical Inspections

Hazardous area device inspection sheet for Ex-d, Ex-e, Ex-i, Ex-n, Ex-p and other Ex devices



Based on AS/NZS 60079 part 17

Ref. 1:(data/sitzle/company operations/dar/vin/lenders/sbsj11/fy/1 - haz area inspections/hazardous area inspection forms/hazardous area device inspection sheet for ex-d.ex-e.exi,ex-n,ex-p and other ex devices.doc

Specifications

7 8

9

10

11

12

13

14

15

16

17

permitted limits

area are satisfactory

General	
Device ID or tag: - (FT 58)	Asset: KATHERINE MS
Circuit ID: N/A	Physical location: METGR RUN 2
Area classification :	Environment: (hot?) OUT DOOR

Data	a from Label							
App	aratus type: (light, JB		Type of protection: (d,e, i, л, р	<i>[</i> 4]
Moto	or) PLES	SURE TEANSMITTER	etc)		1 4	1		
Man	ufacturer: ROSEM	OUNT	Gas group: (IIA/B/C)		I			
Full	model number: 305 [PD	2A22A1AM5.176404	Temp class: (T1-T6)		76			
		ts9790	Certificate number:	(249	X		
IP C		66	Test authority: (BAS SAA etc)	, PTB,	- <u>T6</u> 1249 Ause	Ξ¥]
Num	ber of cables:	(\overline{D})]					
	and and a sub-	aland 1			ath me	ADAPT	-	
	each cable entry	gland 1	gland 2		others	MPATI	OIC	1
	nd manufacturer:	Act :						4
Mod						5		4
Glar	nd type of protection: (d,e)]
						.		
Inspe	ection — — — — — — — — — — — — — — — — — — —				\rightarrow	Circle a	is checked	1
				Applicable t		+	+	
	A Equipment			protection t	ype:	Internal	External	
1		d temp class) is appropriate for are	a classification	all		Х	X	100
2	Equipment ID or circuit ID			all		Х	18	EQ
3		ts or compounds are satisfactory		all		X	0	
4		evidence of unauthorised modificati		all		X	Ø	
5		lanking elements are correct and tig	ght	all		Х	R	
6	Flange facings are clean			d		Х		
7	Lamp rating, type and pos			all		Х		
8	Electrical connections are			all		Х		
9	Hermetically sealed device			n		Х		
10		osure is satisfactory to enclosure a	nd/or covers	n		Х		
11	Motor fans have sufficient			motors	only	Х		
12	Installation clearly labelle			i		Х	×	
13	Safety barriers/isolators in required	nstalled as per certification and sec	urely earthed where	i		х	\otimes	
14	Entity calculation/docume	entation is available		j		X	X	
				•				
	B Installation							
1		ate, cables are undamaged	_	all		X	×	SUEAT L.
2	Sealing of ducts and/or conduits is satisfactory			ail	-	Х	X	LASEL
3	Stopper boxes or barrier		d		X		1	
4		n and interface with mixed system i	is maintained	all	-	Х		1
5	Earthing and bonding cor	nections are tight, in good conditio		all		×	Ø]
<u>^</u>	cross section				.41 + 1 +			-
6	Fault loop impedance is s	ausractory		power ou	Juets	Х		

Insulation resistance is satisfactory (check only during initial inspection)

Special certification conditions U,X or B have been complied with

Protective gas is substantially free from contaminants (water, oil, dirt)

Pressure and/or flow indicators, alarms and interlocks function correctly

Condition of spark/particle barriers of ducts exhausting the gas into hazardous

Cables/spare cores are terminated satisfactorily

No obstructions adjacent to flameproof flanged joint

Ducts, pipes and enclosures are in good condition

Protective gas flow/pressure is adequate

Pre-energising purge period is adequate

¢

Automatic electrical protective devices are set correctly and operate within

Х

Х

Х

Х

Х

Х

Х

Х

all

all

all

all

d

р



18	Cables are installed and screens are earthed in accordance with the documentatio0n	i	х	
	documentatioon			
19	The circuit is isolated from earth or earthed at one point only	i	x	
20	Separation is maintained with non-IS circuits	i	X	
21	As applicable, short circuit protection of the power supply is in accordance with	i	~	
	the documentation		^	

	C Environment				
1	Apparatus adequately protected from corrosion, weather, vibration, other	all	Х	8	COARHIAN
2	No undue accumulation of dust or dirt	all	X	8	
3	Electrical insulation is clean and dry	all	X		

Faults found? (circle as appropriate)

 No:
 '

 Ves:
 List action required

 Contractor (write): Inspector
 Supervisor

 Date:
 Supervisor

 Date:
 Date:

Device ID or tag

Action requ	ired to make device	oompliant			
Action requ	ired to make device	compnant:			
- E	gripment +	cable label	required.		
- R	eplace blue	sheath + pro	uide cable.	support.	
- 0	ionotion evi	dent, interned	inspation	1 eynired	

Reviewed by: \mathcal{N} , \mathcal{LREEN} Date: $\mathcal{IS}(9)\mathcal{U}$ Priority:

Comments:				
All action items now completed:				
Job closed:	Ē			
000 00000			-	_
Device now fully compliant, spreadsheet	register has be	en updated		
Supervisor (write):				
Date:				

Hazardous area device inspection sheet for Ex-d, Ex-e, Ex-i, Ex-n, Ex-p and other Ex devices



Circle as checked

->

Based on AS/NZS 60079 part 17

Ref: I:\data\s\tz\er\company operations\darwin\tenders\sbsj11\fyf1 - haz area inspections\hazardous area inspection forms\hazardous area device inspection sheet for ex-d,ex-e,ex-i,ex-n,ex-p and other ex devices.doc

Specifications

General

Device ID or tag: TIT_58	Asset: TATHERINE MS
Circuit ID: N/A	Physical location: METER RUN 2
Area classification :	Environment: (hot?) OUTDOOR

Data from Label

Apparatus type: (light, JB, TEMPERATURE TX	Type of protection: (d,e, i, n, p etc)
Manufacturer: ROSEMOUNT	Gas group: (IIA/B/C)
Full model number: 3144PD2A117MSF5	Temp class: (T1-T6) T6 (50°C)
Serial number: 011 70 777	Certificate number: $0,2,3794\times$
IP Class 66	Test authority: (BAS, PTB, みいち ビン

(T) + APAPTIC Number of cables:

		ELROW.	
For each cable entry	gland 1	gland 2	others ADAPTOR
Gland manufacturer:	ALCO ?	APAPTA FLEX	ROSEMOULT
Model:			
Gland type of protection: (d,e)			

Inspection -

	A Equipment	Applicable to protection type:	Internal	External	_
1	Equipment (incl group and temp class) is appropriate for area classification	all	X	Х	
2	Equipment ID or circuit ID is correct	all	X	Ø	TO
3	Enclosure, sealing gaskets or compounds are satisfactory	all	X	Ø	
4	There are no damage or evidence of unauthorised modifications	all	X	8	
5	Bolts, cable entries and blanking elements are correct and tight	all	X	(X)	
6	Flange facings are clean and undamaged	d	X		
7	Lamp rating, type and position correct	all	X		
8	Electrical connections are tight	all	X		
9	Hermetically sealed devices are undamaged	n	X		
10	Restricted breathing enclosure is satisfactory to enclosure and/or covers	n	X		
11	Motor fans have sufficient clearance	motors only	Х		The second second
12	Installation clearly labelled	i	X	× _	BLUE
13	Safety barriers/isolators installed as per certification and securely earthed where required	i	×	×	
14	Entity calculation/documentation is available	Í	X	X	
	B Installation				TASHEAT
1	Type of cable is appropriate, cables are undamaged	all	X		LARFI

1	Type of cable is appropriate, cables are undamaged	all	X	\square	LAREI
2	Sealing of ducts and/or conduits is satisfactory	all	X	Ø	CAUCE.
3	Stopper boxes or barrier glands are properly filled	d	X		2 200 hour L
4	Integrity of conduit system and interface with mixed system is maintained	all	X		
5	Earthing and bonding connections are tight, in good condition and of sufficient	all	X	N	
	cross section		^	\bigotimes	
6	Fault loop impedance is satisfactory	power outlets	X		
7	Insulation resistance is satisfactory (check only during initial inspection)	all	X		
8	Automatic electrical protective devices are set correctly and operate within	all	X		
	permitted limits		^		
9	Special certification conditions U,X or B have been complied with	all	X		
10	Cables/spare cores are terminated satisfactorily	all	X		
11	No obstructions adjacent to flameproof flanged joint	d	X	X	
12	Ducts, pipes and enclosures are in good condition	р	X	X	
13	Protective gas is substantially free from contaminants (water, oil, dirt)	р	X	X	
14	Protective gas flow/pressure is adequate	р	X		
15	Pressure and/or flow indicators, alarms and interlocks function correctly	p	X		
16	Pre-energising purge period is adequate	p	X		
17	Condition of spark/particle barriers of ducts exhausting the gas into hazardous	p	X]
	area are satisfactory				

Amadeus Pipeline Electrical Inspections



			110	
18	Cables are installed and screens are earthed in accordance with the documentatio0n	i	Х	
19	The circuit is isolated from earth or earthed at one point only	ì	Х	
20	Separation is maintained with non-IS circuits	i	X	
21	As applicable, short circuit protection of the power supply is in accordance with the documentation	i	×	

1	Apparatus adequately protected from corrosion, weather, vibration, other	all	X	8
2	No undue accumulation of dust or dirt	all	X	X
3	Electrical insulation is clean and dry	all	X	

Faults found? (circle as appropriate)

No:

Yes

List action required

	Supervisor	Client (write): Inspector	
N.G.REZ	(N)		
Date: \$/9/11		Date:	

Device ID or tag

Actio	n req	uired to make o	device compl	iant:	1.00				1.
	-	Replace	Une .	sheath	and	provide	support	to	Cuble.
		Egmipn							

Reviewed by: N. GREEN Date: 15/9/11 Priority:

		_		_
Comments:				
All action items now completed:				
Job closed:				
			_	
Device now fully compliant, spreadsheet	register has	been updated		
Supervisor (write):				
Date:				
Date.				

Hazardous area device inspection sheet for Ex-d, Ex-e, Ex-i, Ex-n, Ex-p and other Ex devices

Based on AS/NZS 60079 part 17

Ref. 1:\data\sitz\encompany operations\darwin\tenders\sbsj11\fyf1 - haz area inspections\hazardous area inspection forms\hazardous area device inspection sheet for ex-d, ex-e, ex-i, ex-n, ex-p and other ex devices.doc

Specifications

General

Ochicial	
Device ID or tag: TSL 67	Asset: KATHERINE MS
Circuit ID: JOZ8	Physical location: STATION OUTLET
Area classification :	Environment: (hot?) OUTDOOR

Data from Label

Apparatus type: (light, JB, Motor) TEMPERATURE SWIT	Type of protection: (d,e, i, n, p
Manufacturer: UE	Gas group: (IIA/B/C) CLI DIVIT ABCD CLIDIVIT GFG
Full model number: 🗲 17 2BSB \$061	Temp class: (T1-T6)
Serial number: M/A	Certificate number: 79.6A LR7 814
IP Class NGMA CLASS 4	Test authority: (BAS, PTB, UL /CSA

Number of cables:

For each cable entry	gland 1	gland 2	others	
Gland manufacturer:	?			
Model:	7			
Gland type of protection: (d,e)	3			

Inspection			Circle a	ns checked	d
	A Equipment	Applicable to protection type:	Internal	External	
1	Equipment (incl group and temp class) is appropriate for area classification	all	X	X	
1 2	Equipment ID or circuit ID is correct	all	Х	B	ID
3	Enclosure, sealing gaskets or compounds are satisfactory	all	Х	8	
4	There are no damage or evidence of unauthorised modifications	all	Х	Ø]
5	Bolts, cable entries and blanking elements are correct and tight	all	X	R]
6	Flange facings are clean and undamaged	d	Х]
7	Lamp rating, type and position correct	all	X]
8	Electrical connections are tight	all	X		
9	Hermetically sealed devices are undamaged	n	X		
10	Restricted breathing enclosure is satisfactory to enclosure and/or covers	n	Х		
11	Motor fans have sufficient clearance	motors only	Х		100
12	Installation clearly labelled	ì	Х		RL
13	Safety barriers/isolators installed as per certification and securely earthed where required	ì	×	\bigotimes	
14	Entity calculation/documentation is available	i	X	X]

[Type of cable is appropriate, cables are undamaged	all	Х	8	548
	Sealing of ducts and/or conduits is satisfactory	all	X		
	Stopper boxes or barrier glands are properly filled		X		- Su
	Integrity of conduit system and interface with mixed system is maintained	all	X		C C C C C C C C C C C C C C C C C C C
	Earthing and bonding connections are tight, in good condition and of sufficient cross section	all	X	Ø	
	Fault loop impedance is satisfactory	power outlets	Х		1
Ì	Insulation resistance is satisfactory (check only during initial inspection)	all	X		1
	Automatic electrical protective devices are set correctly and operate within permitted limits	all	x]
	Special certification conditions U,X or B have been complied with	all	Х		1
Ì	Cables/spare cores are terminated satisfactorily	all	Х		
	No obstructions adjacent to flameproof flanged joint	d	Х	X	
	Ducts, pipes and enclosures are in good condition	р	Х	X	
	Protective gas is substantially free from contaminants (water, oil, dirt)	p	Х	X	
	Protective gas flow/pressure is adequate	p	Х		
	Pressure and/or flow indicators, alarms and interlocks function correctly	p	Х		
	Pre-energising purge period is adequate	р	Х		
	Condition of spark/particle barriers of ducts exhausting the gas into hazardous area are satisfactory	p	х]

Amadeus Pipeline Electricai' Inspections

SITZLER



18	Cables are installed and screens are earthed in accordance with the documentatio0n	i	х	
19	The circuit is isolated from earth or earthed at one point only	ì	Х	
20	Separation is maintained with non-IS circuits	i	X	
21	As applicable, short circuit protection of the power supply is in accordance with the documentation	i	х	

	C Environment			
1	Apparatus adequately protected from corrosion, weather, vibration, other	all	X	CX .
2	No undue accumulation of dust or dirt	all	Х	X
3	Electrical insulation is clean and dry	all	X	

Faults found? (circle as appropriate)

No:				
Yes?	List action required			
Contra	actor (write): Inspector	Supervisor	Client (write): Inspector	
Date:	slqln	N.GREEN	Date:	

Device ID or tag			
Action required to make dev	vice compliant:		
- Equipment	ID required.		
- Replace 6	blue sheath and	provide support to	calle.
- Suggelt su	upport be provided	to copillary.	

Reviewed by:	N.GREEN	
Date: 15(9/11 Priority:		

Comments:			
	-		
All action items now completed:			
Job closed:			
JOD Closed.			
Device now fully compliant, spreadsheet r	egister has been upda	ted	
Supervisor (write):	- •		
Date:			

Hazardous area device inspection sheet for Ex-d, Ex-e, Ex-i, Ex-n, Ex-p and other Ex devices Based on AS/NZS 60079 part 17



-

Circle as checked

Ref. 1:\data\sitzlencompany operations\darwin\tenders\sbsj11\fyf1 - haz area inspections\hazardous area inspection forms\hazardous area device inspection sheet for ex-d,ex-e,ex-i,ex-p and other ex devices.doc

Specifications

General

Device ID or tag:	PSL 68	Asset: KATHERING MS
Circuit ID:	5029	Physical location: STATION OUTLET
Area classification :	2	Environment: (hot?) OUT DOOR

Data from Label _ ILLEGIRUE	
Apparatus type: (light, JB, PRESSULE SWITCH	Type of protection: (d,e, i, n, p N/A (INTRINSIC SAFE)
Manufacturer: ASHCROFT	Gas group: (IIA/B/C)
Full model number: N/A	Temp class: (T1-T6) N/A
Serial number: ///A	Certificate number: N / Å
IP Class N/A	Test authority: (BAS, PTB, SAA etc) NJA

Number of cables: (1) + ADAPEL

For each cable entry	gland 1	gtand 2 ELBOW	others
Gland manufacturer:	ALCO	CLIPSAL	
Model:	fervision		
Gland type of protection: (d,e)			

Inspection -

	A Equipment	Applicable to protection type:	Internal	External	
1	Equipment (incl group and temp class) is appropriate for area classification	all	X	X	
2	Equipment ID or circuit ID is correct	all	X	8	TO
3	Enclosure, sealing gaskets or compounds are satisfactory	al	Х	\otimes	
4	There are no damage or evidence of unauthorised modifications	all	Х	Ø	
5	Bolts, cable entries and blanking elements are correct and tight	all	X	8	
6	Flange facings are clean and undamaged	d	Х		
7	Lamp rating, type and position correct	all	X		
8	Electrical connections are tight	all	X		
9	Hermetically sealed devices are undamaged	n	X		
10	Restricted breathing enclosure is satisfactory to enclosure and/or covers	n	X		
11	Motor fans have sufficient clearance	motors only	X		
12	Installation clearly labelled	i	X	80	BLUE
13	Safety barriers/isolators installed as per certification and securely earthed where required	ì	×	X	
14	Entity calculation/documentation is available	i	Х	X	

B Installation

	D Instanation			
	Type of cable is appropriate, cables are undamaged	all	X	
	Sealing of ducts and/or conduits is satisfactory	alí	X	Ø
1	Stopper boxes or barrier glands are properly filled	d	X	-
	Integrity of conduit system and interface with mixed system is maintained	all	X	
	Earthing and bonding connections are tight, in good condition and of sufficient	all	X	K
	cross section Fault loop impedance is satisfactory	power outlets	X	
	Insulation resistance is satisfactory (check only during initial inspection)	all	X	
	Automatic electrical protective devices are set correctly and operate within permitted limits	all	x	
	Special certification conditions U,X or B have been complied with	all	X	
	Cables/spare cores are terminated satisfactorily	all	X	
	No obstructions adjacent to flameproof flanged joint	d	X	X
	Ducts, pipes and enclosures are in good condition	р	X	X
	Protective gas is substantially free from contaminants (water, oil, dirt)	p	X	X
	Protective gas flow/pressure is adequate	p	X	
	Pressure and/or flow indicators, alarms and interlocks function correctly	p	X	
	Pre-energising purge period is adequate	р	Х	
	Condition of spark/particle barriers of ducts exhausting the gas into hazardous area are satisfactory	q	×	



18	Cables are installed and screens are earthed in accordance with the documentatio0n	i	Х	
19	The circuit is isolated from earth or earthed at one point only	i	Х	
20	Separation is maintained with non-IS circuits	i	Х	
21	As applicable, short circuit protection of the power supply is in accordance with the documentation	i	Х	

	C Entan Onmeric			
1	Apparatus adequately protected from corrosion, weather, vibration, other	all	X	N
2	No undue accumulation of dust or dirt	alt	X	\bigotimes
3	Electrical insulation is clean and dry	all	X	

Faults found? (circle as appropriate)

No: Ves: List action required Contractor (write): Inspector Supervisor N.CREEN Date: S19/11 Date:

Device ID or tag

Action required to make device compliant:	
- Equipment ID required - Replace blue sheath and	provide support to calle.
- fecommend replacement	of device me to illegible label.

Reviewed by: N-GREEN Date: 15/9/11 Priority:

Comments:			
All action items now completed:			
Job closed:			
Device now fully compliant, spreadsheet	register has h	een undated	
Supervisor (write):	regioter nas c	active appeared	
Date:			

Hazardous area device inspection sheet for Ex-d, Ex-e, Ex-i, Ex-n, Ex-p and other Ex devices Based on AS/NZS 60079 part 17



Ref: I:\data\sitzlencompany operations\darwin\tenders\sbsj11\fyf1 - haz area inspections\hazardous area inspection forms\hazardous area device inspection sheet for ex-d,ex-e,ex-i,ex-n,ex-p and other ex devices.doc

Specifications

General

Device ID or tag: PT 71	Asset: KATHERING MS
Circuit ID: Jo 45	Physical location: STATION OUTLET
Area classification :	Environment: (hot?)

Data from Label			ILLEGIBLE	
Apparatus type: (light, JB, φ_{ij} Motor)	ESSURE TX	Type of protection: (d,e, i, n, p etc)	-	
Manufacturer: R	OSEMOUNT	Gas group: (IIA/B/C)	-	
Full model number: 3051 TG2	HAZBZIBBUMSTI	Temp class: (T1-T6)	1	
Serial number: RSO6	86957	Certificate number:	-	
IP Class	66	Test authority: (BAS, PTB, SAA etc)	1	
Number of cables:	Ô			
For each cable entry	gland 1	gland 2	others	
Gland manufacturer:				
Model:				
Gland type of protection: (d,e)				

Circle as checked Inspection -Applicable to protection type: Internal External A Equipment Equipment (incl group and temp class) is appropriate for area classification 1 all Х X 88 2 Equipment ID or circuit ID is correct ail Х 3 Enclosure, sealing gaskets or compounds are satisfactory all Х There are no damage or evidence of unauthorised modifications all Х 4 Ø 5 Bolts, cable entries and blanking elements are correct and tight all Х 13 6 Flange facings are clean and undamaged X d Х 7 all Lamp rating, type and position correct 8 Electrical connections are tight all Х Hermetically sealed devices are undamaged Х 9 л Х 10 Restricted breathing enclosure is satisfactory to enclosure and/or covers n 11 Motor fans have sufficient clearance motors only Х SUNE 8 12 Installation clearly labelled Х Safety barriers/isolators installed as per certification and securely earthed where 13 i Х 8 required Х 14 Entity calculation/documentation is available i X **B** Installation

1	Type of cable is appropriate, cables are undamaged	🔪 all	X		-S HEATH
2	Sealing of ducts and/or conduits is satisfactory	all	X	\$	-SUPPORE
3	Stopper boxes or barrier glands are properly filled	d	X		
4	Integrity of conduit system and interface with mixed system is maintained	all	X		
5	Earthing and bonding connections are tight, in good condition and of sufficient cross section	alì	Х	\bigotimes	
6	Fault loop impedance is satisfactory	power outlets	X		
7	Insulation resistance is satisfactory (check only during initial inspection)	all	X		
8	Automatic electrical protective devices are set correctly and operate within permitted limits	afl	x		
9	Special certification conditions U,X or B have been complied with	all	x		-
10	Cables/spare cores are terminated satisfactorily	all	X		
11	No obstructions adjacent to flameproof flanged joint	d	Х	X	
12	Ducts, pipes and enclosures are in good condition	p	X	X	
13	Protective gas is substantially free from contaminants (water, oil, dirt)	р	X	X	
14	Protective gas flow/pressure is adequate	р	X		
15	Pressure and/or flow indicators, alarms and interlocks function correctly	p	X		
16	Pre-energising purge period is adequate	р	X		
17	Condition of spark/particle barriers of ducts exhausting the gas into hazardous area are satisfactory	P	х		

Amadeus Pipeline Electrical Inspections



-

	CENTRADIMENT				and the second se
1	Apparatus adequately protected from corrosion, weather, vibration, other	all	Х	∞	corporion.
2	No undue accumulation of dust or dirt	all	Х	8	
3	Electrical insulation is clean and dry	all	Х		

Faults found? (circle as appropriate)

 No:

 Ves

 List action required

 Contractor (write): Inspector

 Supervisor

 Date:

 Supervisor

 Date:

Device ID or tag

Action	n required to m	ake device o	ompliant:			
-	Replace	blue.	sheath a	-d provid	le cable s	upport.
-	Corros.	on evi	ident , int	end isp	ection seys	mired.

Reviewed by:	N. GREEN
Date: 15 9 Priority:	211

Comments:			
All action items now completed:			
	H		
Job closed:			
	- A		
Device now fully compliant, spreadshe	et register has be	een updated	
Supervisor (write):			

Supervisor (write): Date:

Hazardous area device inspection sheet for Ex-d, Ex-e, Ex-i, Ex-n, Ex-p and other Ex devices



Circle as checked

Based on AS/NZS 60079 part 17

Ref: I\data\sitzlencompany operations\darwin\tenders\sbsj11\fyf1 - haz area inspections\hazardous area inspection forms\hazardous area device inspection sheet for ex-d, ex-e, ex-i, ex-n, ex-p and other ex devices.doc

Specifications

General

Device ID or tag: - (TE-66)	Asset: KATUERINE
Circuit ID: J042	Physical location: METER RUN 1/2 DISCHARGE HOP
Area classification : 2	Environment: (hot?)

Data from Label

Apparatus type: (light, JB, RTO Motor)	Type of protection: (d,e, i, n, p etc)
Manufacturer:	Gas group: (IIA/B/C)
Full model number:	Temp class: (T1-T6)
Serial number:	Certificate number:
IP Class	Test authority: (BAS, PTB, SAA etc)

Number of cables:

For each cable entry	gland 1	gland 2	others	
Gland manufacturer:	?			
Model:	2			
Gland type of protection: (d,e)	2			

.

Inspection

-	A Equipment	Applicable to protection type:	Internal	External	
1	Equipment (incl group and temp class) is appropriate for area classification	all	X	X]
2	Equipment ID or circuit ID is correct	alt	X	00	TO
3	Enclosure, sealing gaskets or compounds are satisfactory	all	X	\$	
4	There are no damage or evidence of unauthorised modifications	all	X	Ø	
5	Bolts, cable entries and blanking elements are correct and tight	all	X	8	
6	Flange facings are clean and undamaged	d	X		
7	Lamp rating, type and position correct	all	X		
8	Electrical connections are tight	all	X		
9	Hermetically sealed devices are undamaged	n	X		
10	Restricted breathing enclosure is satisfactory to enclosure and/or covers	<u>n 🖂</u>	X		
1 1	Motor fans have sufficient clearance	motors only	X		
12	Installation clearly labelled	ì	X	00	
13	Safety barriers/isolators installed as per certification and securely earthed where required	i	x	8	
14	Entity calculation/documentation is available	i	Х	X]

B Installation

		- 11	V	0.00	1 0
1	Type of cable is appropriate, cables are undamaged	all	X	00	SUEATH
2	Sealing of ducts and/or conduits is satisfactory	<u>all</u>	X	Ø	
3	Stopper boxes or barrier glands are properly filled	d	X		
4	Integrity of conduit system and interface with mixed system is maintained	aíl	X]
5 👾	Earthing and bonding connections are tight, in good condition and of sufficient cross section	ali	×	8	
6	Fault loop impedance is satisfactory	power outlets	X]
7	Insulation resistance is satisfactory (check only during initial inspection)	all	X]
8	Automatic electrical protective devices are set correctly and operate within permitted limits	all	x		
9	Special certification conditions U,X or B have been complied with	all	X]
10	Cables/spare cores are terminated satisfactorily	all	X		
11	No obstructions adjacent to flameproof flanged joint	d	X X	X	
12	Ducts, pipes and enclosures are in good condition	р	X	X	
13	Protective gas is substantially free from contaminants (water, oil, dirt)	р	X	X	
14	Protective gas flow/pressure is adequate	p	X		
15	Pressure and/or flow indicators, alarms and interlocks function correctly	р	X		
16	Pre-energising purge period is adequate	р	X		
17	Condition of spark/particle barriers of ducts exhausting the gas into hazardous area are satisfactory	р	x		

Amadeus Pipeline Electrical Inspections



18	Cables are installed and screens are earthed in accordance with the documentatio0n	i	Х	
19	The circuit is isolated from earth or earthed at one point only	i	X	
20	Separation is maintained with non-IS circuits	i	Х	
21	As applicable, short circuit protection of the power supply is in accordance with the documentation	i	Х	

1	Apparatus adequately protected from corrosion, weather, vibration, other	all	X	8
2	No undue accumulation of dust or dirt	all	X	*>
3	Electrical insulation is clean and dry	all	X	

Faults found? (circle as appropriate)

No:			
Yes:	List action required		
			_
Contra	ctor (write): Inspector Supervisor ん・んんのとの	Client (write): Inspector	
	D. GREEN		
Date:	slalu	Date:	

Device ID or tag

Action	required to make	device com	pliant:		_			
-	Element	J. O.	required.					
-	Replace	She	sheat	*	provide	calle.	support.	

Reviewed by: D. CREEN Date: 15 (9/11 Priority:

Comments:					
e e miniento.					
All action items now completed:					
Job closed:					
000 010364.			_		
Device now fully compliant, spreadshee	t register has beer	updated	-		
Supervisor (write):					
Date:					

Amadeus: Pipeline Electrical Inspections

Hazardous area device inspection sheet for Ex-d, Ex-e, Ex-i, Ex-n, Ex-p and other Ex devices Based on AS/NZS 60079 part 17



Cables/spare cores are terminated satisfactorily

No obstructions adjacent to flameproof flanged joint

Protective gas is substantially free from contaminants (water, oil, dirt)

Pressure and/or flow indicators, alarms and interlocks function correctly

Condition of spark/particle barriers of ducts exhausting the gas into hazardous

Ducts, pipes and enclosures are in good condition

Protective gas flow/pressure is adequate

Pre-energising purge period is adequate

area are satisfactory

10

11

12

13

14

15

16

17

Ref: 1:\data\sit2er\company operations\darwin\tenders\sbsj11\fyf1 - haz area inspections\hazardous area inspection forms\hazardous area device inspection sheet for ex-d,ex-e,exi.ex-n.ex-p and other ex devices.doc

Spec	cifications					
Gen	eral					
	ce ID or tag: - (PSL 72)	Asset: KAT	BERINE	MS		7
└──	uit ID:	Physical location:		1 OUTLE		-
	a classification :	Environment: (hot?)		DOBR		-
Area					_	
	from Label - POOR LAREL.					-
App: Moto		Type of protection: (etc)	d,e, i, n, p	r la	(ia)	_
	ufacturer: ALLEN BRADLEY	Gas group: (IIA/B/C))	NA		
Full	model number: 836 T-T2561	Temp class: (T1-T6)		NIA		
Seria	al number:	Certificate number:	TEC 3	37-1	3]
IP C	lass 66	Test authority: (BAS SAA etc)	, ^{ртв,} د <i>S</i> A	/UL/CE		-
Nurr	ber of cables:	1				-
	each cable entry gland 1	gland 2	DARPTON	others		_
	el: ELP w 204	3				
Mod	el: FLPw 204	3				-
Giar	d type of protection: (d,e)					
Inspe	ection			-> Circle	e as checked	ł
			Applicable to	- ↓	¥	
	A Equipment		protection typ			1
1	Equipment (incl group and temp class) is appropriate for are Equipment ID or circuit ID is correct	a classification	all_adladladladladladladladladladladladladladladladladladladladladladladladladladladladladladladladladladladladladladladladladladladladladladladladladladladladladladladladladladladladladladladladladladladladladladladladladladladladladdladladdladladdladdladdladdladdladdladdladdladdladdladdladdladdladdladdladdladdladdladdladdladdladdladdladdladdladdladdladdladdladdladdladdladdladdladdladdladdladdladdladdladdladdladdladdladdladdladdladdladdladdladdladdladdladdladdladdladdddaddddaddddaddddaddddadddddd	X X	X	
2 3	Enclosure, sealing gaskets or compounds are satisfactory		all	× ×	(X)	30
4	There are no damage or evidence of unauthorised modificat	ions	all	- Â	× ×	
5	Bolts, cable entries and blanking elements are correct and ti		all	X	X>	
6	Flange facings are clean and undamaged	2	d	X		
7	Lamp rating, type and position correct		all	X		
8	Electrical connections are tight		all	X		
9	Hermetically sealed devices are undamaged		n	X		
10	Restricted breathing enclosure is satisfactory to enclosure a	nd/or covers	n	X		
11	Motor fans have sufficient clearance		motors or	nty X		
12	Installation clearly labelled		i	Х	8	ALUC
13	Safety barriers/isolators installed as per certification and sec	urely earthed where	Ì	x	8	
14	required Entity calculation/documentation is available		i	X	X	
	B Installation					
1	Type of cable is appropriate, cables are undamaged	_	all	X	(X)	
2	Sealing of ducts and/or conduits is satisfactory		all	X	8	ITE / SHEATH
3				X		
4	Integrity of conduit system and interface with mixed system i	d	x -		1	
5 Earthing and bonding connections are tight, in good condition and of suff			ali	X	Ø	1
cross section					6	4
6	Fault loop impedance is satisfactory		power out			4
7	Insulation resistance is satisfactory (check only during initial		all	X		4
8	Automatic electrical protective devices are set correctly and permitted limits	operate within	all	X		
9	Special certification conditions U,X or B have been complied	l with	all	X]

Amadeus Pipeline Electrical Inspections

Х X

Х

Х

Х

Х

Х

Х

Х

Х

Х

all

d

р

р

р

р

р

р



18	Cables are installed and screens are earthed in accordance with the documentatio0n	i	х	
19	The circuit is isolated from earth or earthed at one point only	i	X	
20	Separation is maintained with non-IS circuits	i	x	
21	As applicable, short circuit protection of the power supply is in accordance with the documentation	i	Х	

	C Ellas official			
1	Apparatus adequately protected from corrosion, weather, vibration, other	all	X	$\langle \mathfrak{O} \rangle$
2	No undue accumulation of dust or dirt	all	X	8
3	Electrical insulation is clean and dry	all	Х	

Faults found? (circle as appropriate)

No:	
Ves. List action required	
Contractor (write): Inspector Supervisor	Client (write): Inspector
Date: <u>5/9/n</u>	Date:

Device ID or tag

Action re	quired to make device compliant:	
	Equipment + cuble I.O. required.	
-	Provide blue shearth + cuble support.	1 Martha I dal
-	Recommend replacement of deice due	to megice label.

Reviewed by: N. GREEN Date: 15/9/11 Priority:

Comments:			
All action items now completed:			
Job closed:			
Device now fully compliant, spreadshee	t register has hee	n undated	
Supervisor (write):	a register rids Dee	in upuateu	
Date:			

Amadeus Pipeline Electrical Inspections

Hazardous area device inspection sheet for Ex-d, Ex-e, Ex-i, Ex-n, Ex-p and other Ex devices Based on AS/NZS 60079 part 17



Ref. I:\data\sitzlencompany operations\darwin\tenders\sbsj11\fyf1 - haz area inspections\hazardous area inspection forms\hazardous area device inspection sheet for ex-d, ex-e, ex-i, ex-n, ex-p and other ex devices.doc

Specifications

00110100		
Device ID or tag:	tsh bga	Asset: KATHERINE MS
Circuit ID:	5 \$ 3 \$	Physical location: METER RUN OUTLET
Area classification :	ZONE 2	Environment: (hot?) OUT DOOR

Data from Label	
Apparatus type: (light, JB, PRESSURE SWITCH	Type of protection: (d,e, i, n, p
Manufacturer: ALLEN BRADEEY	Gas group: (IIA/B/C)
Full model number: 8367 - 72555	Temp class: (T1-T6)
Serial number:	Certificate number: IEC 377_1
IP Class 66	Test authority: (BAS, PTB, SAA etc) CSA UL
Number of cables:]
For each cable entry gland 1	popparts/gland-2 others
Gland manufacturer: ALCO	2
Model: FLPW 20)	
Gland type of protection: (d,e)	
Inspection	Circle as checked

	-			-
A Equipment	Applicable to		External	
		X	X	1
	all	X -	x	1
Enclosure, sealing gaskets or compounds are satisfactory	all	X	8	ŀ
There are no damage or evidence of unauthorised modifications	all	X	Ø	1
Bolts, cable entries and blanking elements are correct and tight	all	X		[
Flange facings are clean and undamaged	d	X]
Lamp rating, type and position correct	all	X]
Electrical connections are tight	all	X]
Hermetically sealed devices are undamaged	п	X]
Restricted breathing enclosure is satisfactory to enclosure and/or covers	п	X]
Motor fans have sufficient clearance	motors only	X		
Installation clearly labelled	i	Х	8	RLui
Safety barriers/isolators installed as per certification and securely earthed where required	i	×	8	
Entity calculation/documentation is available	i	Х	Х]
	A Equipment Equipment (incl group and temp class) is appropriate for area classification Equipment ID or circuit ID is correct Enclosure, sealing gaskets or compounds are satisfactory There are no damage or evidence of unauthorised modifications Bolts, cable entries and blanking elements are correct and tight Flange facings are clean and undamaged Lamp rating, type and position correct Electrical connections are tight Hermetically sealed devices are undamaged Restricted breathing enclosure is satisfactory to enclosure and/or covers Motor fans have sufficient clearance Installation clearly labelled Safety barriers/isolators installed as per certification and securely earthed where required	A Equipment Applicable to protection type: Equipment (incl group and temp class) is appropriate for area classification all Equipment ID or circuit ID is correct all Enclosure, sealing gaskets or compounds are satisfactory all There are no damage or evidence of unauthorised modifications all Bolts, cable entries and blanking elements are correct and tight all Flange facings are clean and undamaged d Lamp rating, type and position correct all Electrical connections are tight all Hermetically sealed devices are undamaged n Restricted breathing enclosure is satisfactory to enclosure and/or covers n Motor fans have sufficient clearance motors only Installation clearly labelled i Safety barriers/isolators installed as per certification and securely earthed where required i	A EquipmentApplicable to protection type:InternalEquipment (incl group and temp class) is appropriate for area classificationallXEquipment ID or circuit ID is correctallXEnclosure, sealing gaskets or compounds are satisfactoryallXThere are no damage or evidence of unauthorised modificationsallXBolts, cable entries and blanking elements are correct and tightallXFlange facings are clean and undamageddXLamp rating, type and position correctallXElectrical connections are tightallXHermetically sealed devices are undamagednXMotor fans have sufficient clearancemotors onlyXInstallation clearly labellediXSafety barriers/isolators installed as per certification and securely earthed where requirediX	A EquipmentApplicable to protection type:InternalExternalEquipment (incl group and temp class) is appropriate for area classificationallXXEquipment ID or circuit ID is correctallXXEnclosure, sealing gaskets or compounds are satisfactoryallXXThere are no damage or evidence of unauthorised modificationsallXXBolts, cable entries and blanking elements are correct and tightallXXFlange facings are clean and undamageddXXLamp rating, type and position correctallXXElectrical connections are tightallXXHermetically sealed devices are undamagednXKMotor fans have sufficient clearancemotors onlyXXInstallation clearly labellediXX

B Installation

Binstallation			
Type of cable is appropriate, cables are undamaged	all	X	8
Sealing of ducts and/or conduits is satisfactory	all	X	\otimes
Stopper boxes or barrier glands are properly filled	d	Х	
Integrity of conduit system and interface with mixed system is maintained	all	X	
Earthing and bonding connections are tight, in good condition and of sufficient cross section	all	×	\bigotimes
Fault loop impedance is satisfactory	power outlets	X	
Insulation resistance is satisfactory (check only during initial inspection)	alf	X	
Automatic electrical protective devices are set correctly and operate within permitted limits	all	х	
Special certification conditions U,X or B have been complied with	all	Х	
Cables/spare cores are terminated satisfactorily	all	Х	
No obstructions adjacent to flameproof flanged joint	d	X	X
Ducts, pipes and enclosures are in good condition	p	X	X
Protective gas is substantially free from contaminants (water, oil, dirt)	р	X _	Х
Protective gas flow/pressure is adequate	р	X _	
Pressure and/or flow indicators, alarms and interlocks function correctly	p	X _	
Pre-energising purge period is adequate	р	Х	
Condition of spark/particle barriers of ducts exhausting the gas into hazardous area are satisfactory	q	x	



18	Cables are installed and screens are earthed in accordance with the documentatio0n	j	х	
19	The circuit is isolated from earth or earthed at one point only	i	Х	
20	Separation is maintained with non-IS circuits	i	x	
21	As applicable, short circuit protection of the power supply is in accordance with the documentation	i	Х	

	C Livitonnient			
1	Apparatus adequately protected from corrosion, weather, vibration, other	all	X	S
2	No undue accumulation of dust or dirt	all	Х	8
3	Electrical insulation is clean and dry	all	X	

Faults found? (circle as appropriate)

No:

Kes: List action required

Contractor (write): Inspector Supervisor	Client (write): Inspector
N. GREEN	
Date: s/4/n	Date:

Device ID or tag

Action required to make	device com	pliant:				
- provide	Blue	52-outh	+	cable	Support.	

Reviewed by: Date: 15/9/11	N.	GREEN	
Date: 15/9/11			
Priority:			

· · · · · · · · · · · · · · · · · · ·		_		
Comments:				
	_			
All action items now completed:				
Job closed:				
Device now fully compliant, spreadsheet register has been updated				
Supervice flow runy compliant, spreadsheet register has been updated				

Supervisor (write): Date:

Hazardous area device inspection sheet for Ex-d, Ex-e, Ex-i, Ex-n, Ex-p and other Ex devices



Based on AS/NZS 60079 part 17

area are satisfactory

Ref: I\data\sitzlencompany operations\darwin\lenders\sbsj11\fyf1 - haz area inspections\hazardous area inspection forms\hazardous area device inspection sheet for ex-d, ex-e, ex-i, ex-n, ex-p and other ex devices.doc

Specifications

Gen	eral							
		695	Asset: KA	THERIN	16-	MS		7
	uit ID: 7		Physical location:			DUTLET	-	1
Area	classification: 201	E 7	Environment: (hot?)		UTD			1
				_				
Data	I from Label							_
Appa	aratus type: (light, JB, Pp	ESSURE SINTEM	Type of protection: (etc)	d,e, i, n, p	ĩa	NIA	N.	
			/			NA	_	-
Man		BRADLEY	Gas group: (IIA/B/C)					_
Full	model number: \$36	-T256J	Temp class: (T1-T6)			NIA		
Seria	al number:		Certificate number:		<u>c 3</u>	37 - 1	?	
IP C	lass	P 66	Test authority: (BAS, SAA etc)	РТВ, С	sA u	L		
			· · · · · · · · · · · · · · · · · · ·					-
Num	ber of cables:							
For	each cable entry	gland 1	pages Agland 2		others			
	id manufacturer:	7	2		01/10/10			
Mod	-		1					
Glan	d type of protection: (d,e)							
Inene	ection —				`	Circle a	s checke	Ч
mape							S CHECKE	4
				Applicable	lo	¥	+	
	A Equipment			protection t	уре:	Internal	External	-
1		d temp class) is appropriate for are	a classification			X	X	-
2	Equipment ID or circuit ID			all		X	00	-
3		ts or compounds are satisfactory				X	00	-
4		evidence of unauthorised modificat		all		X X	8	-
5	Flange facings are clean	lanking elements are correct and ti	gni	d all		x x	8	1
6 7	Lamp rating, type and pos			all		x x		-
8	Electrical connections are			alt		X		-
9	Hermetically sealed devic			n 211		X		-
10		osure is satisfactory to enclosure a	nd/or covers	n		X		-
11	Motor fans have sufficient			motors	only	X		
12	Installation clearly labelled			i		X	8	BLUE
13		nstalled as per certification and sec	urely earthed where	i		X	8	
	required							-
14	Entity calculation/docume	intation is available		I		X	X]
	B Installation							
1	Type of cable is appropria	ate, cables are undamaged		all		X	(X)	- SUPPORT
2	Sealing of ducts and/or co	onduits is satisfactory		all		X	*	JO / SHEATM
3	Stopper boxes or barrier	glands are properly filled		d		X		1
4		n and interface with mixed system i		lls		X		_
5		nections are tight, in good conditio	n and of sufficient	all		x	(P)	
6	cross section Fault loop impedance is s	atisfactory		power o	itlate	x		-
7	Loculation resistance is sa	atisfactory (check only during initial	inspection)	all		X		-
8		ctive devices are set correctly and		all				-
-	permitted limits					X		
9		tions U,X or 8 have been complied	3 with	all		X		
10	Cables/spare cores are te			all		X		
11		to flameproof flanged joint		d		X	X	
12	Ducts, pipes and enclosu	res are in good condition		р		X	X	
13	Protective gas is substant	tially free from contaminants (water	r, oil, dirt)	р		X	X	
14	Protective gas flow/press	ure is adequate		р		X		
15	Pressure and/or flow indic	cators, alarms and interlocks function	on correctly	P		X		
16	Pre-energising purge peri	od is adequate		Р		X		
17	Condition of spark/particle barriers of ducts exhausting the gas into hazardous			P		×		

Amadeus Pipeline Electrical' Inspections

Х



18	Cables are installed and screens are earthed in accordance with the documentatio0n	i	X	
19	The circuit is isolated from earth or earthed at one point only	i	X	
20	Separation is maintained with non-IS circuits	i	X	
21	As applicable, short circuit protection of the power supply is in accordance with the documentation	i	х	

	CEnvironment		_	
1	Apparatus adequately protected from corrosion, weather, vibration, other	all	Х	(10)
2	No undue accumulation of dust or dirt	all	Х	\otimes
3	Electrical insulation is clean and dry	all	Х	

Faults found? (circle as appropriate)

No:	
Yes: List action required	
Contractor (write): Inspector Supervisor	Client (write): Inspector
Contractor (write): Inspector Supervisor	
Date: 5/9/11	Date:
Date: Sry/ii	Date:

Device ID of lay	Device	ID	or	tag
------------------	--------	----	----	-----

	required to m						
-	Provide	Bre	sheal	*	cable	support.	
~	Cable	J.O .	requir	ed.			
						_	

Reviewed by: Date: US[9] II Priority:

Comments:		
All action items now completed:		
Job closed:	\Box	
000 0100001	<u> </u>	
Device now fully compliant, spreadsheet	register has been updated	
Supervisor (write):		
Date:		

Hazardous Area Check Sheet Flameproof Ex d



TAG/IDENTIFICATION									
Area Classification - Zone 0 1 2 Non H	azardous - Group I IIA IIB IIC - To	emp T1 T2	T3 T4	4 T5	T6				
Record Name Plate Details		Reco	ord other i	nameplate information that may					
Manufacturer	KW	FLC					be relevant		
Serial No.	Volts	RPM							
Model		-	-						
Certificate No.									
Certifying authority									
Inspection Type Performed (I=Initial, P=Pe									
Inspection Grade Performed (D=Detailed,			D	С	V	Deta	ailed requires de-energization		
Equipment Y=OK, N=Not Acceptable, N/A	=Not Applicable, N/C=Not Checked					Inspect Grade	Remarks		
Equipment is Australian or IEC Certified		Y	Ν	N/A	N/C	DCV			
EX markings are suitable for the area		Y	Ν	N/A	N/C	DCV			
Equipment is clearly marked and has appro	priate tag/identification details	Y	Ν	N/A	N/C	DCV			
Enclosure is not damaged and maintains its		Y	Ν	N/A	N/C	DCV			
Locking sealing, fastening devices are of ty	pe certified by manufacturer	Y	Ν	N/A	N/C	DCV			
Locking sealing, fastening devices operate		Y	N	, N/A	N/C	DC			
Bolts, bungs, plugs/blank plates installed a		Y	N	N/A	N/C	DCV			
Sealing gaskets and components in accepta		Ŷ	N	N/A	N/C	DCV			
Flange faces are clean and undamaged		Y	N	N/A	N/C	D			
Flange gap dimensions are less than	mm	Y	N	N/A	N/C	DC			
No unauthorised modifications (Y= OK)		Ŷ	N	N/A	N/C	DCV			
Equipment is clear of obstructions (minimu	m dimensions 40mm)	Y	N	, N/A	N/C	DCV			
No chafing parts that may cause local hot s		Ŷ	N	N/A	N/C	D			
Guards are correctly fitted		Ŷ	N	N/A	N/C	D			
Lamp rating, type and position are correct		Ŷ	N	N/A	N/C	D			
Installation	tion at a vitable and and least isolater.	, v		N1 / A	N/C	Grade	Remarks		
Equipment carries correct circuit identifica		Y	N	N/A	N/C	D			
Effective means of isolation of all live cond	uctors (including neutral)	Y	N	N/A	N/C	D			
Cable type is as per the documentation		Y	N	N/A	N/C	D			
The device is securely mounted		Y	N	N/A	N/C	DCV			
Cables/conduits in acceptable condition		Y	N	N/A	N/C	DCV			
Cables/conduit entry correct, complete, an	-	Y	N	N/A	N/C	DCV			
Sealing of conduits, ducts or other connect	,	Y	N	N/A	N/C	D			
Integrity of conduit system and mixed system		Y	N	N/A	N/C	D			
Earthing and equipotential bonding satisfa		Y	N	N/A	N/C	DCV			
Insulation resistance is satisfactory (NB Da		Y	N	N/A	N/C	D			
Protection devices (Limit sws, phase rot, TO	JLs) operate correctly	Y	Ν	N/A	N/C	D			
Cable Glands and adaptors						Grade	Remarks		
Cable glands details available, record (avail	able=Y, not recorded=N/C)	Y	Ν	N/A	N/C	DCV			
Cable glands certificate details available, re	cord (available=Y, not recorded=N/C)	Y	Ν	N/A	N/C	DCV			
Adaptors and plugs details available, record	d (available=Y, not recorded=N/C)	Y	Ν	N/A	N/C	D			
Adaptors and plugs have sufficient engaged	d threads	Y	Ν	N/A	N/C	DCV			
Glands and adaptors Ex markings are suital	ble for area	Y	Ν	N/A	N/C	DCV			
Environment						Grade	Remarks		
Equipment adequately protected against c	orrosion, weather, vibration, etc	Y	Ν	N/A	N/C	DCV			
Dust and dirt on the equipment and cable a		Ŷ	N	N/A	N/C	DCV			
Special conditions			-			Grada	Remarks		
Special conditions Special conditions on certificate are satisfie	d	Y	Ν	N/A	N/C	Grade D	Neilidi KS		
				щA	14/0				
Notes:									

Inspected:

Checked:

INSPECTION CHECK SHEET Increased Safety Ex e



TAG/IDENTIFICATION DESCRIPTION											
Area Classification	- Zone 0 1 2	Non Ha	zardous - Group I IIA IIB IIC	- Ter	mp T1 T2	2 1	ГЗ T4	T5	T6		
Record Name Plat	e Details								Reco	rd other r	nameplate information that ma
Manufacturer KW FLC										be relevant	
Serial No.			Vo	olts	RPI	N					
Model											
Certificate No.											
Certifying authority											
Inspection type performed (I=Initial, P=Periodic, S=Sample)											
inspection Grade Performed (D=Detailed, C=Close, V=Visual) D C V Detailed requires de-energization											
Equipment Y=OK, N=Not Acceptable, N/A=Not Applicable, N/C=Not Checked											
-4		,,	·····							Grade	Remarks
Equipment is Australian or IEC Certified Y N N/A N/									N/C	DCV	
EX markings are su					Y	'	N	N/A	N/C	DCV	
-			priate tag/identification details		Y	,	N	N/A	N/C	DCV	
			weatherproofing (min IP54)		Y		N	N/A	N/C	DCV	
Enclosure gaskets					· Y	-	N	N/A	N/C	D	
Bolts, bungs, plugs							N	N/A	N/C	DCV	
Terminals are sized					· · ·		N	N/A	N/C	D	
			d 1mm2 for single strand		Y		N	N/A	N/C	D	
			oots (motor fans) (Y=OK)		Y	-	N	N/A	N/C	D	
Guards are correct					Y		N	N/A	N/C	D	
No unautorised mo		אר)			Y	-	N	N/A	N/C	DCV	
Lamp rating, type a		,				-	N	N/A	N/C	DEV	
Lamp rating, type a		conect					IN	N/A	N/C	D	
Installation										Grade	Remarks
Equipment carries correct circuit identification at switchboard and local isolator Y N N/A N/C									D		
Effective means of isolation of all live conductors (including neutral)							Ν	N/A	N/C	D	
Installation is in compliance with documentation							Ν	N/A	N/C	DC	
Cable type is as per the documentation								N/A	N/C	D	
The device is secur	ely mounted				Y	′	Ν	N/A	N/C	DCV	
Cables/conduits in	acceptable cond	dition			Y	′	Ν	N/A	N/C	DCV	
Cables/conduit ent	try correct, com	plete, and	d tight (Exd or Exe glands used)		Y	'	Ν	N/A	N/C	DCV	
Exd glands have ad	lditional weathe	erproofing	5		Y	′	Ν	N/A	N/C	DCV	
Electrical connection	ons are tight				Y	′	Ν	N/A	N/C	D	
Creapage and clea	rance distance a	re mainta	ained		Y	′	Ν	N/A	N/C	D	
All unused conduct	tors terminated	in Exe te	rminals		Y	'	Ν	N/A	N/C	D	
Earthing and equip	otential bonding	g satisfac	tory		Y	′	Ν	N/A	N/C	DCV	
Insulation resistan	ce is satisfactory	/ (NB Dan	ger of MEGGER testing HA)		Y	'	Ν	N/A	N/C	D	
Motor parameters	(la/ln and te) ar	nd TOLs c	oordinate (record TOL mfr/mode	l)	Y	′	Ν	N/A	N/C	D	
Cable Claude and										Create	Davisarila
Cable Glands and a	•	vrd /	blo-V not recorded N/C			,	N .	N1/A	N: / C	Grade	Remarks
_			able=Y, not recorded=N/C)		<u>۲</u>		N	N/A	N/C	DCV	
÷		-	cord (available=Y, not recorded=I		Y		N	N/A	N/C	DCV	
			(available=Y, not recorded=N/C)		Y		N	N/A	N/C	DC	
Glands and adapto	ors Ex markings a	are suitab	ie ior area		Y		Ν	N/A	N/C	DCV	
Environment										Grade	Remarks
Equipment adequa	tely protected a	against co	prrosion, weather, vibration, etc		Y	′	Ν	N/A	N/C	DCV	
Dust and dirt on th	e equipment an	nd cable a	re within acceptable limit		Ŷ	′	Ν	N/A	N/C	DCV	
Special conditions										Grade	Remarks
Special conditions		e satisfie	d		L Y	,	Ν	N/A	N/C	D	nemarks
	on continuate di	e satisite	v				IN .	. N/ A	11/0		L
Notes:											
nspected:			Date:	Ch	necked:						Date:

INSPECTION CHECK SHEET Intrinsically Safe Ex i



TAG/IDENTIFICATION DESCRIPTION															
					+										
Area Classificatio	n - Zoi	ne O 🔅	12	20 21	22	Non Haza	rdous - Group	D I IIA	IIB	IIC - T	emp	T1 T2	2 ТЗ	T4 T5 T	6
Record Name Plat	te Det	ails											Reco	rd other r	nameplate information that may b
Manufacturer								Vin		Chin					relevant
Serial No.								Lin		Lin					
Model															
Certificate no. T IP															
Certifying authority															
Inspection Type Performed (I=Initial, P=Periodic, S=Sample)															
									tailed requires de-energization						
Equipment Y=OK, N=Not Acceptable, N/A=Not Applicable, N/C=Not Checked											Inspect				
											Grade	Remarks			
Equipment is Australian or IEC Certified								Y	Ν	N/A	N/C	DCV			
EX markings are si	uitable	e for tl	he a	rea						Y	Ν	N/A	N/C	DCV	
Equipment is clear					opri	iate tag/iden	tification deta	ils		Y	N	N/A	N/C	DCV	
Enclosure is not d					-	-				Y	Ν	, N/A	N/C	DCV	
Terminations are	_	-				•	-			Ŷ	N	N/A	N/C	DC	
All unused conduc	-	ermin	ated							Ŷ	N	N/A	N/C	DC	
Bolts, bungs, plug					ind	tight				Y	Ν	, N/A	N/C	DCV	
Fuses and lamps a						0				Y	Ν	N/A	N/C	DCV	
No unautorised m			_	-						Y	Ν	N/A	N/C	DCV	
			`	- /								,	7 -		
Installation										_			-	Grade	Remarks
Cable type is as pe	er the	docun	nent	ation						Y	Ν	N/A	N/C	D	
S Entity and cable	e para	neter	s are	e suitable	e foi	r installation				Y	Ν	N/A	N/C	D	
The device is secu	rely n	ounte	ed							Y	Ν	N/A	N/C	DC	
Cables/conduits in acceptable condition								Y	Ν	N/A	N/C	D			
Cables/conduit entry correct, complete, and tight								Y	Ν	N/A	N/C	DCV			
No excessive vibration present that may cause conductors to work loose (Y=OK)								Y	Ν	N/A	N/C	DCV			
Segregation between IS and non IS circuits at junction boxes								Y	Ν	N/A	N/C	DCV			
Segregation betwo	een IS	and n	ion l	S circuits	in e	cable ladder	and conduit			Y	Ν	N/A	N/C	DCV	
Earthing and equi	poten	tial bo	ondir	ng satisfa	icto	ory				Y	Ν	N/A	N/C	D	
Insulation resistar	nce is s	atisfa	ctor	y (NB Da	nge	er of MEGGE	R testing HA)			Y	Ν	N/A	N/C	D	
Cable screens ear	thed a	s per (docu	umentatio	on ((normally on	e point only)			Y	Ν	N/A	N/C	D	
D.a														Curada	Develop
Barriers			+					M		V		NI / A	NI/C	Grade	Remarks
Record Safety Bar										Y	N	N/A	N/C	DC	
Equipment is Aust Record Safety Bar								marks)		Y	N	N/A	N/C	DCV	
							vice = Y)			Y	N	N/A	N/C	DC	
Safety Barriers are						-				Y	N	N/A	N/C	DC	
Safety Barriers are					the	earth bar				Y	N	N/A	N/C	DCV	
Barrier/Isolator te				-		. /	0 4 01 /			Y	N	N/A	N/C	DCV	
Maximum voltage										Y	N	N/A	N/C	DCV	
IS circuits are all fr										Y	N	N/A	N/C	DCV	
No energy storing							mitted			Y	N	N/A	N/C	DC	
Relays acting as sa	-			-						Y	N	N/A	N/C	DCV	
Earth continuity fr	rom b	arrier	bar t	to the tra	ansf	former neutr	al point is <10	hm		Y	Ν	N/A	N/C	D	Check one connection at a time
Environment														Grade	Remarks
Equipment adequ	ately	orotec	ted	against c	corre	osion, weath	er, vibration,	etc		Y	Ν	N/A	N/C	DCV	
Dust and dirt on t				-						Y	N	, N/A	N/C	DCV	
														1	
Special conditions											1			Grade	Remarks
Special conditions	on ce	rtifica	ite a	re satisfie	ed					Y	Ν	N/A	N/C	D	
Notes:															

Inspected:

Checked:

11 Overhaul, Repair, Modification and Replacement Register

Documentation in relation to this section is to be maintained by APA Group. This Section contains the sample repair and examination report(s).



REPAIR AND EXAMINATION REPORT FOR INTRINSICALLY SAFE EQUIPMENT (EX 'i')



General

Tag no.:	Site:
P&ID:	Area Classification:

Equipment Details

Equipment type:	Gas group (IIA/B/C):
Manufacturer:	Temp class (T1-T6):
Model no.:	Certificate no.:
Serial no.:	Test authority:

Competent Operator

Name:	Identification no.:
Company:	Company registration:

Condition

Condition upon receipt:
Old repair label details:
Reported Fault (if any):

Action

Repair action:
Remarks:

I,.....confirm that the above equipment, repaired/overhaul/modified (strike out whichever is not applicable) as above, complies/does not comply with the relevant requirements of AS/NZS 3800 (including markings as required by Appendix D) and AS.....and that this Report has been recorded in the logbook of the service facility.

Sign:....

Date:...../...../.....

REPAIR AND EXAMINATION REPORT FOR INCREASED SAFETY ENCLOSURES (EX 'e')



General							
Tag no.:		Site:					
P&ID:		Area Classification:					
Equipment Details							
Equipment type:		Gas group (IIA/B/C):					
Manufacturer:		Temp class (T1-T6):					
Model no.:		Certificate no .:					
Serial no.:		Test authority:					
Competent Operator							
Name:		Identification no:					
Company:		Company Registration:					
Enclosure Condition							
Old repair label no.:							
External surface cleaned for inspe	ction - Yes / No						
Covers and fasteners:		Base of enclosure:					
Threaded holes:		External corrosion:					
Surface coating:		Gland entries and glane	ds:				
General external condition:							
Enclosure dismantled:		Degree of protection: IF					
Internal Condition - Dust/Liqui	ids:	Corrosion: Heat:					
Missing parts:		1					
Cables and terminations:		Terminal blocks:					
Earth terminals:		Insulation:					
Windows and seals:		Actuators and seals:					
Ex 'de' parts:		Meters:					
Lamps:		Transformers:					
Switches:		Others:					
Relays:		Interlocks:					
Luminaire:		Lamp power (W):					
Transparent part:		Lampholders:					
Ballasts:	Capacitors:		Batteries:				
Action							
Repair							

Remarks:	

I,.....confirm that the above equipment, repaired/overhaul/modified (strike out whichever is not applicable) as above, complies/does not comply with the relevant requirements of AS/NZS 3800 (including markings as required by Appendix D) and AS.....and that this Report has been recorded in the logbook of the service facility.

Sign:....

Date:...../...../......

REPAIR AND EXAMINATION REPORT FOR ELECTRICAL EQUIPMENT INSTALLED WITHIN FLAMEPROOF ENCLOSURE (EX'd')



Gene	ral			
Tag n	0.:	Site:		
P&ID:		Area Classification:		
Equip	oment Details			
Equip	ment type:	Gas group (IIA	/B/C):	
Manut	facturer:	Temp class (T	1-T6):	
Model	no.:	Certificate no .:		
Serial	no.:	Test authority:		
Operation	ator			
Name	:	Identification n	0.:	
Comp	any:	Company regis	stration:	
Equip	oment Condition Checklist			
Item	Description of check	No work	Repaired	Replaced
(a)	Isolator mechanism and switch operation			
(b)	Earthing device and operation			
(c)	All auxiliary mechanisms, trip bars, latching arrangements, etc.			
(d)	All locking devices, function and operation			
(e)	All parts for mechanical condition			
(f)	All insulation checked – no heat, cracks, etc.			
(g)	Phase barriers fitted correctly and functional			
(h)	Oil levels and/or gas pressure			
(i)	Gas pressure-sensing devices			
(J)	All wiring and terminations			
(k)	Earth continuity; phase/earth fault lock units			
(I)	Overcurrent, overload and earth-fault devices			
(m)	Earth-fault trip devices			
(n)	Timing devices			
(0)	Temperature-sensing devices			
(p)	Transformer connections, bolts, tapes. bracing, insulators and fittings, etc.			
(q)	Installation			
(r)	Machine cables and glands			

Details of repair or modification (attach extra pages if required):

Results of insulation resistance tests on transformers:

Transformers ratio:	Capacity:	Serial no.:
Manufacturer:	Type of cooling:	
Tested with: V	(megohmmeter)	
Primary winding to secondary winding:.	ΜΩ	
Primary winding to earth:	ΜΩ	
Secondary winding to earth:	ΜΩ	
Earth continuity of earth screen to core:		

Continued....

REPAIR AND EXAMINATION REPORT FOR ELECTRICAL EQUIPMENT INSTALLED WITHIN FLAMEPROOF ENCLOSURE (EX'd')



Assembled unit tested for insulation resistance with: V megohmmeter, and power frequency tested on the following circuits:

Circuit description	Insulation resistance MΩ	Test voltage kV	Test frequency Hz	Result

I,.....confirm that the above equipment, repaired/overhaul/modified (strike out whichever is not applicable) as above, complies/does not comply with the relevant requirements of AS/NZS 3800 (including markings as required by Appendix D) and AS.....and that this Report has been recorded in the logbook of the service facility.

Sign:....

Date:...../...../....../

REPAIR AND EXAMINATION REPORT FOR FLAMEPROOF ENCLOSURE (EX'd')



General

Tag n		Site:
P&ID:	&ID: Area Classification:	
Equi	pment Details	-
Equip	ment type:	Gas group (IIA/B/C):
Manu	facturer:	Temp class (T1-T6):
Mode	l no.:	Certificate no.:
Serial	no.:	Test authority:
Oper	ator	
Name	:	Identification no.:
Comp	pany:	Company registration:
Equi	pment Condition Checklist	
Item	Description of check	Remarks
(a)	Check of external and internal damage	
(b)	Dimensional check	
(c)	Corrosion on flamepaths	
(d)	Result of static pressure test	
(e)	Check of flanged joint surfaces	
(f)	Check of all threaded holes	
(g)	Check of all windows and lenses	
(h)	Check of breathers	
(i)	Check of all bolt holes, studs, screws,	
(J)	Check of all gland entries and fixing	
(k)	Check of all cables glands	
(l)	Check of all handhole and inspection	
(m)	Check of all mechanical interlocks	
(n)	Check of all flamepath gaps	

	•
1.	Max. out of plane of box flanges:
	Max. out of plane of cover:
	Max. flameproof gap when bolted up:
	Max. diametral clearance of spindles:
5.	Max. diametral clearance of gland to gland apertures:
	Static pressure test – pressure:
	Water jacket – pressure test:Capacity:
Certific	cation drawing no(s).:
Rema	ks:

I,.....confirm that the above equipment, repaired/overhaul/modified (strike out whichever is not applicable) as above, complies/does not comply with the relevant requirements of AS/NZS 3800 (including markings as required by Appendix D) and AS.....and that this Report has been recorded in the logbook of the service facility.

Sign:....

Date:...../...../.....

Based on AS/NZS 3800:2005 "Uncontrolled" Form HAD 1.3 Rev_0



12 Schedule of Equipment and Conditions Requiring Compliance Status Attention

Тад	P&ID No.	Location	Reason for non-compliance
KK0005-ZSO-11	KK0005-7002-0	Main Line Valve KK0005-MLV-11	Nil equipment and associated conduit certification details available to Australian Standards
KK0005-SVO-11	KK0005-7002-0	Main Line Valve KK0005-MLV-11	Equipment method if protection Ex s (special) however certification detail not available
			Cable gland certification unknown
KK0005-ZSC-11	KK0005-7002-0	Main Line Valve KK0005-MLV-11	Nil equipment and associated conduit certification details available to Australian Standards
KK0005-SVC-11	KK0005-7002-0	Main Line Valve KK0005-MLV-11	Equipment method if protection Ex s (special) however certification detail not available
			Cable gland certification unknown
KK0005-SVO-31	KK0005-7003-1	Upstream of Waterbath Heater KK0005-H-1	Nil equipment and associated conduit certification details available to Australian Standards
KK0005-SVC-31	KK0005-7003-1	Upstream of Waterbath Heater KK0005-H-1	Nil equipment and associated conduit certification details available to Australian Standards
KK0005-SVO-33	KK0005-7003-1	Upstream of Waterbath Heater KK0005-H-2	Nil equipment/conduit certification available
KK0005-SVC-33	KK0005-7003-1	Upstream of Waterbath Heater KK0005-H-2	Nil equipment/conduit certification available
KK0005-TSH-32	KK0005-7003-1	Waterbath Heater KK0005-H-1	Uncertified reducer requires replacement



P&ID No.	Location	Reason for non-compliance
KK0005-7003-1	Waterbath Heater KK0005-H-1	Ensure conduit/gland installation complies Ex d via certified adaptors, if within hazardous zone
KK0005-7003-1	Waterbath Heater KK0005-H-1	Nil certification detail for adapter JB, suggest replacement
KK0005-7003-1	Waterbath Heater KK0005-H-2	Replace uncertified adaptor
KK0005-7003-1	Waterbath Heater KK0005-H-2	Verify adapter ratings to suit hazardous installation (if any)
KK0005-7003-1	Waterbath Heater KK0005-H-2	No Australian certifications for adapter Junction Box
KK0005-7004-1	Upstream of Regulators	Illegible solenoid certification, suggest replacement due to age
KK0005-7004-1	Regulator-1	Replace solenoid valve due to insufficient Ex information
KK0005-7004-1	Regulator-2	Replace solenoid valve due to insufficient Ex information
KK0005-7004-1	Meter Run No.1	Instrument does not legibly appear to have Australian certification is FM approved only. Suggest replacement with certified instrument
KK0005-7005-0	Indirect Heater H-1	Uncertified adaptors and JB nameplate details covered
KK0005-7002-0	Upstream of Main Line Valve KK0005-MLV-11	Verify flameproof gland certification
KK0005-7003-1	WB Heater #1 Fuel Gas	Nil evidence of Ex rating/certificates to flammable gas environments
KK0005-7003-1	WB Heater #1 Rear RHS Shell	Certification detail to solenoids unavailable Adaptors/JB not certified
	KK0005-7003-1 KK0005-7003-1 KK0005-7003-1 KK0005-7003-1 KK0005-7003-1 KK0005-7004-1 KK0005-7004-1 KK0005-7004-1 KK0005-7004-1 KK0005-7004-1 KK0005-7004-1 KK0005-7004-1 KK0005-7003-1	КК0005-7003-1Waterbath Heater KK0005-7003-1КК0005-7003-1Waterbath Heater KK0005-7003-1КК0005-7003-1Waterbath Heater KK0005-H-2КК0005-7003-1Waterbath Heater KK0005-H-2КК0005-7003-1Waterbath Heater KK0005-H-2КК0005-7004-1Upstream of RegulatorsКК0005-7004-1Regulator-1КК0005-7004-1Regulator-1КК0005-7004-1Regulator-2КК0005-7004-1Meter Run No.1КК0005-7004-1Upstream of Main Line Valve KK0005-7002-0КК0005-7003-1WB Heater #1 Fuel Gas



Тад	P&ID No.	Location	Reason for non-compliance		
					Nil hazardous area certification legible for I/P, IB and associated adaptors, to Australian Standards
I/P Inverter/J Box KK0005-(I/P 1)	KK0005-7003-1	WB Heater Fuel Gas I/P RHS Shell HE	Web detail - FM approved explosion proof CL GR C,D DIV3 T6 refer to cert red C5- E/FD-A. Recommend replacement with Australian certified equipment		
JB KK0005-(JB Main)	KK0005-7003-1	WB Heater #2 Skid	JB certified with 24V D/C however 110V A/C label applied (further investigation required)		
Solenoid Valve	KK0005-7003-1	WB Heater #2 Fuel Gas	Ex 'd' conduit system is severely perished and requires replacing		
Solenoid Valves KK0005-PILOT GAS VALVES	KK0005-7003-1	WB Heater #2 RHS	JB detail illegible (due to 110V A/C label) hence further assessments required		
I/P Converter KK0005-7003-1 WB Heater #2	WB Heater #2 Fuel	Nil hazardous area certification to Australian Standards available			
	NK0003-7003-1	Gas	Suggest to replace I/P, JB and adaptors with new I/P certified Australian Ex		