

DARWIN CITY GATE METER STATION HAZARDOUS AREA DOSSIER

FYFE REFERENCE: 18756-5-HAD-010 APA REFERENCE: HAD DATA REPOSITORY/ ADP_1498_DCG

Prepared by:

Arjun Patel Graduate Mechanical Engineer

Reviewed by:

Tony Bird Principal Process Engineer - Fyfe

Date:

Date: 18-Nov-2011

Date: 18-Nov-2011

Client Accepted:

Anthony Comerford Pipeline Engineer – APA Group

Manager:

Date:

Henry Dupal Engineering Manager - APA Group Northern Territory

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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



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- 11 Overhaul, Repair and Modification Records
- 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	AZP	ТСВ	
0	Original Issue	18-Nov-2011	AZP	ТСВ	EZG



1 Site Information

An inspection on the Darwin City Gate meter station site was performed on 10 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.

Darwin City Gate meter station is located at KP1498 on the ADP.

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 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 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.

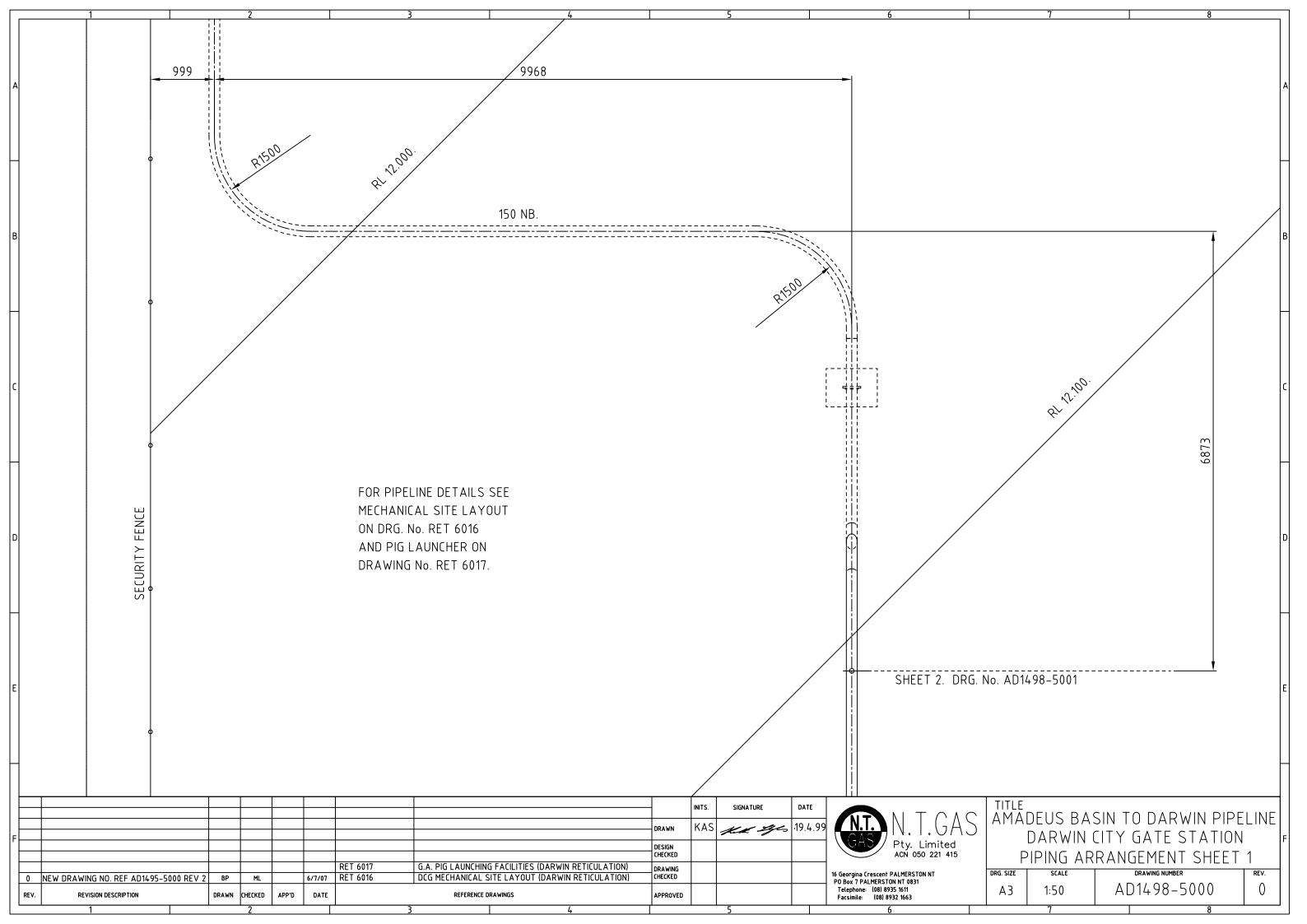
A separate offtake to TPOTS passes gas to a DN 50 pressure regulation and metering skid. The skid has duty and standby arrangement with each containing active and monitor pressure regulators and turbine meters. A high pressure trip is provided that closes an actuated valve at the inlet. The meter runs,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

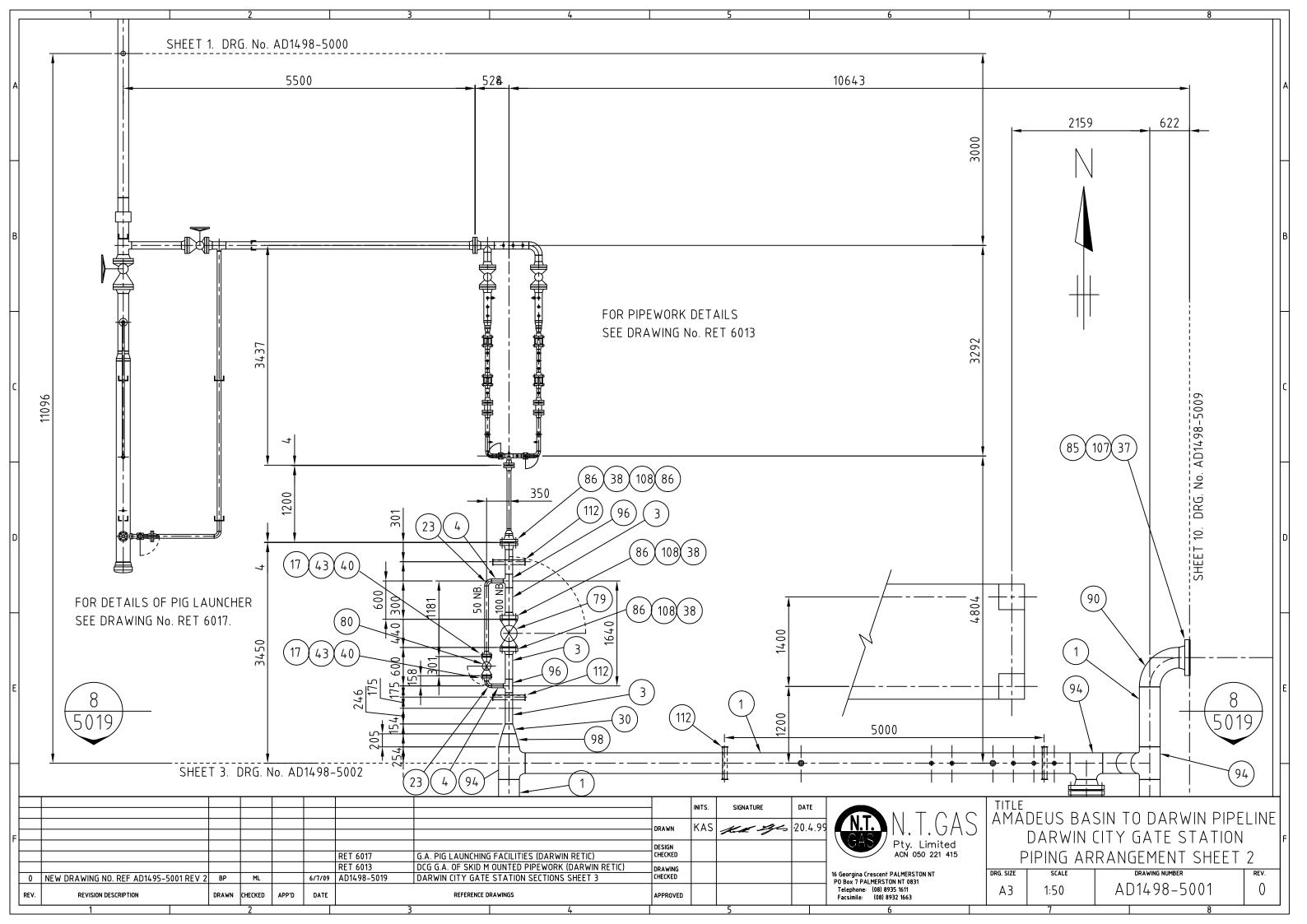
A control system provides measurement and telemetry for the various process instruments. The control system allows remote operator shutdown. The control system is powered by single phase 230 VAC power supply, with back up batteries.

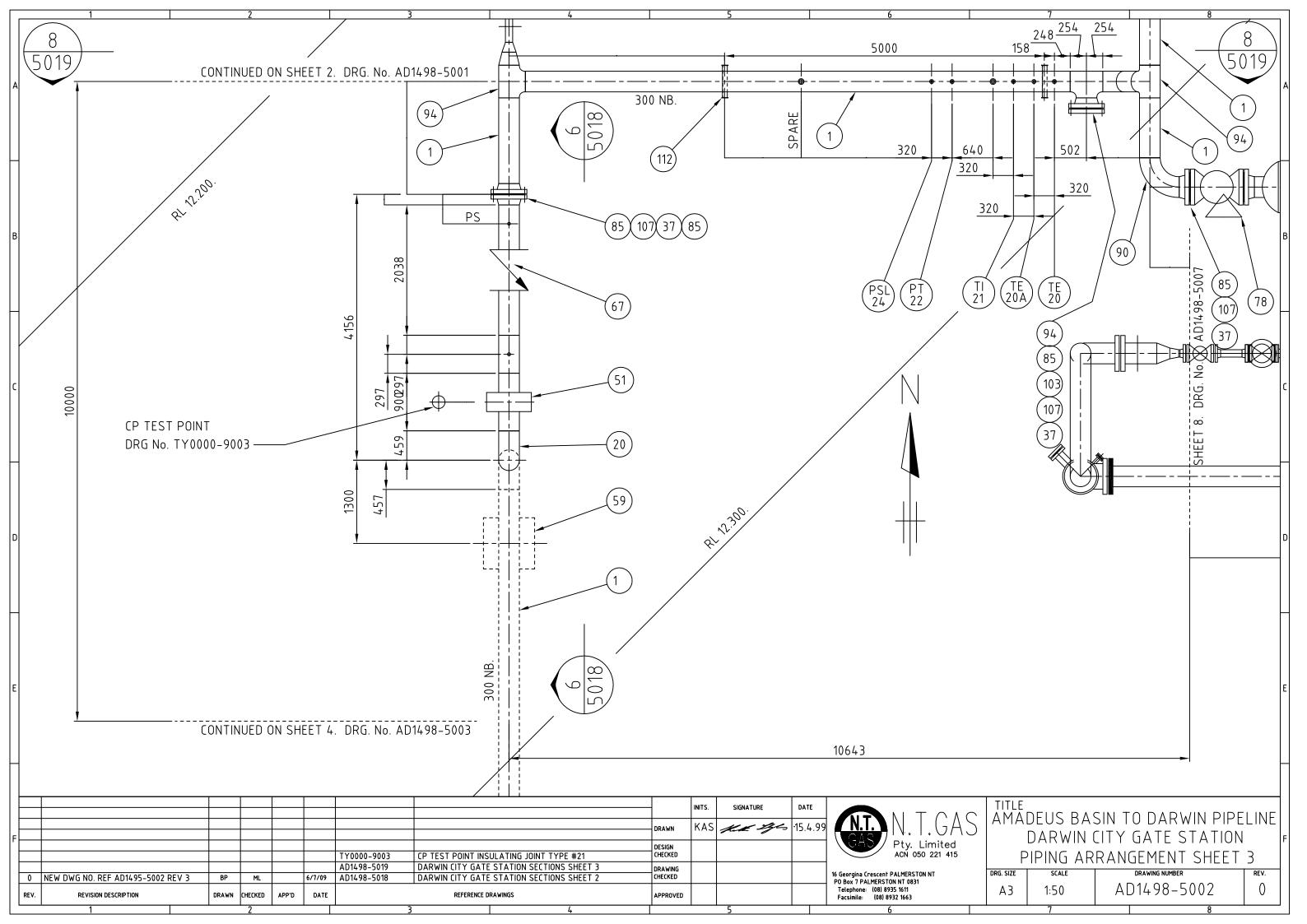


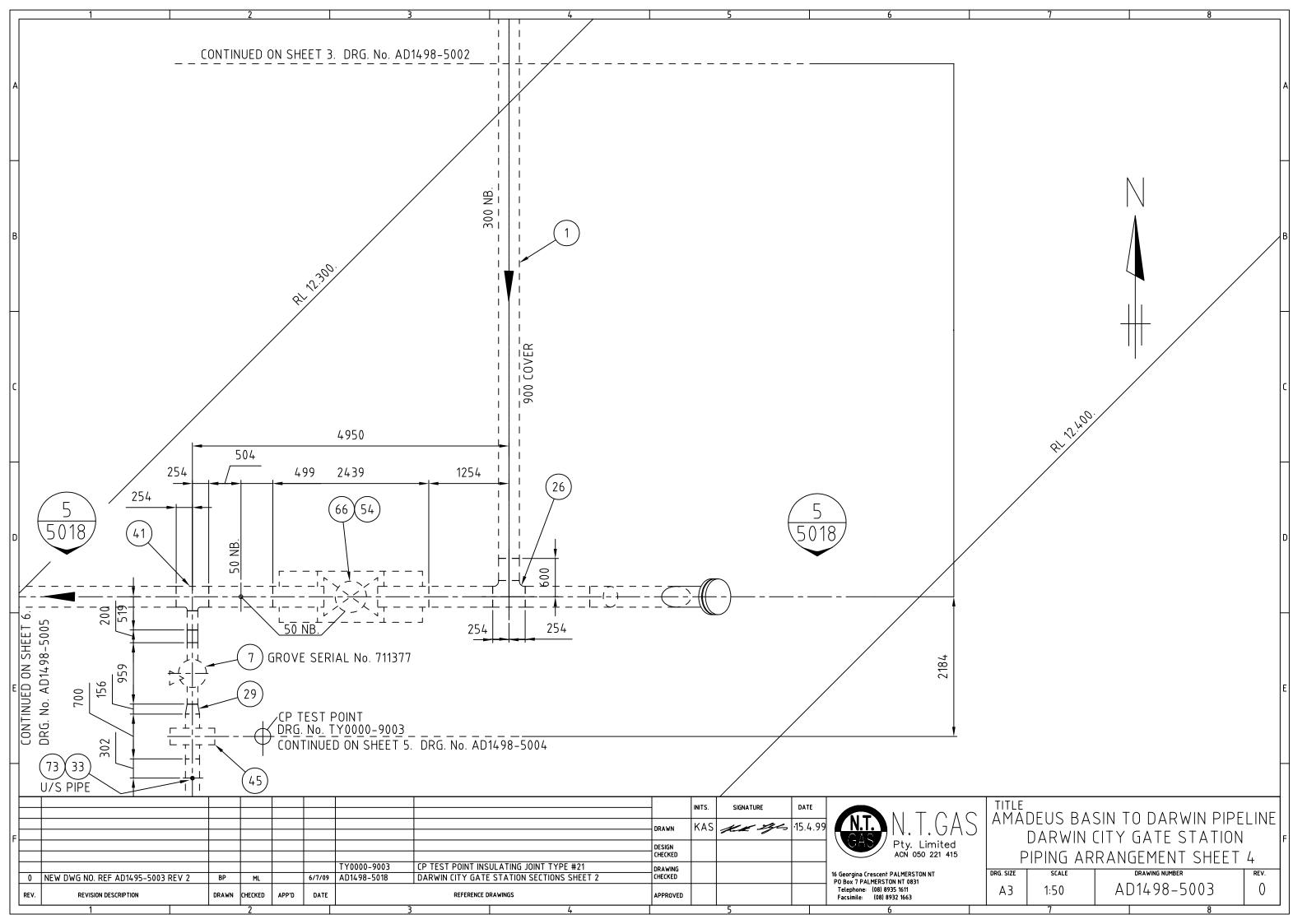
The site arrangement drawings and P&IDs for Darwin City Gate meter station can be found overleaf.

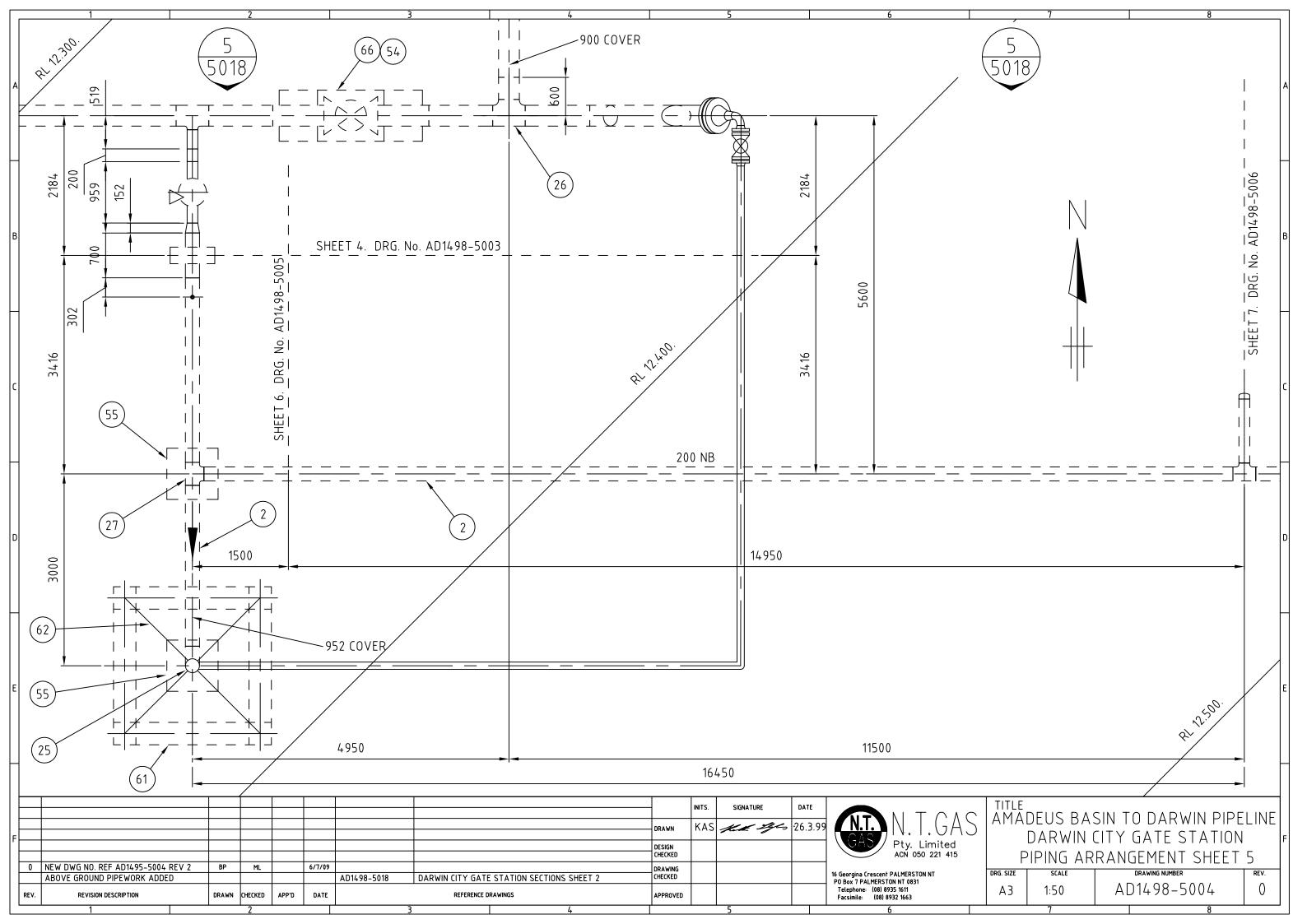
Drawing Numbe	er Description	Revision				
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AD 1498-5000	Darwin City Gate Station Piping Arrangement Sheet 1	0				
AD 1498-5001	Darwin City Gate Station Piping Arrangement Sheet 2	0				
AD 1498-5002	Darwin City Gate Station Piping Arrangement Sheet 3	0				
AD 1498-5003	Darwin City Gate Station Piping Arrangement Sheet 4	0				
AD 1498-5004	Darwin City Gate Station Piping Arrangement Sheet 5	0				
AD 1498-5005	Darwin City Gate Station Piping Arrangement Sheet 6	0				
AD 1498-5006	Darwin City Gate Station Piping Arrangement Sheet 7	0				
AD 1498-5007	Darwin City Gate Station Piping Arrangement Sheet 8	0				
AD 1498-5008	Darwin City Gate Station Piping Arrangement Sheet 9	0				
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WP 0000-7001	Darwin City Gate Wickham Point Pipeline	0				
DB 0000-7000	Darwin City Gate TPOTS (Trunk Package Offtake Station)	0				

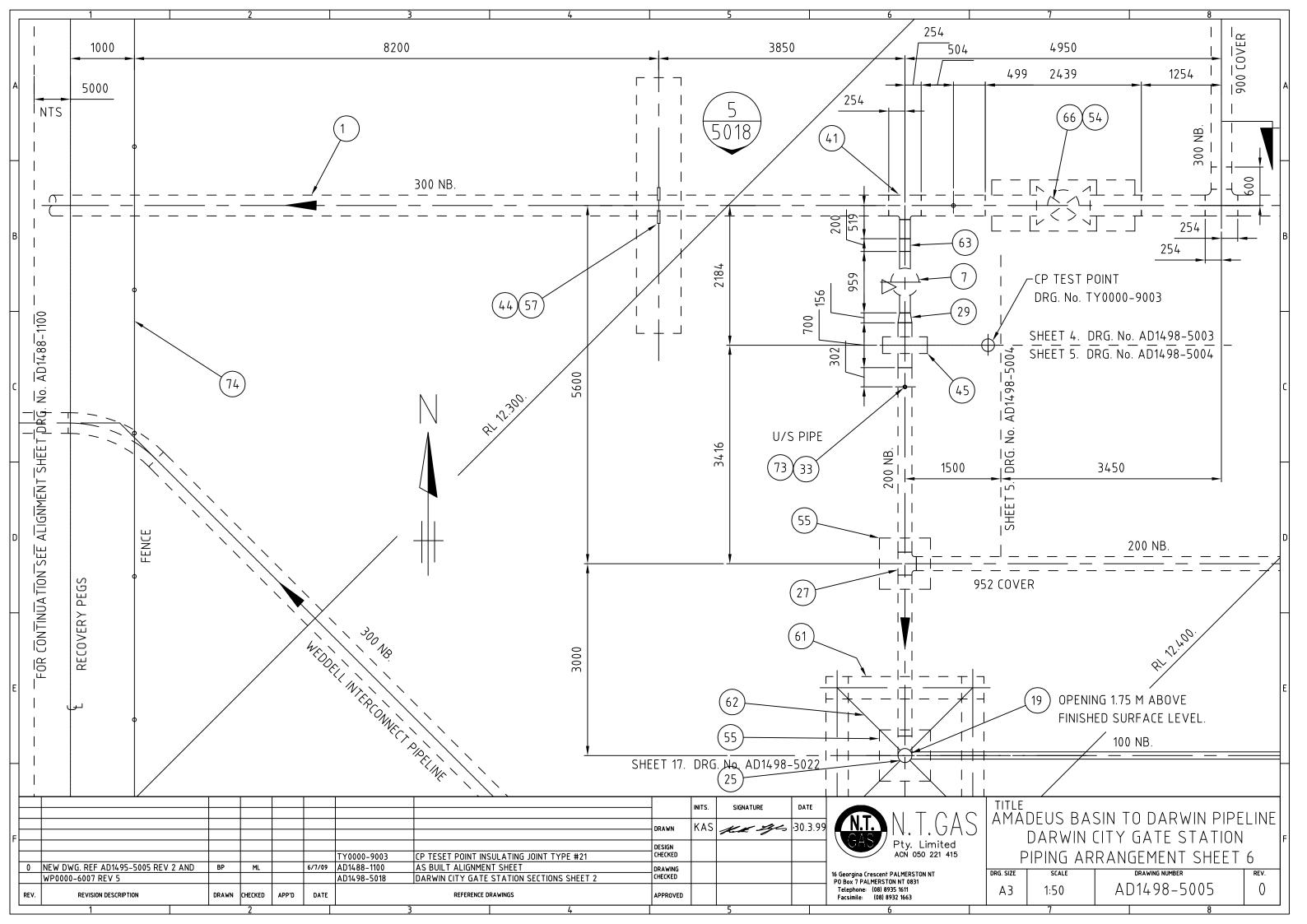


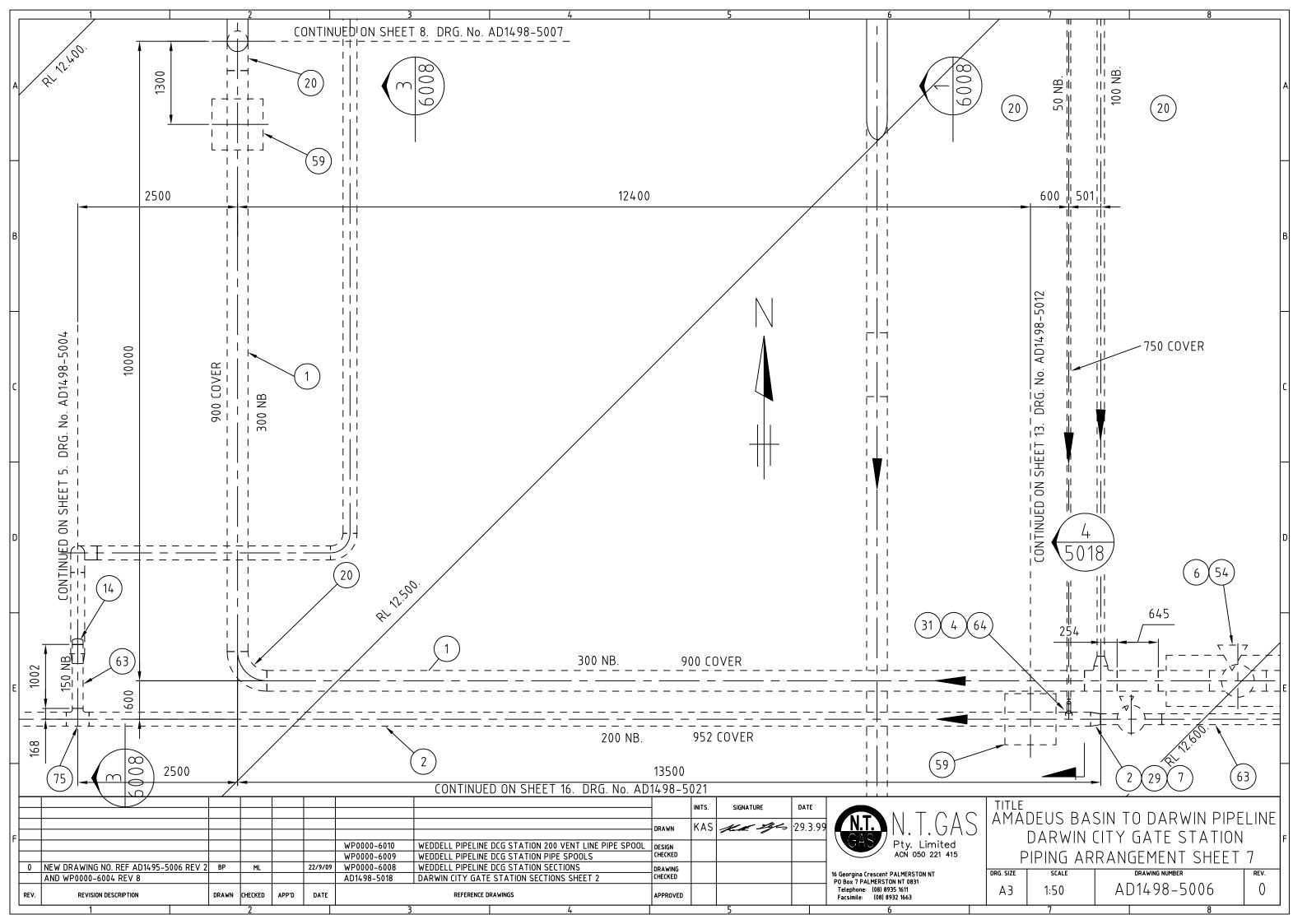


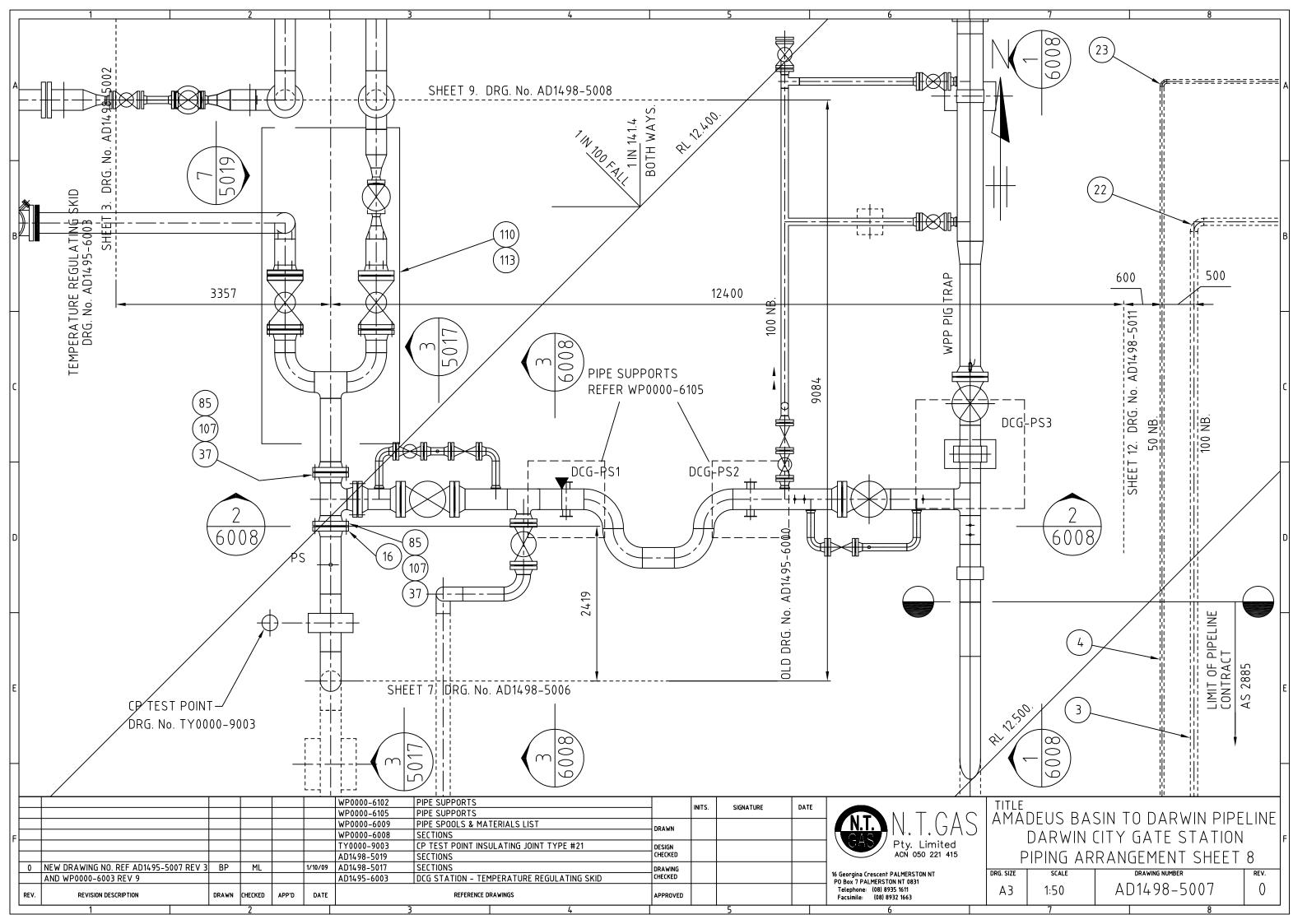


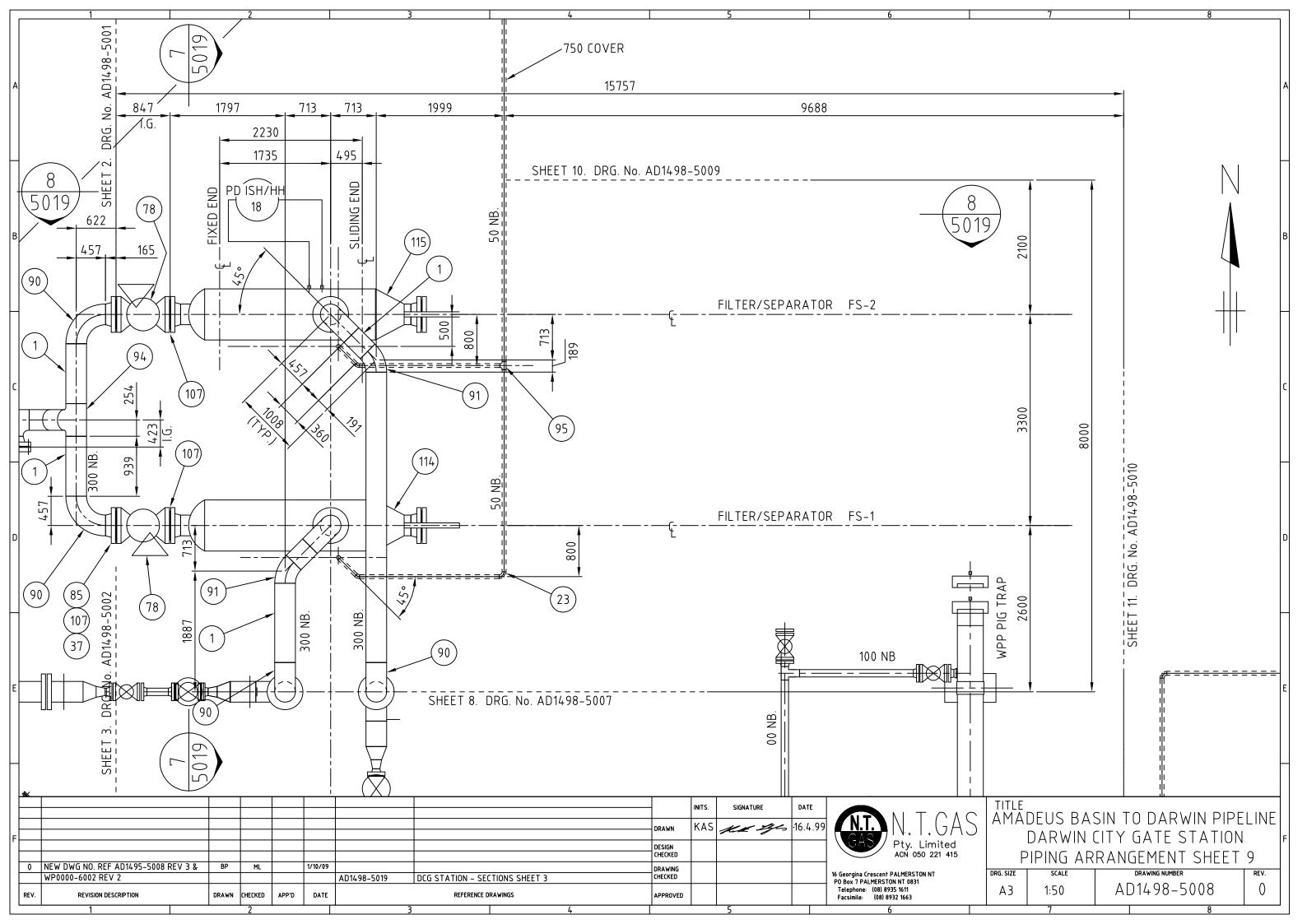


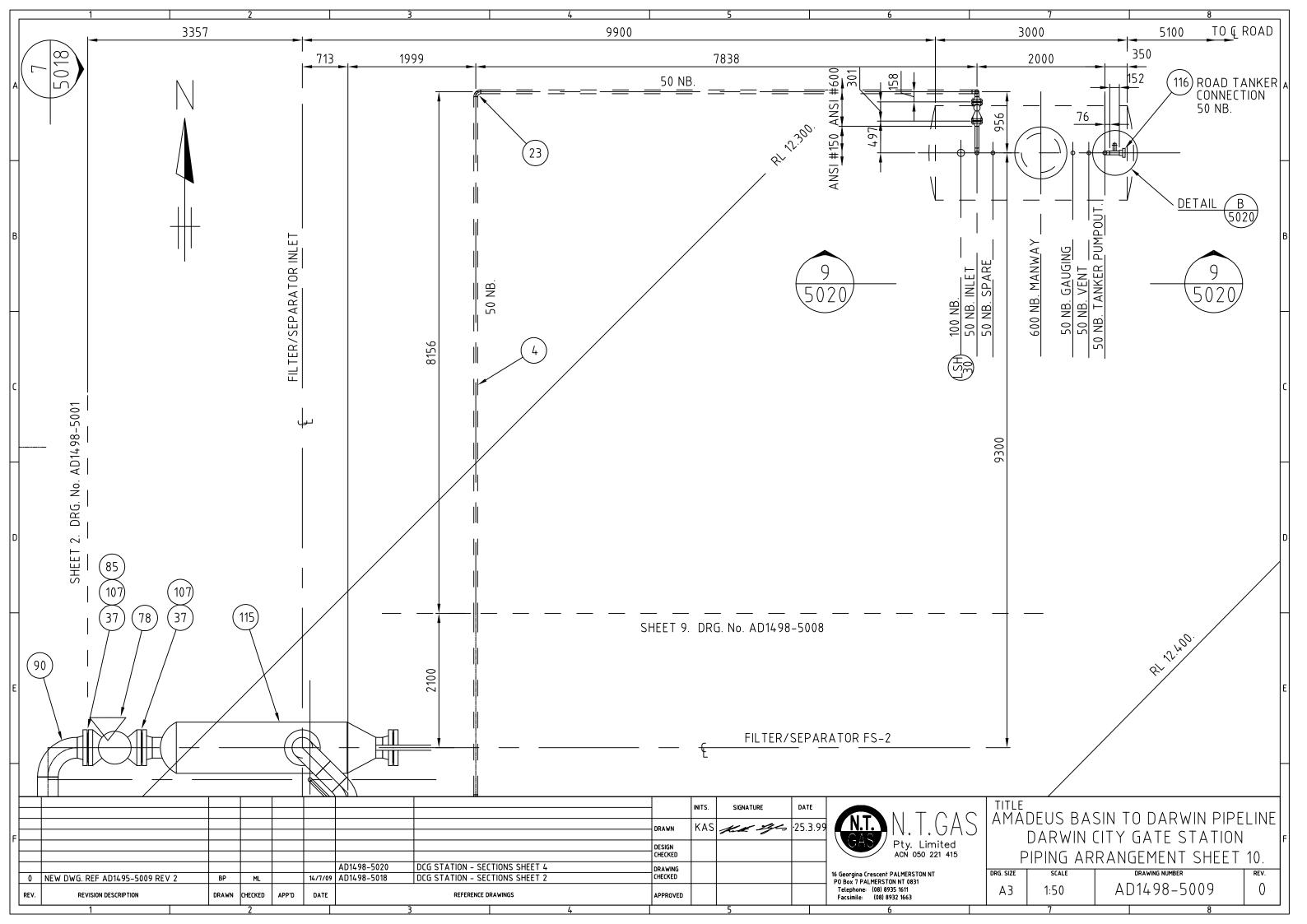


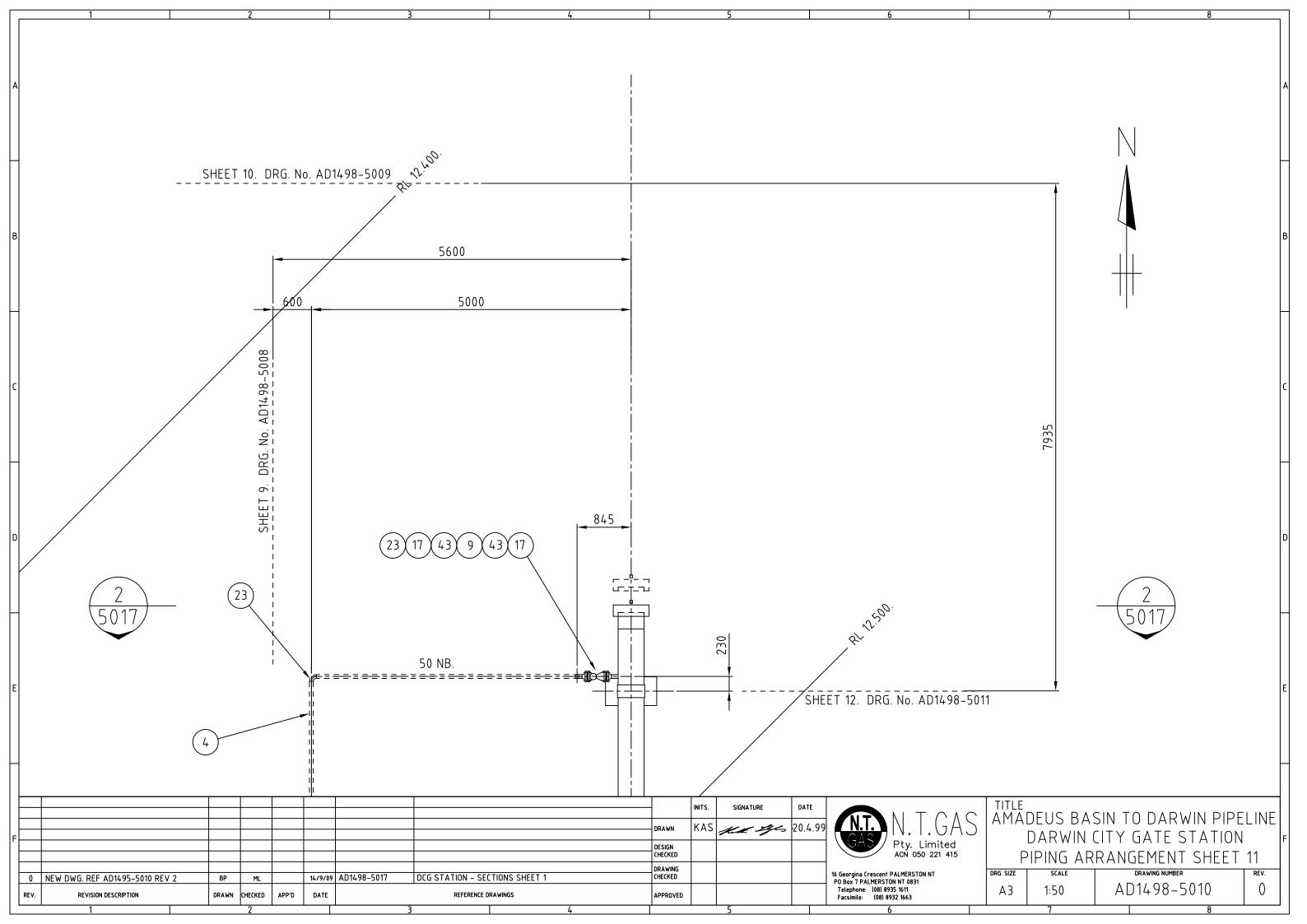


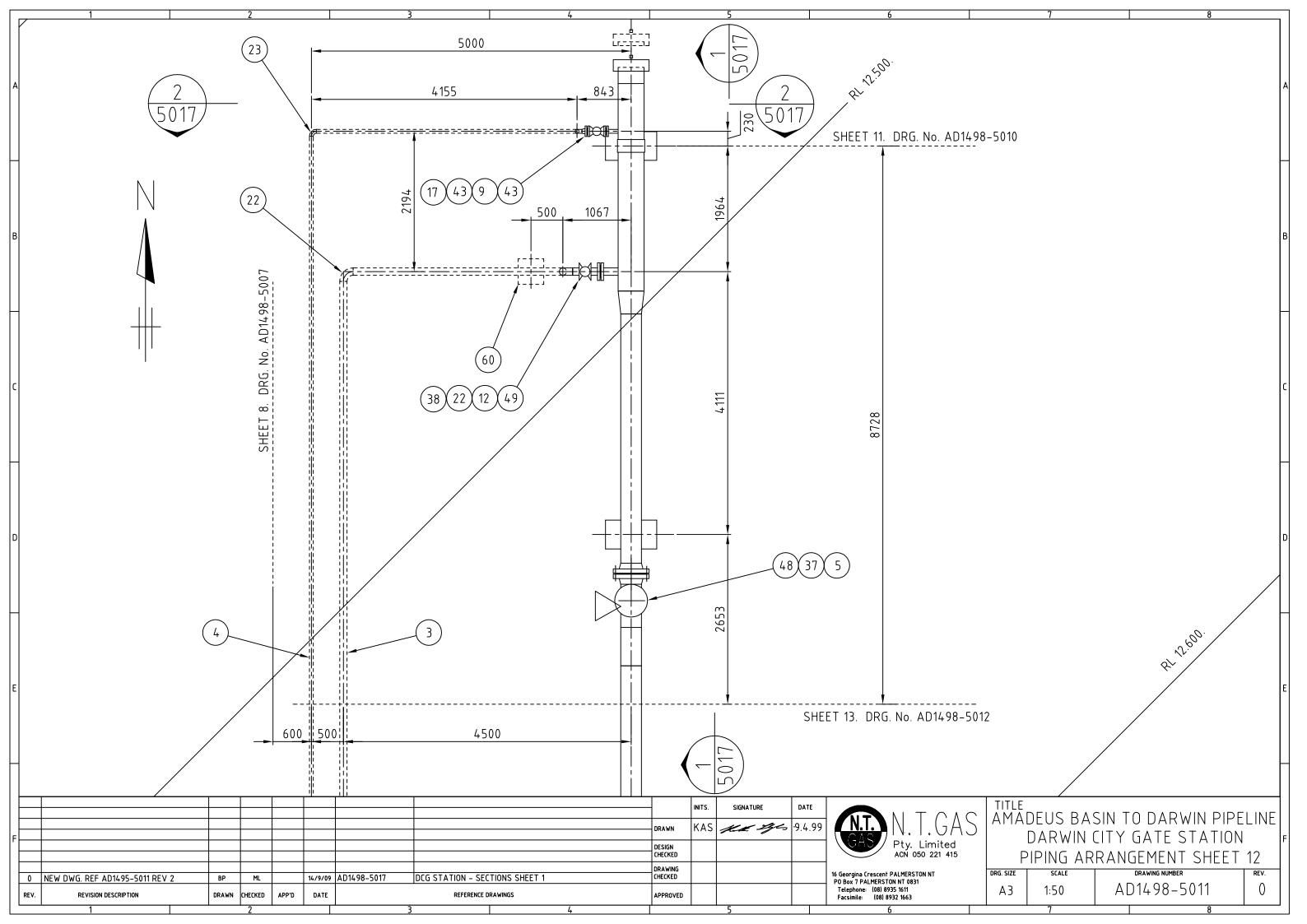


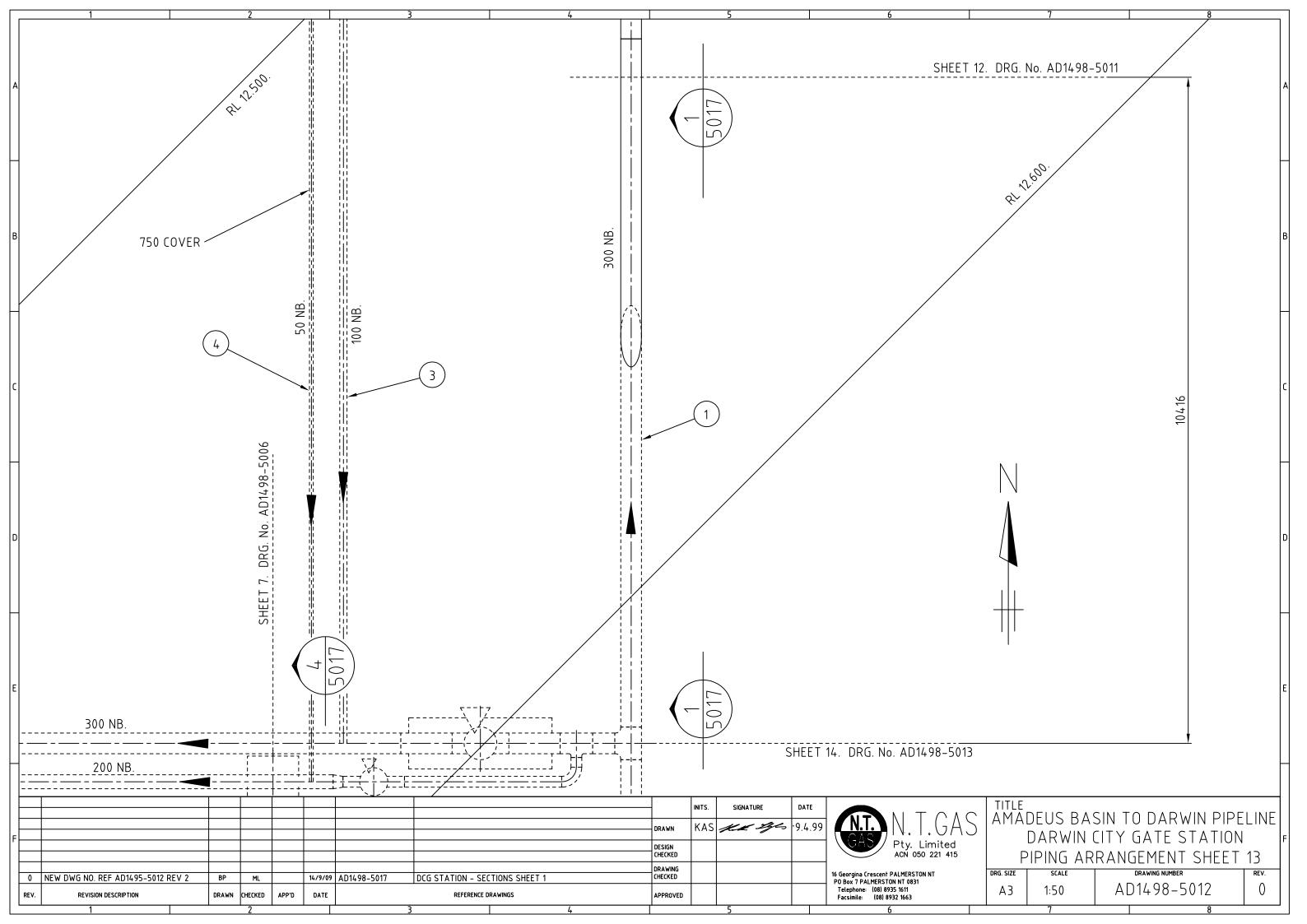


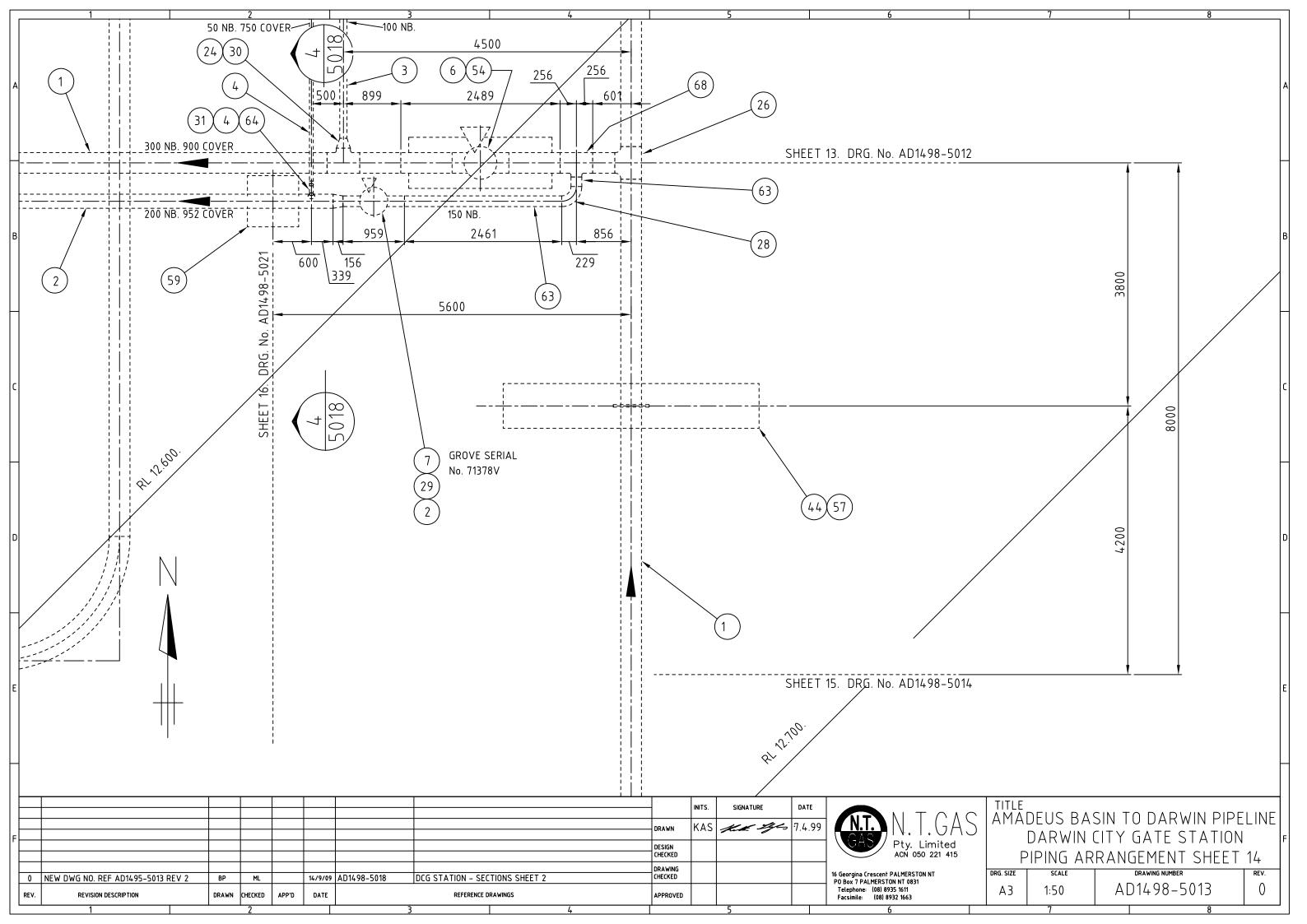


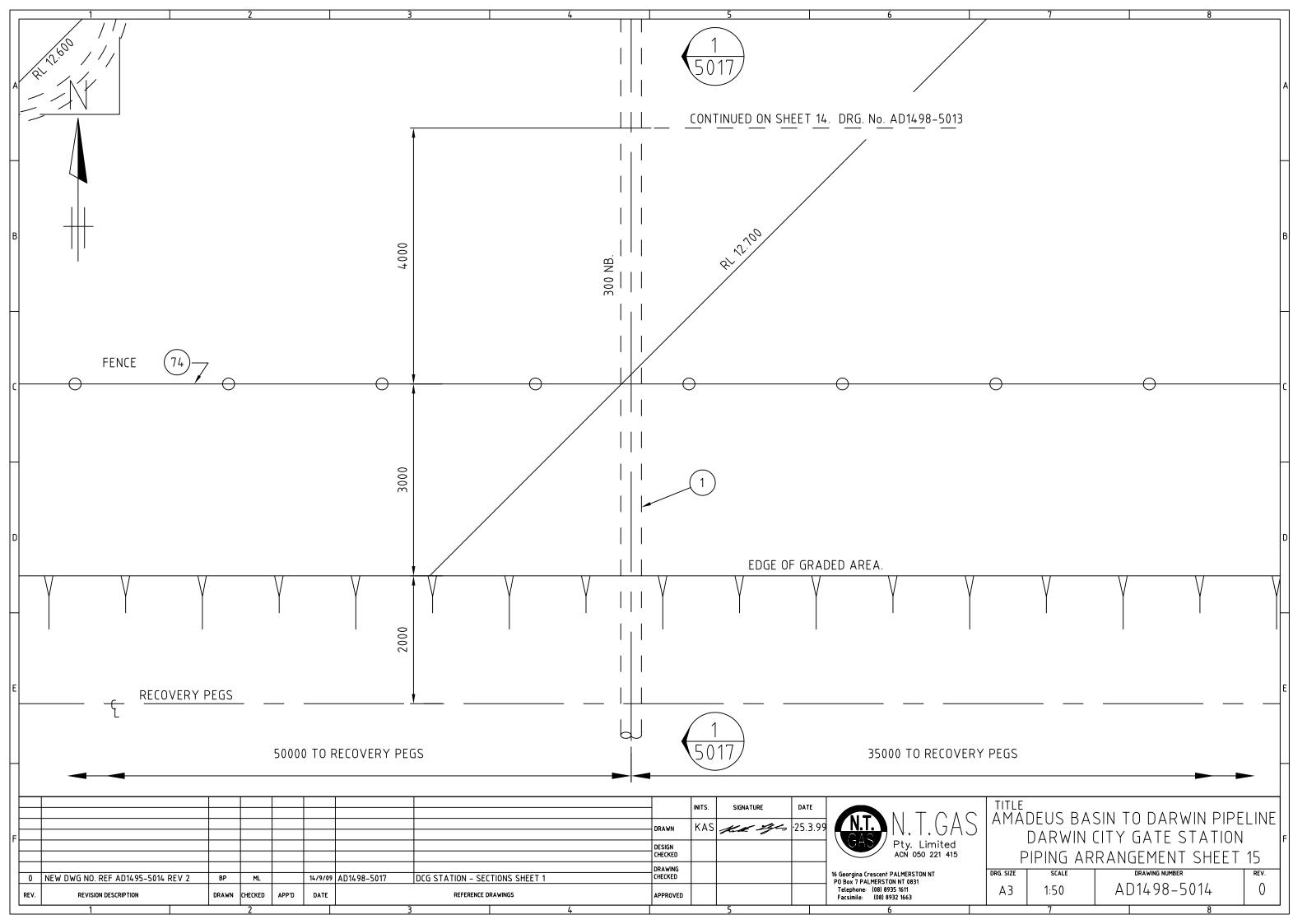


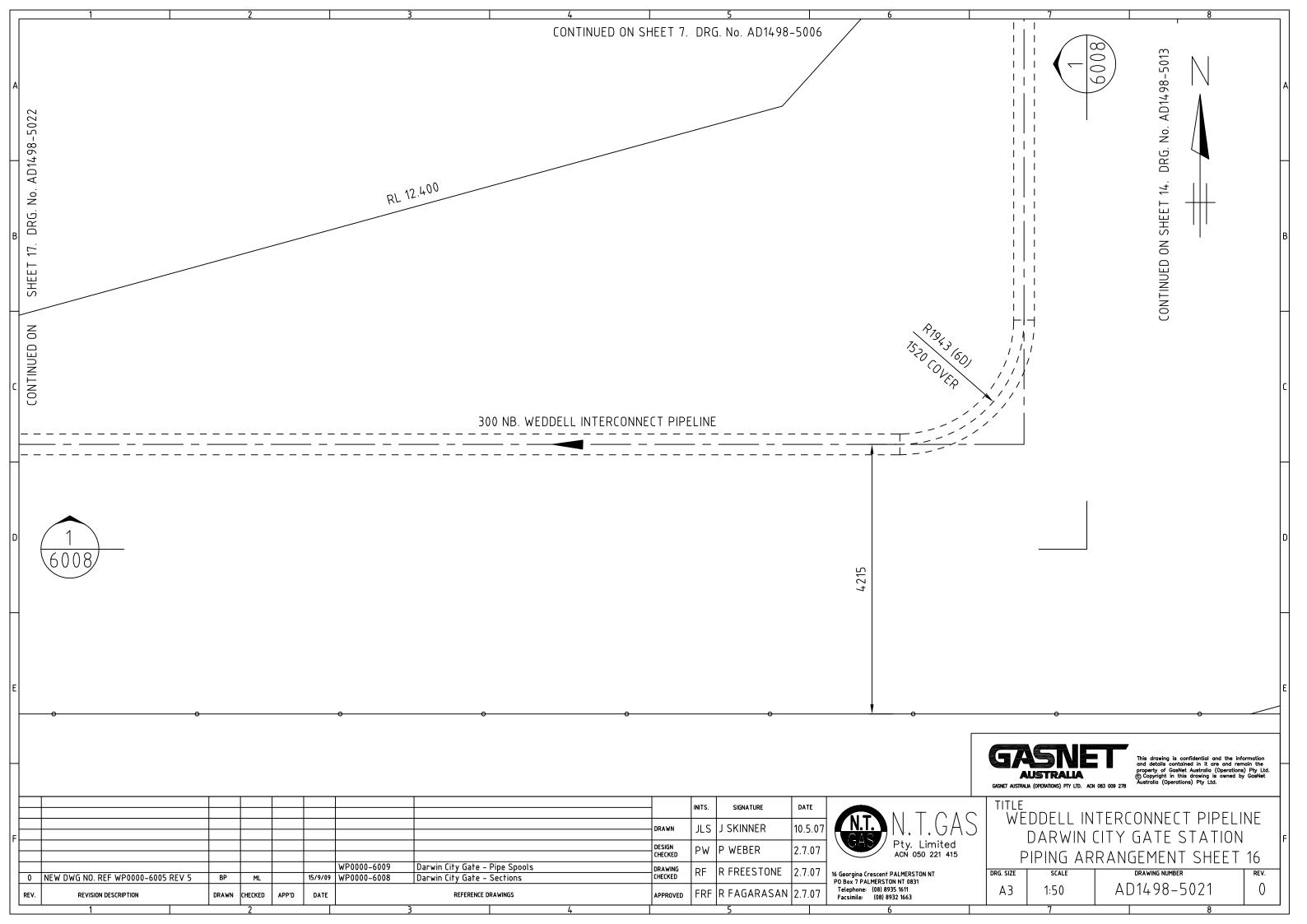


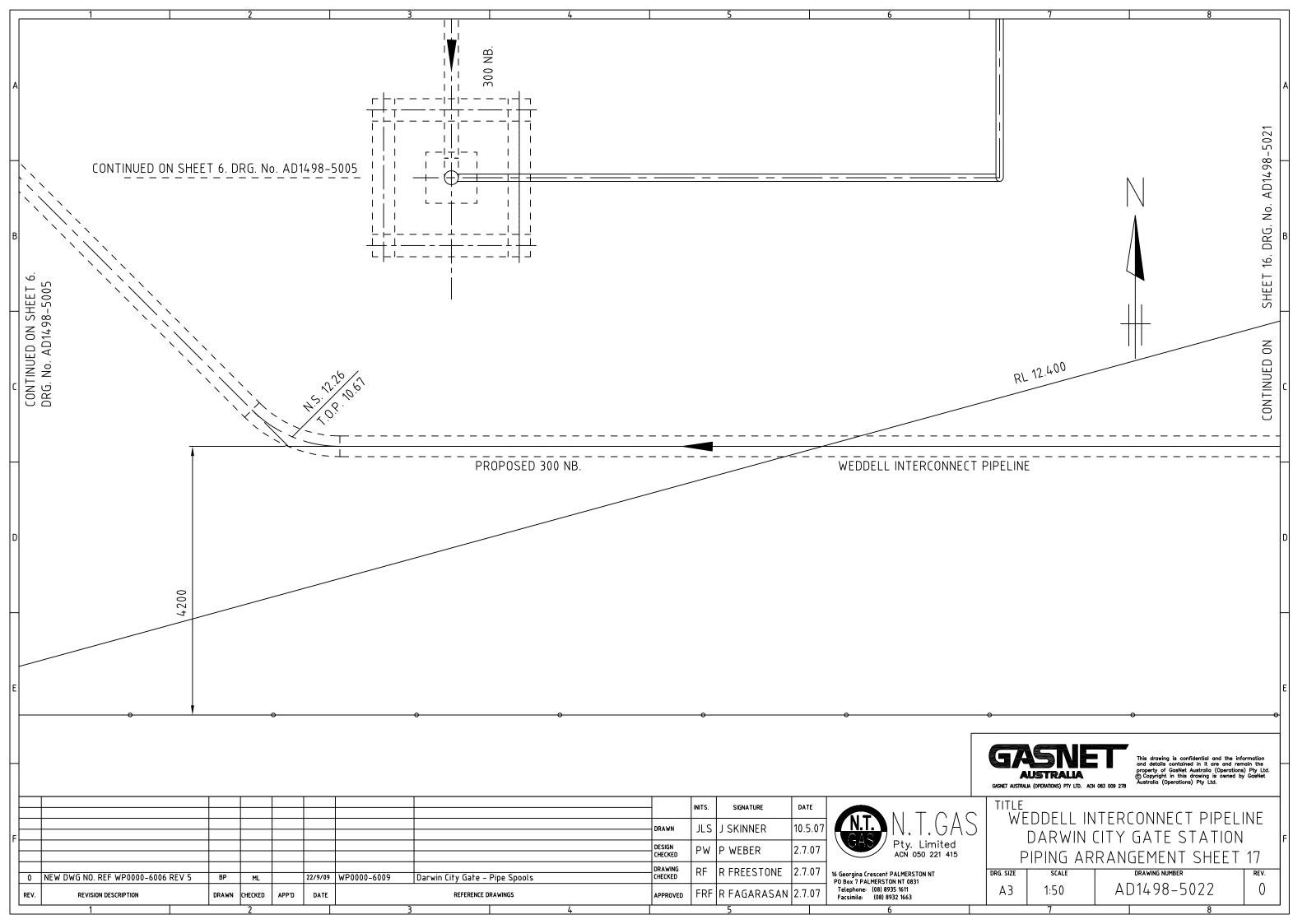


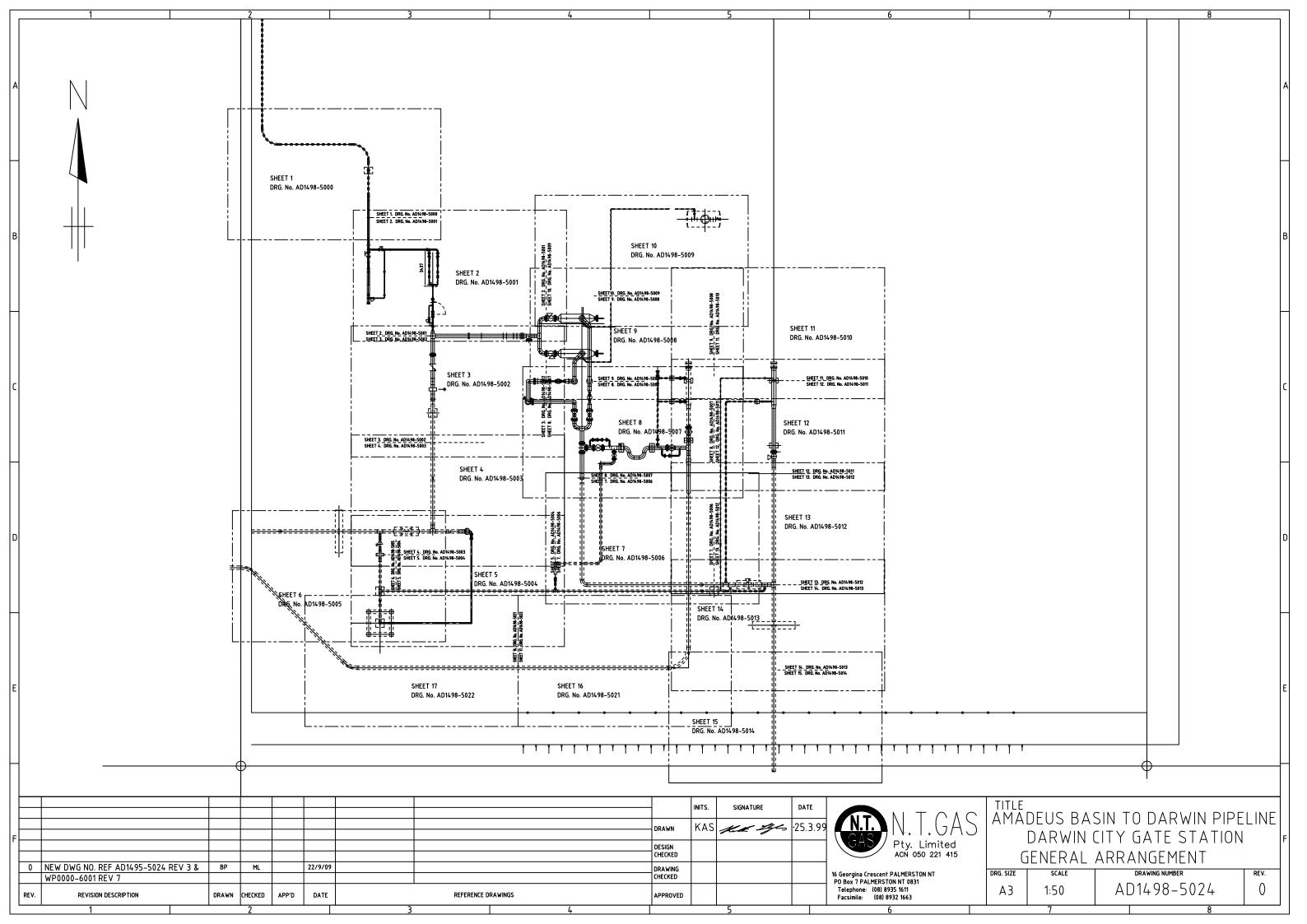


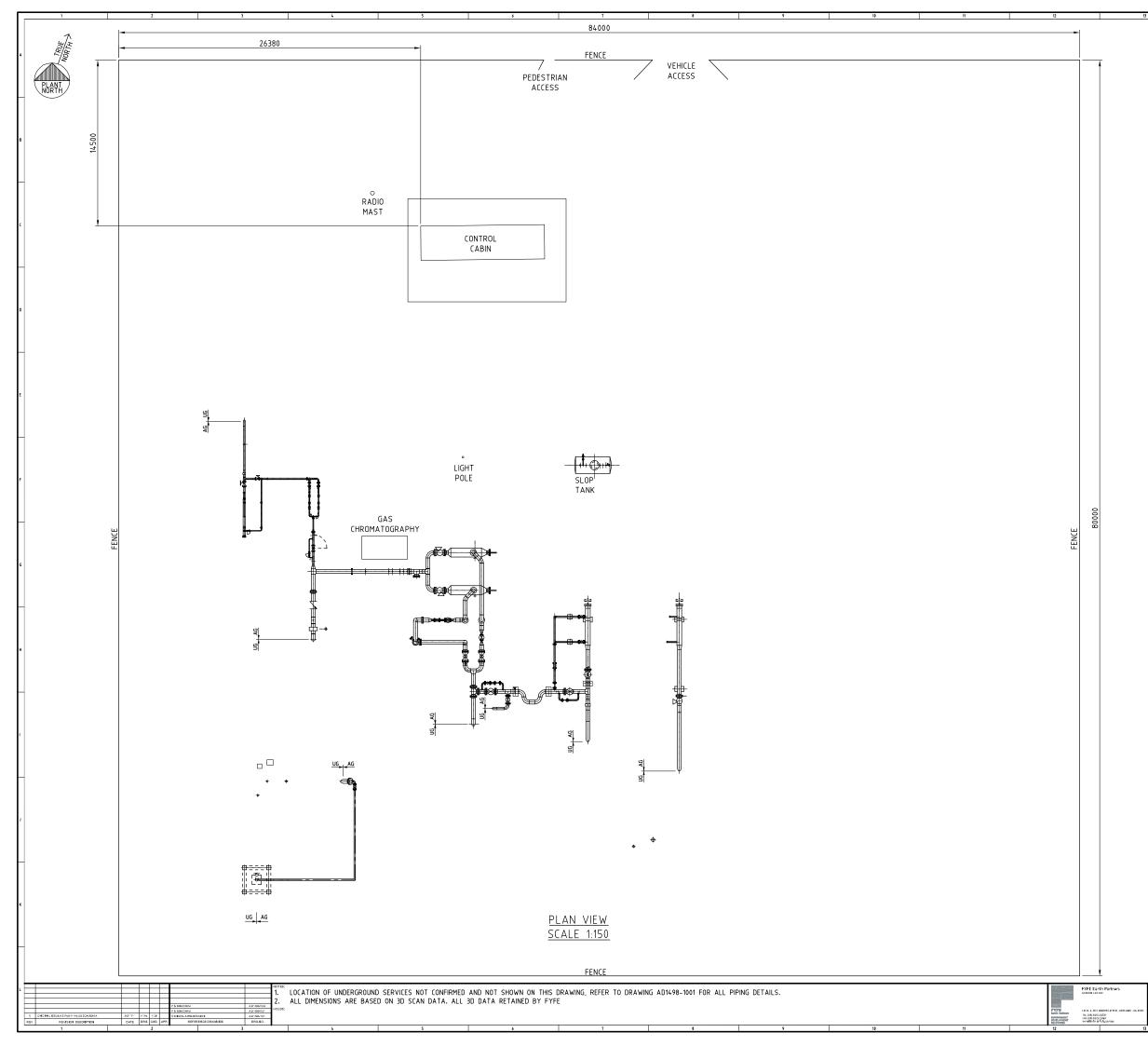










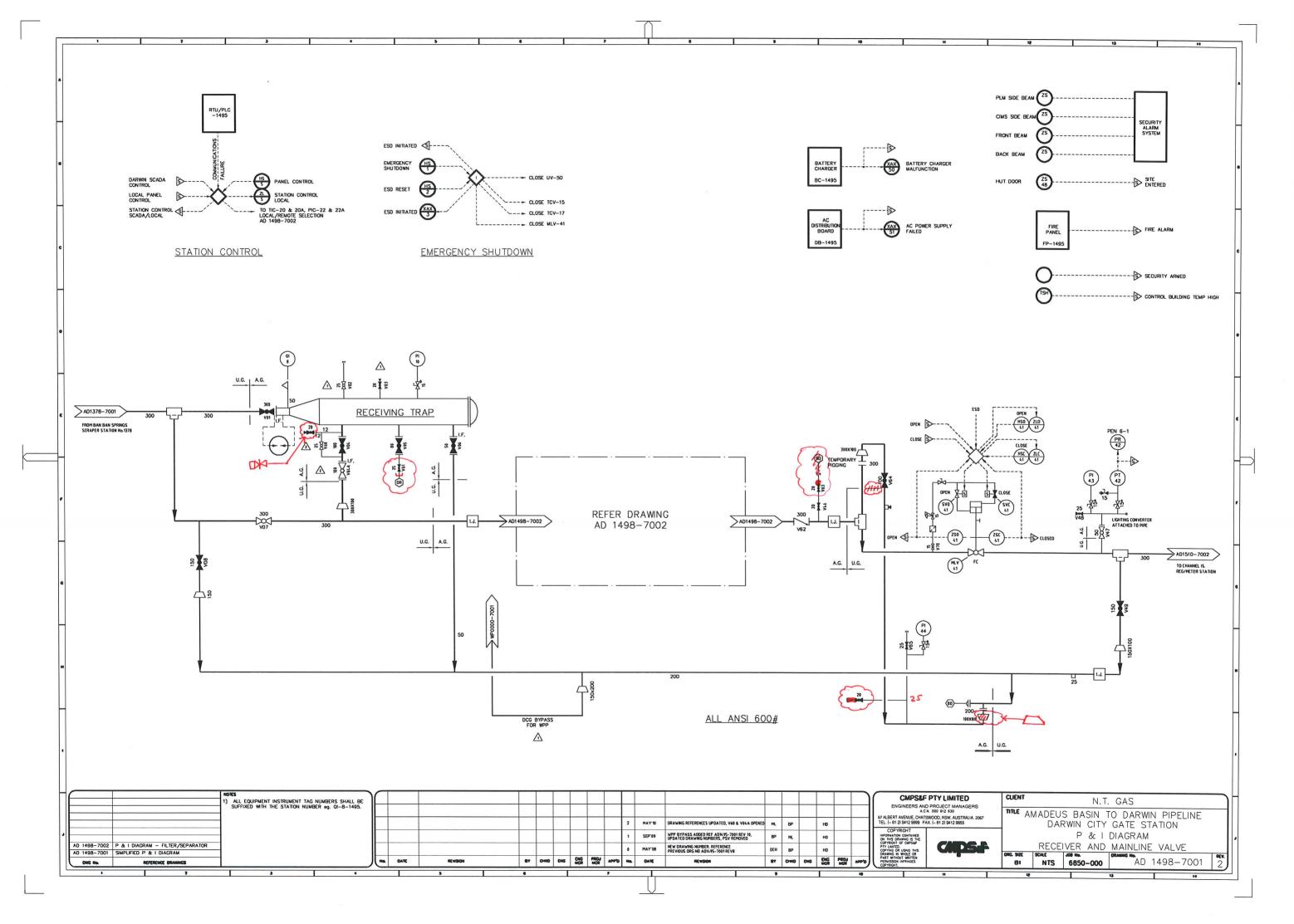


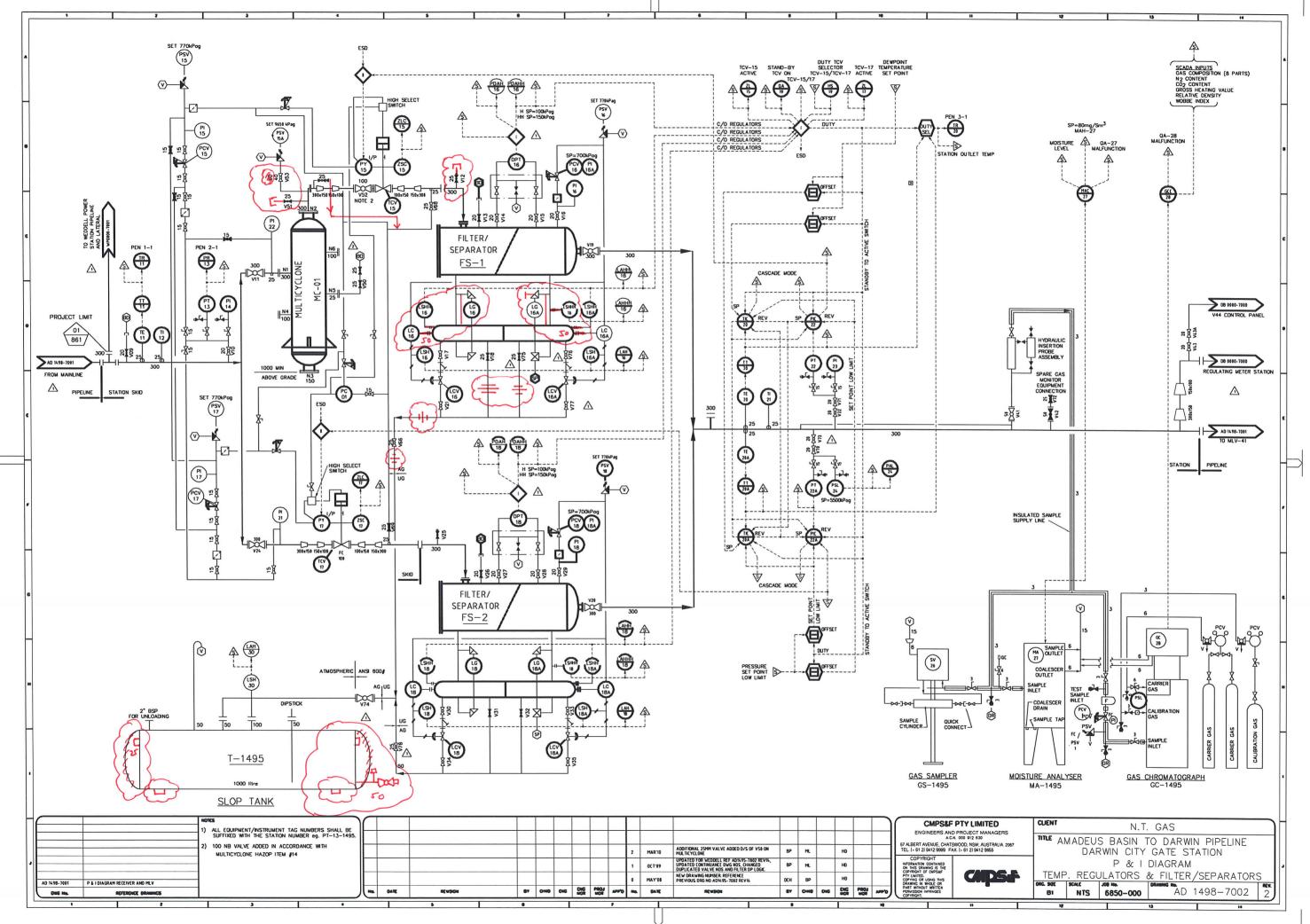
CONTROL VALVE (TYP.) BLOWDOWN DISCHARGE (TYP.) FILTER SEPARATOR (TYP.) SLOP TANK ELEVATIONS SCALE 1:150 0 2,5 5 7.5 10 12.5 SCALE 1:150 METRES APA Group
 Construct AMADEUS BASIN TO DARWIN PIPELINE

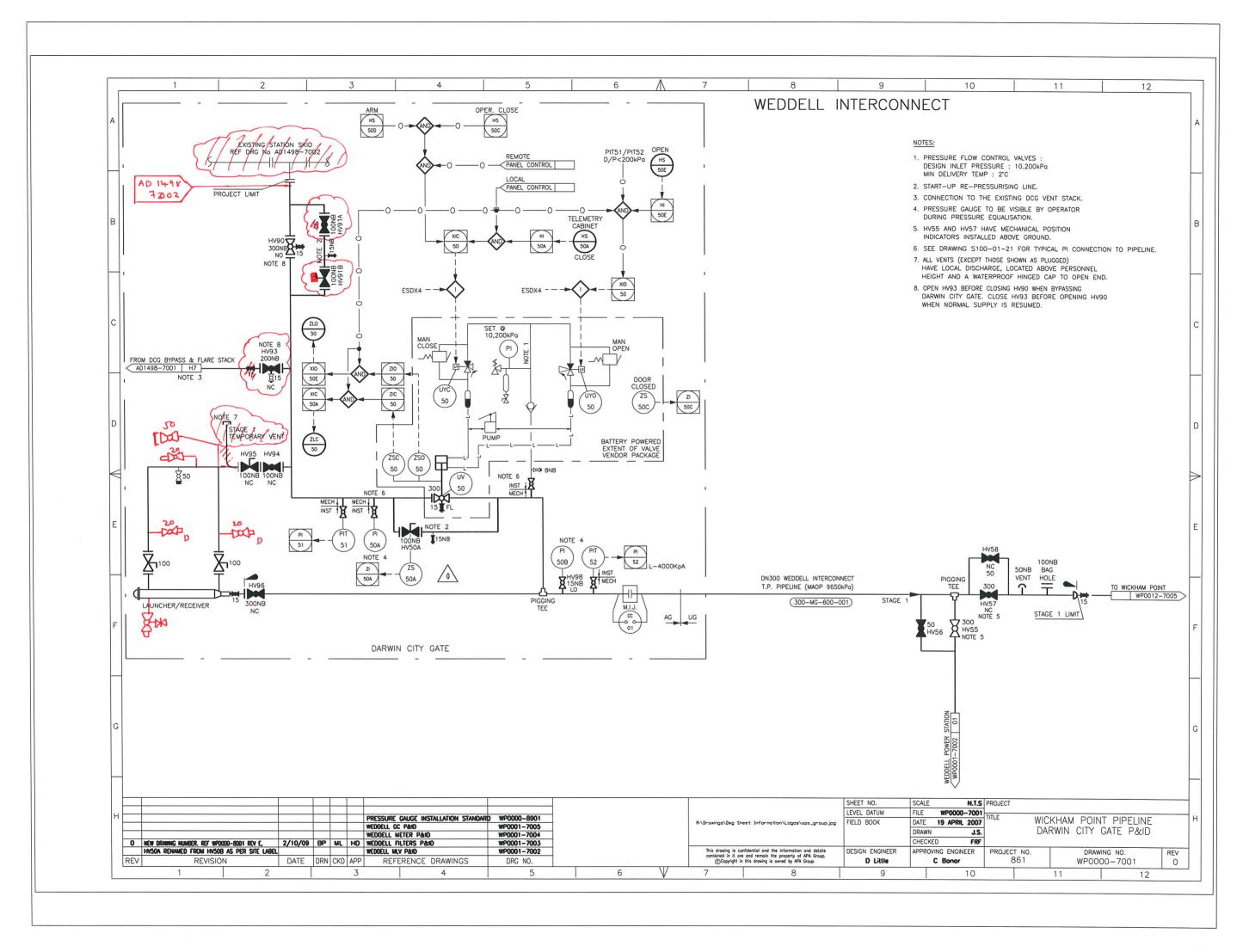
 METERING STATION PLOT PLAN - DARWIN CITY GATE

 ARWIN CITY GATE

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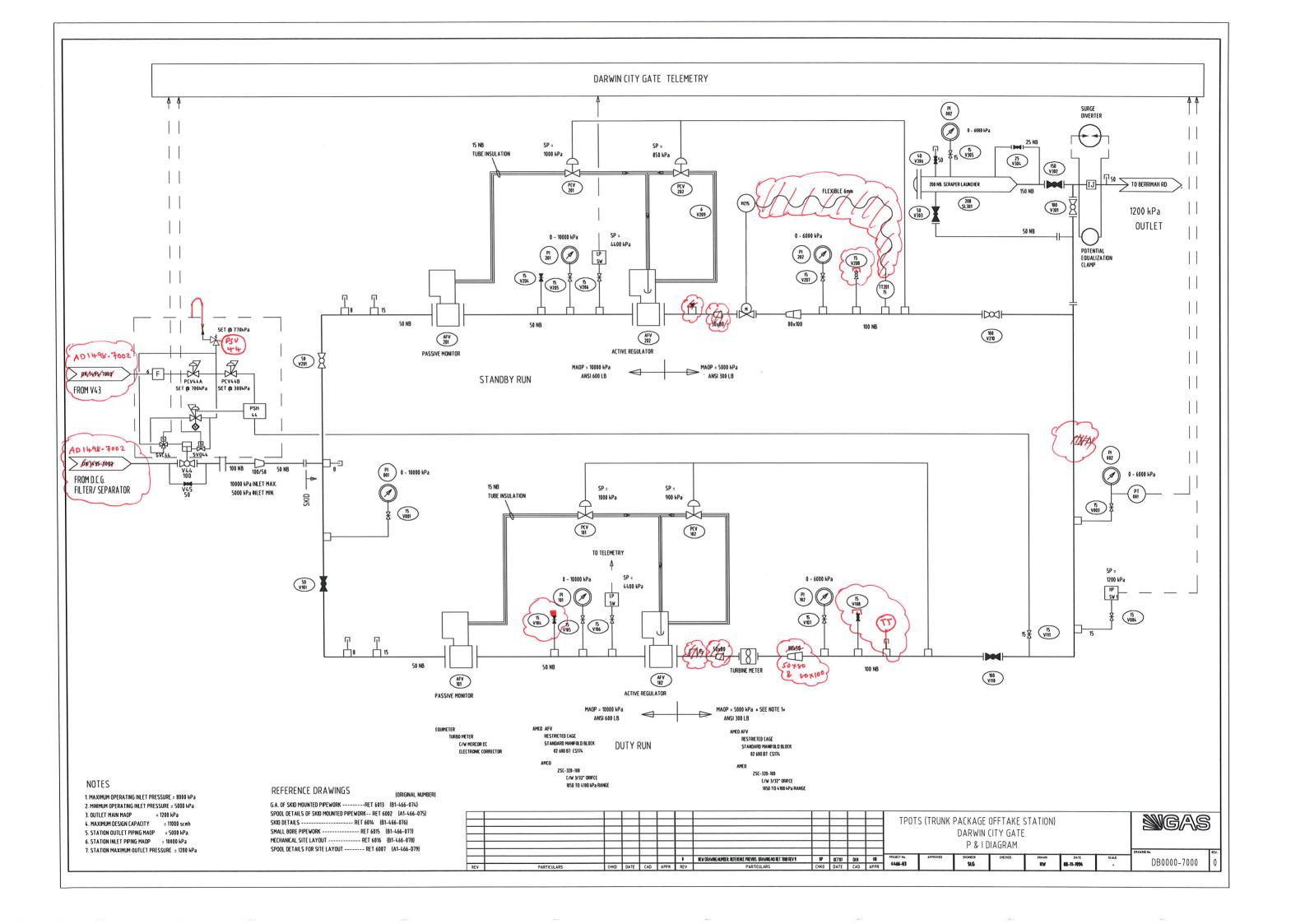






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2 Hazardous Area Classification Report

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_XXXX_SECTION_2

Prepared by:

Tony Bird Principal Process Engineer - Fyfe

Reviewed by:

Date: 26-Sep-2011

26-Sep-2011

Rowan Kilsby Manager, Mechanical Engineering - Fyfe

Client Accepted:

Anthony Comerford Pipeline Engineer – APA Group

Manager:

Date:

Date:

Date:

Henry Dupal Engineering Manager – APA Group Northern Territory

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Revision History:

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



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	КР
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	
Warrego	Scraper Station ONLY	0610
Morphett Creek	Mainline valve	0660
Renner Springs	Scraper Station	0733
Fergusson	Mainline valve	0791
Elliot Meter Station	Meter Station	
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	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



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,
- Katherine 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



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 2.7.11).

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 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 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.

2.4.1.7 Katherine Meter / Regulating Station

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 pipework 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 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 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.

2.4.1.8 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 a 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.

2.4.1.9 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 5800 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 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 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.

2.4.1.10 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 1filter, 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.

2.4.1.11 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 Water, 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.

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.

2.4.1.12 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.





2.4.1.13 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.

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

Table 1 Operating pressures and temperatures



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 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.

Component	Symbol	mol%
Methane	CH ₄	86.954
Ethane	C ₂ H ₆	2.557
Propane	C_3H_8	0.829
i-Butane	C ₄ H ₁₀	0.118
n-Butane	C_4H_{10}	0.216
i-Pentane	C ₅ H ₁₂	0.066
n-Pentane	C ₅ H ₁₂	0.054
n-Hexane	C ₆ H ₁₄	0.074
n-Heptane	C ₇ H ₁₆	0.017
n-Octane	C ₈ H ₁₈	0.004
n-Nonane	C ₉ H ₂₀	0.004
Carbon Dioxide	CO ₂	0.936
Nitrogen	N ₂	8.172
Total		100
Specific Gravity (r	nixture)	0.62

Table 2 Gas Composition

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 3 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 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

2.7.7 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 2** 0.5 m radius around the gas chromatograph system, excluding the cylinders

1.0 m radius around the vent tips

2.7.8 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 10.5 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

2.7.9 ODORANT INJECTION SYSTEM

2.7.9.1 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

2.7.9.2 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

2.7.9.3 Odorant Injection Pumps

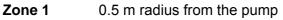
The odorant injection pumps are pneumatically powered from instrument gas that is derived from the transmission gas. During operation of pumps there will be a continuous vent of gas. There will be a *Continuous* release from the pump discharge through a bug screen located on the pump, refer photograph 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.





2.7.10 GROUND EFFECT

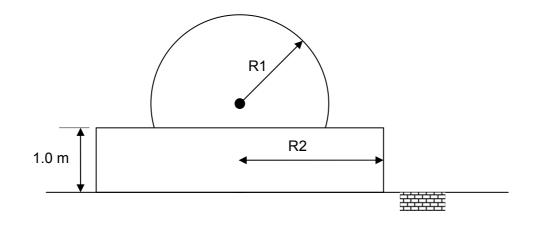
IP 15 Section 5.5 states that the determination of the full three dimensional envelope of the hazardous area zone shall consider the location of the release. The shape factor depends on height and orientation of the release. The key factors are:

- 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.

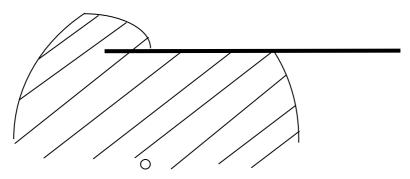
The ground effect increases the hazardous radius in accordance with IP 15 Table C9(b). A majority of the pipework in the facilities is to be located less than 1 m above grade. Interpolation of IP 15 Table C9(b) shows that the hazardous area for ground effect is 0.5 m larger than the hazardous area radius 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.





2.7.11 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:	A	В	С	D	
Flammable material list and	d characte	ristics					ľ	Autho	or:	YZW	тсв	ТСВ	тсв	
Amadeus Basin to Darwin Pi	ipeline						Ē	Check	(ed:	ТСВ	RDK	RDK	RDK	
Surface facilities	ace facilities													
										31/08/2011	24/08/2011	19/09/2011	26/09/2011	
Material	Phase	ADG Class	IP 15 Fluid Category	Boiling Point ⁰C	ASTM D86 5%(vol) Point of Stabilised Liquid at Atmospheric Pressure	Relative Density Of Fluid Vapour (Air SG=1) Liquid (Water SG=1)	Flash Poir Stabilise Liquid a Atmosphe Pressur ⁰C	ed at eric	Vapour LEL (Vol %) In Air	Vapour UEL (Vol %) In Air	Ignition Temperature °C	Temperature Class	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	-	0.62	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 (liquid) 3.06 (vapour)	-8		1.1*	12.1*	224	T3*	IIA	AS/NZS 60079.20 MSDS
Condensate	Liquid	3	С	69^{\dagger}	-	2.97 [†]	-21 [†]		1.0 [†]	8.4 [†]	233 [†]	T3 [†]	IIA	AS/NZS 60079.20

Part	II – Sheet 1 of 4							Revision:	А	В	С	D	
List o	of sources of rel	ease					Ale and a second se	Author:	YZW	ТСВ	тсв	тсв	
Amadeus Basin to Darwin Pipeline								Checked:	ТСВ	RDK	RDK	RDK	
Surface facilities							Earth Partners	QA:	ARD				
							DEVELOPMENT RESOURCES	Date:	31/08/2011	24/08/2011	19/09/2011	26/09/2011	
Р	rocess Equipm	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	Ventilation	Description	Grade*	Boundary of Zone 0	Boundary of Zone 1	Boundary of Zone 2	Temperature Class	occion
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)"	<u>≤</u> 9,650 kPag _≤ 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)"	<u>≤</u> 9,650 kPag <u>≤</u> 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
* C –	Continuous; S –	Secondary; P	– Primary										

Part	II – Sheet 2 of 4	4						and the second	Revision:	А	В	С	D	
List	of sources of re	elease							Author:	YZW	тсв	ТСВ	тсв	
Ama	deus Basin to D	arwin Pipelin	e						Checked:	ТСВ	RDK	RDK	RDK	
Surfa	ce facilities							YFE arth Partners WIRONMENT	QA:	ARD				
							DI	NVIRONMENT EVELOPMENT ESOURCES	Date:	31/08/2011	24/08/2011	19/09/2011	26/09/2011	
Pr	ocess Equipm	ent Item		Operating Conditions	Description of		Source Of	Release		Distance From	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	Boundary	of Zone 2	Group and Temperature Class	Section	
1	2	3	4	5	6	7	8	9	10	11	1	2	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		ly, 6 m below bove vent tip	IIA, T1	2.7.1.8
9	Pipeline blowdown		Vap. Cat "G(i)"	<u><</u> 9,650 kPag _≤ 60 °C	Valves and piping discharging vertically upwards	Natural (open air)	Pipe vent to atmosphere	S	N/A	N/A	extending 3 upwards downwards f	f radius 15 m 0 m vertically s and 1 m rom discharge bint 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	Radius of 1 r all directions	n extending in from the point charge	IIA, T1	2.7.1.10
11	Scraper vessels	Darwin Pipeline surface facilities	Vap. Cat "G(i)"	<u><</u> 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	quick oper As per secti piping for rer	directions from ning closure on 2.7.1.1 for nainder of the ssel	IIA, T1	2.7.2
12	Multicyclone and filter separators		Vap. Cat "G(i)"	<u>≤</u> 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 an	around the d 2 m radius of the vessels	IIA, T1	2.7.3
	separators		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		ctions down to d level	IIA, T3	2.7.1.1

Part II – Sheet 3 of

List of sources of re

Amadeus Basin to Da

Surface facilities

No.

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rt	II – Sheet 3 of 4							Revision:	А	В	С	D	
st e	of sources of relea	se					- Contraction of the local division of the l	Author:	YZW	ТСВ	тсв	ТСВ	
nad	deus Basin to Darwi	n Pipeline					EVEE	Checked:	тсв	RDK	RDK	RDK	
rfa	ce facilities						Earth Partners	QA:	ARD				
							DEVELOPMENT RESOURCES	Date:	31/08/2011	24/08/2011	19/09/2011	26/09/2011	
	Process Equipme	nt Item	Flammable	Operating Conditions	Description of Flammable		Source	Of Release	Dist	ance From Sou	urce To	Equipment Group and	
).	Description	Location	Material	Pressure and Temperature	Material Containment	Ventilation	Description	Grade*	Boundary of Zone 0	Boundary of Zone 1	Boundary of Zone 2	Temperature Class	Section
	2	3	4	5	6	7	8	9	10	11	12	13	14
3	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
Ļ	Water bath heaters	Amadeus	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 gas connections of vessel	IIA, T1	2.7.5
5	Knockout pots	Basin to Darwin Pipeline	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	IIA, T1	2.7.6
6	Gas chromatograph systems	surface facilities	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	0.5 m radius around system, excluding cylinders 1.0 m radius around vent tips	IIA, T1	2.7.7
,	Water dew point analysers / gas samplers		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 Inside sampler box	0.5 m radius around the system, 1.0 m radius around vent tips	IIA, T1	2.7.8
3	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 down to ground level	IIA, T3	2.7.9.1

* C – Continuous; S – Secondary; P – Primary

Part	II – Sheet 4 of 4	4						Revision:	А	В	С	D	
List of sources of release						atter the state of	Author:	YZW	ТСВ	ТСВ	ТСВ		
Amad	deus Basin to D	arwin Pipelir	ie					Checked:	ТСВ	RDK	RDK	RDK	
Surfa	ce facilities						Earth Partners	QA:	ARD				
							DEVELOPMENT RESOURCES	Date:	31/08/2011	24/08/2011	19/09/2011	26/09/2011	
Pr	ocess Equipm	ent Item	Flammable	Operating Conditions	Description of Flammable		Source C	of Release	Dis	tance From Sour	се То	Equipment Group and	Ocation
No.	Description	Location	Material			ventilation	Ventilation Description		Boundary of Zone 0	Boundary of Zone 1	Boundary of Zone 2	Temperature Class	Section
1	2	3	4	5	6	7	8	9	10	11	12	13	14
ir			Vap. Cat "C"	ap. Cat 15 kPag	Enclosed vessel	Shelter with open sides	Connections	S		N/A	1.5 m in all directions down to ground level		2.7.9.2
	Odorant injection system storage tanks				Blanket gas vent		Pipe vent to atmosphere	Р	N/A	Radius of 1.5 m in all directions from vent tip	Within cylindrical volume below Zone 1	IIA, T3	
		Amadeus Basin to Darwin Pipeline	Basin to Darwin	Amadeus Basin to Darwin Pipeline	<u>≤</u> 60 °C	Pressure relief valve and piping discharging vertically upwards	(open air)	Pipe vent to atmosphere	S		N/A	Radius of 1.5 m in all directions from vent tip	
20	Odorant injection system pumps	facilities	Vap. Cat "G(i)"	≤ 400 kPag <u><</u> 60 °C	Pneumatic pump instrument gas exhaust	Shelter with open sides (open air)	Piping connections and vents	с	N/A	N/A	Radius of 0.5 m	IIA, T1	2.7.9.3
21	Ground effect		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 to 1 m above grade for all process piping less than 2 m above grade	N/A	2.7.10



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
	Equipment and circuit ID required	Provide equipment and circuit ID
AD 1498-OFI-1 Valve Limit Switch (Open)	Remediate UV damaged cable sheath	Repair as per description
AD 1498-ZSO-41	Nil hazardous area certification detail available for JB and limits	Obtain hazardous area certification for JB and limits or replace equipment
	Equipment and conduit ID required	Provide equipment and conduit ID
AD 1498-OFI-2 Solenoid Valve	Corrosion and poor condition suggesting replacement prior to failure	Replace any corroded areas before failure
(Open) AD 1498-SVO-41	Nil Australian Ex certification available	Obtain (if any) Australian Certification for valve
	Vermin ingress evident, sealing of JB required	Seal JB
	Equipment and conduit ID required	Provide equipment and conduit ID
AD 1498-OFI-3 Solenoid Valve	Corrosion and poor condition suggesting replacement prior to failure	Replace any corroded areas before failure
(Closed) AD 1498-SVC-41	Nil Australian Ex certification available	Obtain (if any) Australian Certification for valve
	Vermin ingress evident, sealing of JB required	Seal JB
	Circuit ID required	Provide circuit ID
AD 1498-OFI-4	Tighten loose cable gland	Review as per description
Pressure	Provide blue cable sheath	Review as per description
Transmitter AD 1498-PT-42	Visible external corrosion requiring internal inspection	Review as per description
	Cable support required	Provide cable support



OFI No.	Description	Proposed Remedy
	Provide blue cable sheath	Review as per description
AD 1498-OFI-5 Pressure Transmitter	Remediate UV damaged cable sheath	Review as per description
AD 1498-PT-13	Corrosion to device, suggest internal inspection	Review as per description
AD 1498-OFI-6	Equipment & cable ID required	Provide equipment and cable ID
Valve Limit Switch (Closed)	Remediate cable sheath with UV damage	Repair as per description
AD 1498-ZSC-15	Provide blue sheath to cable	Review as per description
	Cable support required	Provide cable support
AD 1498-OFI-7	Equipment & cable ID required	Provide equipment and cable
Valve Limit Switch (Closed) AD 1498-ZSC-17	Blue sheath to be replaced and remediate UV damaged cable sheath	Review as per description
AD 1498-OFI-8	Equipment & cable ID required	Provide equipment and cable
Pressure	Remediate UV damaged sheath	Repair as per description
Regulator AD 1498-PY-15	Refer Ex d/Ex i notes for PY-17 regarding barrier	Review as per description
	Cable support required	Provide cable support
	Equipment & cable ID required	Provide equipment and cable
	Remediate UV damaged sheath	Repair as per description
AD 1498-OFI-9 Pressure Regulator AD 1498-PY-17	Cable appears to have blue sheath, however device Ex rating not available and IS barrier not confirmed within control hut. Item (DVC 5010) does contain duel Ex d/Ex i certification. Further investigation required	Review as per description
	Uncertified gland/plug if Ex d method of protection	Obtain certified gland/plug method of protection
	Cable support required	Provide cable support



OFI No.	Description	Proposed Remedy
AD 1498-OFI-10	Unused cable and JB	Review use of cable and JB
Junction Box AD 1498-ISJB-1	Remove from installation or make safe and identify cable, JB etc.	Review as per description
AD 1498-OFI-11 Junction Box	Unused cable and JB with exposed cabling	Review use of cable and JB and cover exposed cabling
AD 1498-ISJB-2	Remove from installation or make safe and identify	Review as per description
	Equipment and cable ID required	Provide equipment and cable ID
AD 1498-OFI-12	UV damaged sheath	Repair as per description
Level Switch	Provide blue sheath to cable	Review as per description
AD 1498-LSHH-16	Poor condition and age suggesting replacement	Review as per description
	Corrosion visible	Mitigate corrosion
	Equipment and cable ID required	Provide equipment and cable ID
AD 1498-OFI-13 High-High Level	Remediate UV damaged sheath	Repair as per description
Switch	Provide blue sheath to cable	Review as per description
AD 1498-LSHH- 16A	Poor condition and age suggesting replacement	Review as per description
	Corrosion visible	Mitigate corrosion
	Cable labels required	Provide cable labels
AD 1498-OFI-14	Tighten loose gland	Review as per description
High Level Switch AD 1498-LSH-16	Remediate UV damaged sheath	Repair as per description
	Replace blue cable sheath	Review as per description
	Cable labels required	Provide cable labels
AD 1498-OFI-15 High Level Switch	Remediate UV damaged cable sheath	Repair as per description
AD 1498-LSH-16A	Replace blue cable sheath	Review as per description



OFI No.	Description	Proposed Remedy
	Equipment and cable ID required	Provide equipment and cable ID
AD 1498-OFI-16	Remediate UV damaged sheath	Repair as per description
Level Switch	Replace blue cable sheath	Review as per description
AD 1498-LSHH-18	JB damage/cracking at gland entry, visible corrosion	Mitigate corrosion and repair as per description.
	Poor condition and age suggesting replacement	Review as per description
	Equipment and cable ID required	Provide equipment and cable ID
AD 1498-OFI-17	Remediate UV damaged sheath	Repair as per description
Level Switch AD 1498-LSHH-	Provide sheath to cable	Review as per description
18A	Visible corrosion	Mitigate corrosion
	Poor condition and age suggesting replacement	Review as per description
AD 1498-OFI-18	Cable ID required	Provide cable ID
High Level Switch AD 1498-LSH-18	Equipment label illegible (apart from model no.), suggest new labels for future reference	Provide equipment labels
	Cable label required	Provide cable label
AD 1498-OFI-19 High Level Switch AD 1498-LSH-18A	Remediate UV damaged cable sheath	Repair as per description
AD 1490-LON-10A	Replace blue cable sheath	Review as per description
ADP1498-OFI-20	Equipment and circuit ID required	Provide equipment and circuit
Temperature Transmitter	Provide cable support	Review as per description
AD 1498-TT-20	Remediate cable sheath and replace blue sheath	Review as per description
AD 1498-OFI-21	Equipment and cable ID required	Provide equipment and cable ID
Temperature Transmitter	Provide cable support	Review as per description
AD 1498-TT-20A	Remediate cable sheath and replace blue sheath	Review as per description



OFI No.	Description	Proposed Remedy
AD 1498-OFI-22	Cable ID required	Provide cable ID
Pressure Transmitter AD 1498-PT-22	Remediate cable sheath and provide blue sheath	Review as per description
AD 1498-OFI-23 Pressure Transmitter AD 1498-PT-22A	Remediate cable sheath and provide blue sheath	Review as per description
AD 1498-OFI-24 Low Pressure	Remediate cable sheath and provide blue sheath	Review as per description
Switch AD 1498-PSL-24	Equipment corrosion, poor condition, illegible label	Mitigate corrosion and replace label
	Tighten loose gland	Review as per description
AD 1498-OFI-25	Replace damaged (UV) blue sheath to cable	Review as per description
High Level Switch AD 1498-LSH-30	Illegible equipment nameplate, severe corrosion	Provide new nameplate and mitigate corrosion
	Provide cable support	Review as per description
	Equipment and certification ID required	Provide equipment certification and ID
AD 1498-OFI-26	Nil evidence of I.S. Installation hence flameproof installation considered	Review as per description
Valve Limit Switch AD 1498-ZSC-44	Uncertified gland, plug and adaptor required replacement	Replace certified gland/plug
	Corroded equipment suggesting further inspection for fitness for purpose	Review as per description
AD 1498-OFI-27 Pressure Transmitter AD 1498-PT-51	Device stamped with instrument tag of poor visibility. Recommend legible label/tag be installed similar to other transmitters on site	Review as per description
AD 1498-OFI-28 Pressure Transmitter AD 1498-PT-52	Device stamped with instrument tag of poor visibility. Recommend legible label/tag be installed similar to other transmitters on site	Review as per description



OFI No.	Description	Proposed Remedy
AD 1498-OFI-29	Equipment ID required	Provide equipment ID
Solenoid Valve AD 1498-UYO-50	Verify washer (nil cert.) at gland entry to solenoid complies with Ex e install	Review as per description
AD 1498-OFI-30	Equipment I.D. Required	Provide equipment ID
Solenoid Valve AD 1498-UYC-50	Verify washer (nil cert.) at gland entry to solenoid complies with Ex e install	Review as per description
AD 1498-OFI-31	Equipment ID required	Provide equipment ID
Valve Limit Switch AD 1498-ZSO-50	Nil certification exists to Aus Ex standards	Obtain Aus Stand. certification
AD 1498-OFI-32	Equipment ID required	Provide equipment ID
Valve Limit Switch AD 1498-ZSC-50	Nil certification exists to Australian Ex standards	Obtain certification to Australian Standards
AD 1498-OFI-33 Junction Box AD 1498-UV-50 IS JB	Corrosion to glands within JB requires attention and appropriate remediation	Review as per description
AD 1498-OFI-34 Junction Box AD 1498-UV-50 IS JB	Corrosion to glands and DIN rail within JB requires attention and appropriate remediation	Review as per description
AD 1498-OFI-35	Equipment & cable ID to be provided	Provide equipment and cable
Temperature Element	Blue sheath to cable required	Provide blue sheath to cable
AD 1498-TE-11	UV damage to cable requires remediation	Remediate UV damage
AD 1498-OFI-36	Equipment and circuit ID required	Provide equipment and circuit ID
Differential	Remediate UV damaged sheath	Review as per description
Pressure	Provide blue sheath	Review as per description
Transmitter AD 1498-DPT-16	Ex certification label not visible, provide new label and verify certification as I.S.	Review as per description



OFI No.	Description	Proposed Remedy
	Circuit ID required	Provide circuit ID
	Remediate UV damaged sheath	Review as per description
AD 1498-OFI-37	Provide blue cable sheath	Review as per description
Pressure Transmitter AD 1498-DPT-18	Ex certification label not visible, provide new label and verify certification is I.S.	Review as per description
	Corrosion visible	Mitigate corrosion
	Un-certified plug adaptor	Obtain certification for plug adaptor
AD 1498-OFI-38 Solenoid Valve AD 1498-SVC-44	Equipment and certification ID required	Provide equipment certification ID
AD 1498-OFI-39 Solenoid Valve AD 1498-SVO-44	Circuit ID required	Provide circuit ID
	Equipment and circuit ID required	Provide equipment and circuit ID
AD 1498-OFI-40 Pressure Switch AD 1498-LP-SW	Equipment Ex d rated however aid conduit system installed. Nil evidence of I.S. Circuit, further investigation required to verify design method of installation	Review as per description
	Corrosion visible on conduit	Mitigate corrosion on conduit
	Equipment and full ID required	Provide equipment and full ID
AD 1498-OFI-41 Pressure Switch AD 1498-LP-SW	Equipment Ex d rated however aid conduit system installed. Nil evidence of I.S. Circuit, further investigation required to verify design method of installation	Review as per description
	Corrosion visible on conduit	Mitigate corrosion on conduit



OFI No.	Description	Proposed Remedy
AD 1498-OFI-42	Equipment and cable ID required	Provide equipment and cable
Meter	Blue cable sheath required	Provide blue cable sheath
AD 1498- TURBINE METER	Ex certification not applicable to Australian Standards, conformity assessment required	Review as per description
	Equipment and cable ID required	Provide equipment and cable
AD 1498-OFI-43	Blue cable sheath required	Provide blue cable sheath
Meter AD 1498- TURBINE METER	Ex certification not applicable to Australian Standards, conformity assessment required	Review as per description
	Corrosion visible on conduit	Mitigate corrosion
AD 1498-OFI-44 Temperature	Equipment and full ID required	Provide equipment and full ID
Transmitter AD 1498-TT	Blue sheath/I.S. label to conduit required	Provide blue sheath/I.S. label to conduit
AD 1498-OFI-45 Temperature	Equipment and cable ID required	Provide equipment and cable
Transmitter AD 1498-TT	Blue sheath/I.S. Label required	Provide blue sheath/I.S. label
AD 1498-OFI-46	Equipment and full ID required	Provide equipment and full ID
Pressure Transmitter	Corrosion visible at conduit adaptor	Mitigate corrosion at conduit adaptor
AD 1498-PT0001	Blue sheath/I.S. Label required	Provide blue sheath/I.S. label
AD 1498-OFI-47	Equipment and full I.D. Required	Provide equipment and full ID
Pressure Switch AD 1498-HP SW1	Blue sheath/I.S. Label to conduit required	Provide blue sheath/I.S. label
AD 1498-OFI-48 Heat Trace	Equipment label required, label heat trace	Provide equipment label
Junction Box AD 1498-JB	Verify adapting reducer complies to maintain I.P. Of installation, Ex certificates etc	Review as per description



OFI No.	Description	Proposed Remedy
	Equipment ID required	Provide equipment ID
AD 1498-OFI-49 Moisture Analyser AD 1498-MA-27	Nil Australian Certification detail available, conformity assessment required. Ex d or e device assumed as Ex c install as per connecting JB	Review as per description
	Equipment ID required	Provide equipment ID
	Seal conduit below JB	Review as per description
AD 1498-OFI-50 MA-27 Junction Box	Verify maximum circuit power dissipation does not exceed 7 watts	Review as per description
AD 1498-JB	Verify adaptor on circuit gland to be Ex e rated, replace as required	Review as per description
	Equipment I.D. Required	Provide equipment ID
AD 1498-OFI-51 Chromatograph AD 1498-GC 28	Verify conduit between GC and posifit JB is installed Ex d method of protection to Australian Certifications/Standards	Review as per description
	Seal cable conduit located through concrete	Review as per description
	Equipment and cable conduit ID required	Provide equipment and cable conduit ID
AD 1498-OFI-52 Junction Box AD 1498-JB	Verify conduit between JB and GC is installed Ex e method of protection to Australian certifications/standards	Review as per description
	Seal cable conduit located through concrete	Review as per description
AD 1498-OFI-53	Equipment ID required	Provide equipment ID
Switch AD 1498-Switch	Moderate UV damage to sheath	Remediate UV damage to sheath
AD 1498-OFI-54	Equipment ID required	Provide equipment ID
Limit Switch JB AD 1498-ZS 50C	Further inspection on site required, only photographic inspection completed	Review as per description



OFI No.	Description	Proposed Remedy				
AD 1498-OFI-55	Equipment and circuit ID required	Provide equipment and circuit ID				
AD 1498-IR SECURITY BEAM	Equipment not rated for hazardous area installations	Obtain certification for equipment in hazardous area				
AD 1498-OFI-56	Light & switch labels required	Provide light and switch labels				
Light & Switch	UV damaged power cable requires remediation	Remediate UV damage on power cable				
AD 1498-OFI-57 Refer additional information	Fibreglass surge diverter boxes decomposed	Replace decomposed boxes				
AD 1498-OFI-58 Slops Tank	The slops tank is not compliant with AS 1940 / AS 1692. Some concerns include; no bunding, evidence of wooden dipstick, no flame arrestor or explosion hatch, no tank nameplate, vent point directed downwards, no restriction orifice on the liquid drain lines.	Refer additional information				
AD 1498-OFI-59 Slops Tank Cabling	The cable for the level transmitter on the slop tank is not supported. As shown in the photograph for AD 1498-OFI-58	Provide cable support in accordance with AS 3000: 2007 ": Electrical installations (known as the Australian/New Zealand Wiring Rules)"				
AD 1498-OFI-60 Unsealed cable conduits Refer additional information	Unsealed cable conduits provide a route for flammable gases to pass to the control room and potential ignition sources	Seal conduits with suitable sealant (expanding foam)				
AD 1498-OFI-61	Earth cables not secured	Secure cables and fit conduit				
AD 1498-OFI-62 Vent holes	Refer additional information	Remove caps on local vents and add canvas caps to avoid rain ingress				
AD 1498-OFI-63 CP test point	A cathodic protection test point is located close to the	Review test point. Relocate if necessary or undertake testing under a work permit with gas testing and monitoring as required.				



OFI No.	Description	Proposed Remedy
AD 1498-OFI-64 Infrared Security sensors Refer additional information	This has been installed on the support for the vent stack. This is within the hazardous area.	Relocate security sensor
AD 1498-OFI-65 Instrument gas PSV discharge	The tail Instrument gas PSV are typically short and terminate close to the valve. It is recommended that the discharge is directed to discharge vertically upwards at a safe location.	Modify PSV tail pipes
AD 1498-OFI-66 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
AD 1498-OFI-67 Pyrophoric iron	Solids collected in the cyclone may also contain pyrophoric iron that may can spontaneously combust on exposure to the atmosphere. Refer OFI 11	Review procedure for emptying cyclone
AD 1498-OFI-68 Cyclone platform	The cyclone platform may not be compliant to AS 1597	APA to conduct audit and modify as required
AD 1498-OFI-69 Non-current P&IDs	The P&IDs did not reflect the installed equipment at the site. The P&ID for the TPOTS metering skid was not in accordance with standard P&ID symbols. Inconsistent P&ID continuation arrows	Develop / adopt APA standard P&ID symbols Review and revise P&IDs as required.



Additional Information

AD 1498-OFI-57: Degraded junction box



AD 1498-OFI-58: Non-Compliant Slops Tanks

The slops tank receives liquids collected from the filter separators. 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". Some deficiencies identified in the tank arrangement include:

- No spill containment bund.
- No flame arrestor on the tank.
- No explosion / fire protection.
- No evidence that the liquid inlet to the tank included a drop pipe and a liquid seal
- No obvious earthing of tank.
- Appeared to be a wooden dipstick. Typically dipsticks are fabricated from aluminium.
- No restriction orifices in the drain lines to minimise gas break through.
- The tank vent is pointing vertically downwards that increases the size of the hazardous area.
- No local signage

There is an existing underground tank that was used previously as the slops tank. The operator on site advised that the tank is filled with sand.

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

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 buried drain pipe work between the filter vessels and the slops tank should be investigated.



AD 1498-OFI-60 Un-sealed conduits







AD 1498-OFI-62 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.



AD 1498-OFI-64 Security Sensors

Security sensors installed within hazardous area

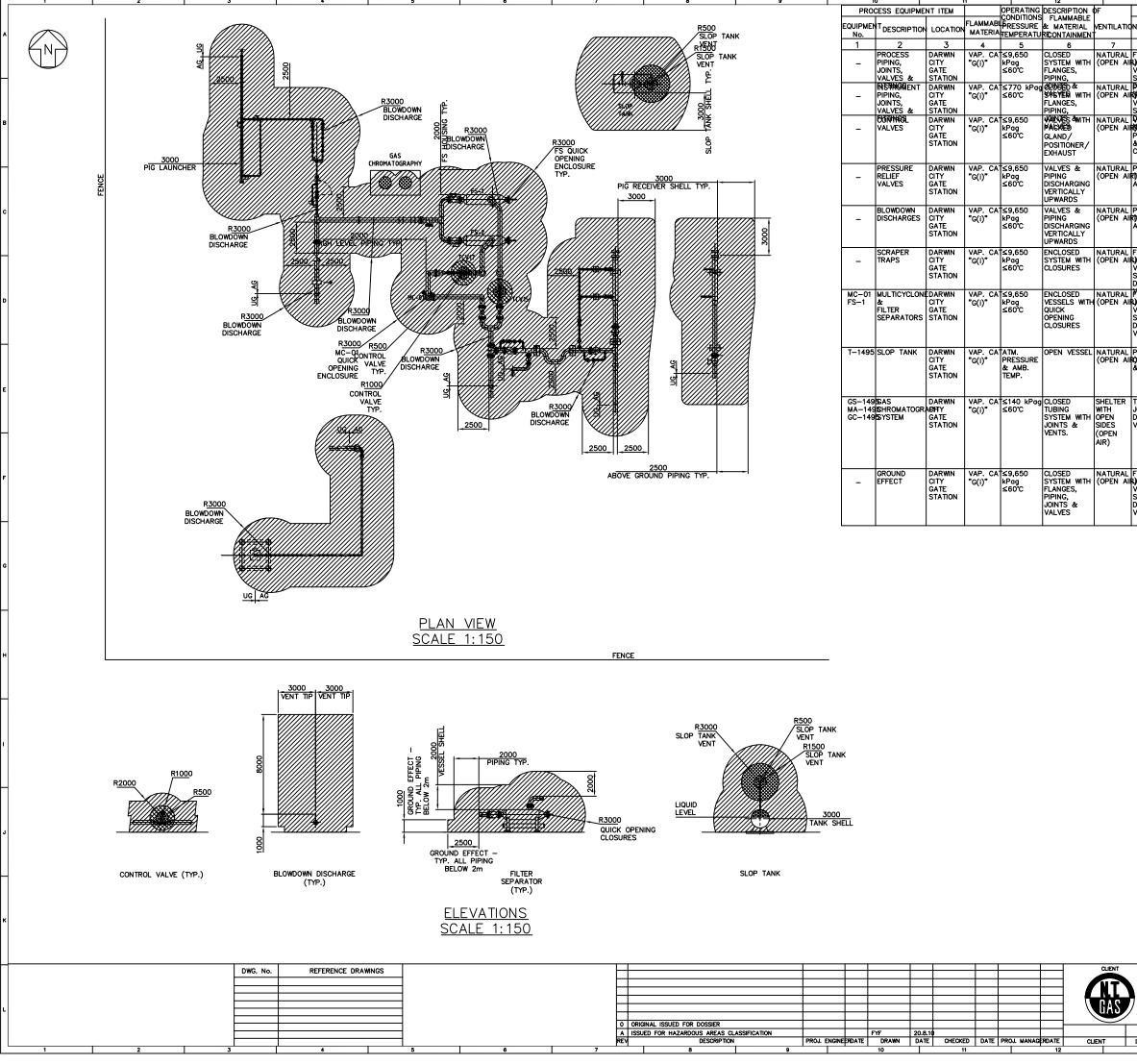




4 Hazardous Area Mapping Drawings

This section contains the hazardous area mapping drawings.

Drawing Number	Description	Revision
AD 1498-9402	Darwin City Gate Meter Station Hazardous Area	0



13		14		15	1	16	
	F RELEASE		ISTANCE OF S	OURCE TO	EQUIPMEN GROUP AN	t i	
NDESCRIPTION	GRADE	BOUNDARY C ZONE 0	BOUNDARY OF ZONE 1	BOUNDARY O ZONE 2	TEMPERATU	REMARKS	
8	9	10	11	12	CLASS 13	14	11
FLANGES, 2)OINTS, VALVE SEALS	SECONDAR	N/A	N/A	2m RADIUS FROM EDGE OF PIPING BOUTES	IIA, T1	SECTION 7.1 & SECTION 7.8	.1
SEALS, PRANCES SIGNITS, VALVE	SECONDAR	N/A	N/A	ROUTES. 1m RADIUS FROM EDGE OF PIPING	IIA, T1	SECTION 7.1.2	
SEALS, DRAWES &			0.3m RADIUS	ROUTES. AS		SECTION	в
ØENNOS, Positioners	PRIMARY &SECONDAI	AROUND FILOW	FROM VALVE GLANDS; 1m	CLASSIFIED FOR PIPING.	IIA, T1	7.1.4	[]
& CONNECTIONS		CONTROL POSITIONERS	RADIUS AROUND FLOW				
PIPE VENT MO ATMOSPHERE	PRIMARY &SECONDAI	RY N/A	ranrradius Produtonis. Tips	6m LATERALLY, 8m ABOVE AND 1m BELOW THE	IIA, T1	SECTION 7.1.5	
PIPE VENT NO ATMOSPHERE	SECONDAR	N/A	N/A	BISCHARGE LATERALLY, 8m ABOVE AND 1m	IIA, T1	SECTION 7.1.6	c
FLANGES.	SECONDAR	/		BELOW THE		SECTION 7.2	
VOINTS, VALVE SEALS, DRAINS &	SECONDAR	N/A	N/A	BINCHADIOS FROM THE EDGE OF THE VESSEL	IIA, T1		
PEANSES,	SECONDAR	r .	0.3m RADIUS	3m RADIUS		SECTION 7.3	
2)OINTS, VALVE SEALS, DRAINS &		N/A	AROUND THE QUICK OPENING CLOSURES	AROUND THE QUICK OPENING CLOSURES	IIA, T1		
VENTS				AND 2m RADIUS FROM			Ц
PIPING CONNECTIONS		SENSIDE THE TANK	1.5m RADIUS FROM TANK	THE FAGE OF	IIA T1	SECTION 7.4	1
& VENTS	&SECONDAI	AABOVE LIQUID LEVEL AND 0.5 m	VENT TIPS.	SHELL AND VENT TIPS.	IIA, T1		ε
TUBING JOINTS,	PRIMARY &	RADIUS FROM VENT TIPS.NA	0.5m RADIUS FROM VENT	0.5m RADIUS AROUND		SECTION 7.7	11
DRAINS & VENTS	JUSCHDAR	TIPS. ^{N/A}	TIPS.	AROUND CHROMATOGRA SYSTEM (EXCLUDING CYLINDERS)	PH ^{IIA, 11}		
				AND 1.0m RADIUS AROUND VENT			
FLANGES,	SECONDAR	N/A	N/A	ZUESEN LATERALLY		SECTION 7.8	F
VALVE SEALS,			NZA	AND EXTENDING TO	IIA, T1		
DRAINS & VENTS				1m ABOVE GRADE FOR ALL PROCESS			
				PIPING LESS THAN 2m			
				ABOVE GRADE.			
							G
							\vdash
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							H
	NOTES						
				CATION IS BASE		ULATION	
	REGULATIN	NG AND METE	RING STATIONS			1 ARE	J
	APPLIED 1	TO HAZARDOU	JS AREA CALC				
	OPENING	CLOSURES OF	N THE FILTERS.				H
	ZONE 0						
	ZONE 1	0	25 E	75 4	ר 10 ב	15	к
	ZONE 2	SCAL	2.5 5 E 1:150	7.5 1		15 ETRES	
				US BASIN DARWIN CI	TY STAT	ION	
	HIS DRAWING I GAS PTY, LINN PYRIGHT, NO PA	s the property ho hold all rt of this draw ced or transmit written permiss	of H	AZARDOUS			L
	THOUT PRIOR	WRITTEN PERMISS	AD	rawing number 1498—94(sheet revision A1 0	
13		14	•	15	1	16	<u>·</u>



5 Hazardous Area Equipment Register and Certificates of Conformity

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



Darwin City Gate Meter Station Hazardous Area Equipment Register

Color Code Notes:	
Certification is not Australian	

Doc No.: 18756-5-70-010 Rev: 0 Date: 18-Nov-2011

Tog		Location		Monufacturar	Madal	Sorial No.	Hazard Area	Haz	Area Classifi	cation	Ex Protection	Cartification
Tag	P&ID No.	Location	Instrument Type	Manufacturer	Model	Serial No.	Drawing No.	Zone	Gas Group	Temp.	Ex Protection	Certification
AD1498-TE-11		Station Inlet	Temperature Element								Ex i	
AD1498-PT-13	AD 1498-7002	MC-01 inlet pipe	Pressure transmitter	Rosemount	3051TG4A2B21BB4I7M5T1	RS0503742	AD 1498-9402	2	IIA	T1	Ex ia IIC T5 (40°C) Ex ia IIC T4 (70°C)	Aus Ex 1249X
AD1498-PY-17	AD 1498-7002	TCV-17	I/P Transducer	Fisher	DVC 5010	13184549	AD 1498-9402	2	IIA	T1		
AD1498-ZSC-17	AD 1498-7002	TCV-17	Valve limit switch (close)	Fisher	304	9644633	AD 1498-9402	2	IIA	T1	Class 1, Group C & D, ENCL4	
AD1498-PY-15	AD 1498-7002	TCV-15	Pressure regulator	Fisher	DVC 5010	16049199	AD 1498-9402	2	IIA	T1	Ex ia IIC T4 (80°C), T5 (70°C), T6 (60°C)	AUS Ex 3155X
AD1498-ZSC-15	AD 1498-7002	TCV-15	Valve limit switch (close)	Fisher	304	9644629	AD 1498-9402	2	IIA	T1	Class 1, Group C & D, ENCL4	
AD1498-LSHHH-16	AD 1498-7002	Filter FS-1	High High Level Switch	Frank W Murphy	L1200		AD 1498-9402	2	IIA	T1	Ex d IIB T6	Aus Ex 609
AD1498-LSHH-16	AD 1498-7002	Filter FS-1	High High Level Switch	Frank W Murphy	L1200		AD 1498-9402	2	IIA	T1	Ex d IIB T6	Aus Ex 609
AD1498-LSHH-16A	AD 1498-7002	Filter FS-1	High high level switch	Frank W Murphy	L1200		AD 1498-9402	2	IIA	T1	Ex d IIB T6	Aus Ex 609
AD1498-LSH-16	AD 1498-7002	Filter FS-1	High level switch	United Electric			AD 1498-9402	2	IIA	T1		
AD1498-LSH-16A	AD 1498-7002	Filter FS-1	High Level switch	United Electric			AD 1498-9402	2	IIA	T1		
AD1498-DPT-16		FS1	Differential Pressure Transmitter	Rosemount	3051C03A22A1AMSB4I7L4T1	RS0347136	AD 1498-9402					
AD1498-ISJB-1		FS-1	Junction box	Crouse-Hinds	WDU 2.5		AD 1498-9402	2	IIA	T1	Ex ia IIC T6 IP66	
AD1498-JB		FS-2	Junction box	SAE	FNJ1		AD 1498-9402	2	IIA	T1	Class I & II Div 1 & 2 IIB T6	SAA CERT No FLP 693
AD1498-LSHHH-18	AD 1498-7002	Filter FS-2	High High Level switch	Frank W Murphy	L1200		AD 1498-9402	2	IIA	T1	Ex d IIB T6	Aus Ex 609
AD1498-LSHH-18	AD 1498-7002	Filter FS-2	High High Level switch	Frank W Murphy	L1200		AD 1498-9402	2	IIA	T1	Ex d IIB T6	Aus Ex 609
AD1498-LSHH-18A	AD 1498-7002	Filter FS-2	High High Level switch	Frank W Murphy	L1200		AD 1498-9402	2	IIA	T1	Ex d IIC, IIB T6	Aus Ex 609
AD1498-LSH-18	AD 1498-7002	Filter FS-2	High level switch	United Electric	J400-553		AD 1498-9402	2	IIA	T1		
AD1498-LSH-18A	AD 1498-7002	Filter FS-2	High level switch	United Electric	J400-553		AD 1498-9402	2	IIA	T1		
AD1498-DPT-18		FS2	Pressure Transmitter	Rosemount	3051CD3A22A1AM5B419L4T1	RS0347135	AD 1498-9402					
AD1498-ISJB-2		FS-2	Junction box	SAE	FNJ1		AD 1498-9402	2	IIA	T1	Class I & II Div 1 & 2 IIB T6	SAA CERT No FLP 693
AD1498-TT-20	AD 1498-7002	Filter outlet process pipe	Temperature transmitter	Yokogawa	YTA 210 EA4DB/SO1/S3	C2JA 00686 941	AD 1498-9402	2	IIA	T1	Ex d IIC T6 (75°C) / Ex	Aus Ex 3640/3652X
AD1498-TT-20A	AD 1498-7002	Filter outlet process pipe	Temperature transmitter	Yokogawa	YTA 110 EA4 DB/SU1/S3	C2JA00685941	AD 1498-9402	2	IIA	T1	Ex ia, n IIC T4 IP 66167	Aus Ex 3652X
AD1498-PT-22	AD 1498-7002	Filter outlet process pipe	Pressure transmitter	Rosemount	3051 TG4A2B21BK7M5T1	01234918	AD 1498-9402	2	IIA	T1	Ex ia IIC T5 (40°C) Ex ia IIC T4 (70°C)	Aus Ex 1249X
AD1498-PT-22A	AD 1498-7002	Filter outlet process pipe	Pressure transmitter	Rosemount	3051 TG4A2B21BK7M5T1	01234917	AD 1498-9402	2	IIA	T1	Ex ia IIC T5 (40°C) Ex ia IIC T4 (70°C) IP66	Aus Ex 1249X
AD1498-PSL-24	AD 1498-7002	Filter outlet process pipe	Low pressure switch	Ashcroft	P7 (?)		AD 1498-9402	2	IIA	T1	Ex d IIB T6	Aus Ex 547
AD1498-ZSC-44	DB0000-7000	Gas offtake	Valve limit switch	Keystone	F792K	535812	AD 1498-9402	2	IIA	T1	Ex d IIB T6 IP65	Aus Ex 1416
AD1498-SVC-44		V44	Solenoid Valve	Lucifer	49219003 (Coil)		AD 1498-9402	2	IIA	T1	Ex m, e IIC T4 (40°C) IP66	Aus Ex 321
AD1498-SVO-44		V44	Solenoid Valve	Lucifer	49219003		AD 1498-9402	2	IIA	T1	Ex m, e IIC T4 (40°C) IP66	Aus Ex 321
AD1498-LP SW		Standby Run	Pressure Switch	United Electric Controls	H119 189	7000 PSI 49 MPA 613	AD 1498-9402	2	IIA	T1	Ex d IIB T6 IP66	Aus Ex 1211
AD1498-TURBINE METER		Standby Run	Meter	ITRON	DE-07-MI002-PTBD018	3400334499/C 2010	AD 1498-9402	2	IIA	T1	Ex ia IIC T5 & T6	LCIE 06 ATEX 6031X
AD1498-TT		Standby Run	Temperature Transmittor	Yokogawa	YTA 110 (STYLE 53) EA4DB/SV1	C2J901750933	AD 1498-9402	2	IIA	T1	Ex d, ia, n IIC T6, T4, T4	Aus Ex 3640, 3652X
AD1498-LP SW		Duty Run	Pressure Switch	United Electric Controls	H119 190	7001 PSI 49 MPA 613	AD 1498-9402	2	IIA	T1	IP66/67 Ex d IIB T6 IP67	Aus Ex 1211
AD1498-TURBINE METER		Duty Run	Meter	ITRON	DE-07-MI002-PTBD019	3400334499/C 2011	AD 1498-9402	2	IIA	T1	Ex ia IIC T5 & T7	LCIE 06 ATEX 6031X
AD1498-TT		Duty Run	Temperature Transmittor	Yokogawa	YTA 110 (Style 53) EA4DB/SV1	C2J901749 933	AD 1498-9402	2	IIA	T1	Ex d, ia, n, IIC T6, T4,	Aus Ex 3640, 3652X
											T4	

APA Group



Darwin City Gate Meter Station Hazardous Area Equipment Register

Color Code Notes:
Certification is not Australian

Doc No.: 18756-5-70-010 Rev: 0 Date: 18-Nov-2011

Tag	P&ID No.	Location	Instrument Type	Manufacturer	Model	Serial No.	Hazard Area	Haz	Area Classif		Ex Protection	Certification
. «9	T GID THO	Looaton		Manufacturer	model	eendi Her	Drawing No.	Zone	Gas Group			
AD1498-PT-0001		Berrimah RD Outlet (Near PI 002)	Pressure Transmitter	Rosemount	3051T44A2B21BK7M5TIP104Q8C5AO227	2178140	AD 1498-9402	2	IIA	T1	Ex iiL, iiA, d, ia, IIC T5, T5, T5/T6, T5	IEC Ex BAS 09.0076X
AD1498-HP SW1		Berrimah RD Outlet	Pressure Switch	United Electric Controls	J120 188		AD 1498-9402	2	IIA	T1	Ex d IIC T6 IP66	Aus Ex 542
AD1498-1JB 001		Analyser Shelter	Junction Box	N/A			AD 1498-9402	2	IIA	T1		
AD1498-PIT 31		Carrier Gas Pressure	Pressure Transmitter	Yokogawa	EJX 530A-EDS4N-014EF-SU2-X2	91L439334117	AD 1498-9402	2	IIA	T1	Ex ia IIC T4 IP66/67	IECEx CSA 05.0005
AD1498-PIT 32		Carrier Gas Pressure	Pressure Transmitter	Yokogawa	EJX 530A EDS4N-014EF/SU2/X2	91L439335 117	AD 1498-9402	2	IIA	T1	Ex ia IIC T4 IP66/67	IECEx CSA 05.0005
AD1498-PIT 33		Carrier Gas Pressure	Pressure Transmitter	Yokogawa	EJX 530A ED5SN-014EF/SU2/X2	91L439336 117	AD 1498-9402	2	IIA	T1	Ex ia IIC T4 IP66/67	IECEx CSA 05.0005
AD1498-JB		Analyser Shelter	Heat Trace Junction Box	Thermon	PN 27610		AD 1498-9402	2	IIA	T1	Ex e II T4-T6 IP66	95043/IECEx UL 05.0003
AD1498-MA 27		Analyser Shelter	Moisture Analyser	Ametek	3050-0LV	305 C714	AD 1498-9402	2	IIA	T1	Eex d/de IIC T6	ATEX-6007X
AD1498-JB		MA27-Analyser Shelter	MA-27-Junction Box	Govan	ES 2315	20 999-01	AD 1498-9402	2	IIA	T1	Ex e IIC T6 IP66	IECEx SIM 09.0001X
AD1498-GC 28		Moisture Analyser	Chromatograph	Emerson	7-0771-101	9011362	AD 1498-9402	2	IIA	T1	Ex d IIC T4 (60°C)	IECEx SIR 08.0008X
AD1498-JB		Analyser Shelter	Junction Box	CCG	POSIFIT 1		AD 1498-9402	2	IIA	T1	Ex e IIC T6 IP66/68	ANZ Ex 06.2001
AD1498-PT-42	AD 1498-7001	DN300 outlet process pipe	Pressure transmitter	Rosemount	3051TG4A2B21BB4M5T1	RS0619762	AD 1498-9402	2	IIA	T1	Ex ia IIC T5 (40°C) Ex ia IIC T4 (70°C)	Aus Ex 1249X
AD1498-SVO-41	AD 1498-7001	1498-MLV-41	Solenoid valve (open)	Skinner valve			AD 1498-9402	2	IIA	T1	Ex m IIA	Aus Ex 2541X
AD1498-SVC-41	AD 1498-7001	1498-MLV-41	Solenoid valve (close)	Skinner valve			AD 1498-9402	2	IIA	T1	Ex m IIA	Aus Ex 2541X
AD1498-ZSO-41	AD 1498-7001	1498-MLV-41	Valve limit switch (open)	Limitorque	SY	700315B-L001399	AD 1498-9402	2	IIA	T1		
AD1498-ZSC-41	AD 1498-7001	1498-MLV-41	Valve limit switch (close)	Limitorque	SY	700315B-L001399	AD 1498-9402	2	IIA	T1		
AD1498-UV-50 IS JB		Wickham point pipeline	Junction box	Govan	GE33S-1	204679	AD 1498-9402	2	IIA	T1	Ex e IIC T6 IP67	Aus Ex 869X
AD1498-UV-50 IS JB		Wickham point pipeline	Junction box	Govan	GE33S-1	204679	AD 1498-9402	2	IIA	T1	Ex i IIC T6 IP67	
AD1498-PT-52	WP0000-7001	Wickham point pipeline	Pressure transmitter	Rosemount	3051CG5A02A1BM5K701S5Q4TR	01700765	AD 1498-9402	2	IIA	T1	Ex ia IIC T4 (70°C) IP66	Aus Ex 1249X
AD1498-PT-51	WP0000-7001	Wickham point pipeline	Pressure transmitter	Rosemount	3051CG5A02A1BM5K7A135Q4TR	01700764	AD 1498-9402	2	IIA	T1	Ex ia IIC T4 (70°C) IP66	Aus Ex 1247X
AD1498-Switch		HV50A	Switch	Elomatic	H2	10017702/1	AD 1498-9402	2	IIA	T1	Ex d IIC T6 IP66	Aus Ex 1246
AD1498-UYO-50	WP0000-7001	Wickham point pipeline	Solenoid valve	Parker Lucifer			AD 1498-9402	2	IIA	T1	Ex me IIC T3/T4 IP65	Aus Ex 321
AD1498-UYC-50	WP0000-7001	Wickham point pipeline	Solenoid valve	Parker Lucifer			AD 1498-9402	2	IIA	T1	Ex me IIC T3/T4 IP65	Aus Ex 321
AD1498-ZSO-50	WP0000-7001	Wickham point pipeline	Valve limit switch	Elomatic			AD 1498-9402	2	IIA	T1		
AD1498-ZSC-50	WP0000-7001	Wickham point pipeline	Valve limit switch	Elomatic			AD 1498-9402	2	IIA	T1		
AD1498-ZS 50C		UV 50 Door Limit	Limit Switch JB	Govan	FG4-RA	20423104	AD 1498-9402	2	IIA	T1	Ex d IIB T6 IP65	Aus Ex 157X
AD1498-IR Security Beam		Station Security - Right Hand Corner		Sunwave			AD 1498-9402	2	IIA	T1		
AD1498-Light & switch		Analyser Shelter	Light + switch	Burn Brite + wild	FLP2-2X40-240 HPF ME+WPS110		AD 1498-9402	2	IIA	T1	Ex d IIB T5 IP65	Aus Ex 229
AD1498-LSH-30	AD 1498-7002	Slop tank	High level switch				AD 1498-9402	2	IIA	T1		
AD1498-HSO-41	AD 1498-7001	1498-MLV-41	Valve hand switch (open)			1	AD 1498-AAAA	Not	t in hazardous	sarea	 	ł
AD1498-HSC-41	AD 1498-7001	1498-MLV-41	Valve hand switch (close)				AD 1498-AAAA AD 1498-AAAA	_			1	<u> </u>
AD1498-ZLO-41	AD 1498-7001	1498-MLV-41	Light switch (open)				AD 1498-AAAA	Not in hazardous area Not in hazardous area			+	
AD1498-ZLC-41	AD 1498-7001	1498-MLV-41	Light switch (close)			1	AD 1498-AAAA	-	t in hazardous		1	<u> </u>
AD1498-TT-11	AD 1498-7002	MC-01 inlet pipe	Temperature transmitter				AD 1498-9402	2		T1	1	<u> </u>
AD1498-PDAH-16	AD 1498-7002	Filter FS-1	High pressure differential alarm	Fisher		1	AD 1498-9402	2	IIA	T1	1	<u> </u>
AD1498-PDAHH-16	AD 1498-7002	Filter FS-1	High high pressure differential alarm	Fisher		1	AD 1498-9402	2		T1	1	<u> </u>
AD1498-PDAH-18	AD 1498-7002	Filter FS-2	High pressure differential alarm	Fisher	1		AD 1498-9402	2	IIA	T1	1	<u> </u>
AD1498-PDAHH-18	AD 1498-7002	Filter FS-2	High high pressure differential alarm	Fisher			AD 1498-9402	2	IIA	T1	1	<u> </u>

APA Group

		Color Code Notes:	
		Certification is not Australian	
	Darwin City Gate Meter Station		_
	•		
FYFE	Hazardous Area Equipment Register		_
Earth Partners			
ENVIRONMENT		Doc No.: 18756-5-70-010	
DEVELOPMENT RESOURCES		Rev: 0	
		Date: 18-Nov-2011	

Ter		L a sa Kar		Manufactures	Ma dal	Q ₂ sint N ₂	Hazard Area	Haz	Area Classifi	cation	Ex Drata stien	Oratification
Тад	P&ID No.	Location	Instrument Type	Manufacturer	Model	Serial No.	Drawing No.	Zone	Gas Group	Temp.	Ex Protection	Certification
AD JBs		GC system	Junction boxes	Adalet	XJT		AD 1498-9402	2	IIA	T1	Ex d IIB	Aus Ex 1009
AD PSL	AD 1498-7002	GC system	Low pressure switch	United Electric	J120-156		AD 1498-9402	2	IIA	T1	CL I GR B, C & D CL II GR E, F & G and CL III	Aus Ex 542
D1498-JBs		Gas offtake	Junction boxes	Crouse-Hinds	GUA16		AD 1498-9402	2	IIA	T1	Ex d IIC T6 IP66/67	Aus Ex 319
D1498-TT-201	DB0000-7000	Gas offtake	Temperature transmitter	United Electric	J120		AD 1498-9402	2	IIA	T1	Ex d IIC T6	Aus Ex 542
AD1498-PT	DB0000-7000	Gas offtake	Pressure transmitter	Rosemount	3051		AD 1498-9402	2	IIA	T1	Ex ia IIC T5 (40°C) Ex ia IIC T4 (70°C)	Aus Ex 1249X
D1498-AFL	DB0000-7000	Gas offtake	Gas volume corrector	Mercury instruments	Mercor EC-AT		AD 1498-9402	2	IIA	T1	Ex ia IIA T3	Aus Ex 2046X
D1498-PSH-44	DB0000-7000	Gas offtake	High pressure switch	United Electric	J119		AD 1498-9402	2	IIA	T1	Ex d IIB T6	Aus Ex 1211
D1498-ZSO-44	DB0000-7000	Gas offtake	Valve limit switch	Keystone	F792K		AD 1498-9402	2	IIA	T1	Ex d IIB T6	Aus Ex 1416
AD1498-RTU		Control room	Remote terminate unit					Not	in hazardous	area	-	-
AD1498-ESD		Control room	Emergency shut down					Not	in hazardous	area	-	-
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APA Group

	Darwin City Gate Meter Station Hazardous Area Equipment Register	Color Code Notes: Certification is not Australian	
Earth Partners	Hazaruous Area Equipment Register		
ENVIRONMENT DEVELOPMENT		Doc No.: 18756-5-70-010	
RESOURCES		Rev: 0	
		Date: 18-Nov-2011	

Tag	P&ID No.	Location	Instrument Type	Manufacturer	Model	Serial No.	Hazard Area Drawing No.
							
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APA Group

Haz Area Classification		Ex Protection	Certification	
Zone	Gas Group	Temp.		Ceruncalion
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	Darwin City Gate Meter Station Hazardous Area Equipment Register	Color Code Notes: Certification is not Australian	
Earth Partners	Hazaruous Area Equipment Register		
ENVIRONMENT DEVELOPMENT		Doc No.: 18756-5-70-010	
RESOURCES		Rev: 0	
		Date: 18-Nov-2011	

Tag	P&ID No.	Location	Instrument Type	Manufacturer	Model	Serial No.	Hazard Area Drawing No.
							
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APA Group

Haz Area Classification		Ex Protection	Certification	
Zone	Gas Group	Temp.		Ceruncalion
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	Darwin City Gate Meter Station Hazardous Area Equipment Register	Color Code Notes: Certification is not Australian	
Earth Partners	Hazaruous Area Equipment Register		
ENVIRONMENT DEVELOPMENT		Doc No.: 18756-5-70-010	
RESOURCES		Rev: 0	
		Date: 18-Nov-2011	

Tag	P&ID No.	Location	Instrument Type	Manufacturer	Model	Serial No.	Hazard Area Drawing No.
							
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APA Group

Haz Area Classification		Ex Protection	Certification	
Zone	Gas Group	Temp.		Ceruncalion
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		Color Code Notes: Certification is not Australian	
FYFE Earth Partners	Darwin City Gate Meter Station Hazardous Area Equipment Register		
ENVIRONMENT DEVELOPMENT RESOURCES		Doc No.: 18756-5-70-010 Rev: 0 Date: 18-Nov-2011	•

Tag	P&ID No.	Location	Instrument Type	Manufacturer	Model	Serial No.	Hazard Area Drawing No.
							
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APA Group

Haz Area Classification		Ex Protection	Certification	
Zone	Gas Group	Temp.		Ceruncalion
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	Darwin City Gate Meter Station Hazardous Area Equipment Register	Color Code Notes: Certification is not Australian	
Earth Partners	Hazaruous Area Equipment Register		
ENVIRONMENT DEVELOPMENT		Doc No.: 18756-5-70-010	
RESOURCES		Rev: 0	
		Date: 18-Nov-2011	

Tag	P&ID No.	Location	Instrument Type	Manufacturer	Model	Serial No.	Hazard Area Drawing No.
							
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APA Group

Haz Area Classification			Ex Protection	Certification
Zone	Gas Group	Temp.		Ceruncalion
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		Color Code Notes: Certification is not Australian	
FYFE Earth Partners	Darwin City Gate Meter Station Hazardous Area Equipment Register		
ENVIRONMENT DEVELOPMENT RESOURCES		Doc No.: 18756-5-70-010 Rev: 0 Date: 18-Nov-2011	

Тад	P&ID No.	Location	Instrument Type	Manufacturer	Model	Serial No.	Hazard Area Drawing No.

APA Group

Haz Area Classification		Haz Area Classification		Cartification	
Zone	Gas Group	Temp.	Ex Protection	Certification	
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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 17/7/1991 30/05/2003 (Revalidation)	
Date of Expiry:	30/05/2013			
Certificate Holder:	Fisher-Rosemount Pty Ltd 471 Mountain Highway BAYSWATER Victoria	. *		en de la construcción de la constru La construcción de la construcción d
Electrical Equipment:		ional Fieldbus/I	nd Model 3001-series Hydrostat Profibus outputs, LCD indicator	
Type of Protection:	Ex ia Ex n			
Marking Code:	Ex ia IIC T4 ($T_{amb} = 70$ °C Ex ia IIC T4 ($T_{amb} = 60$ °C Ex n IIC T4($T_{amb} = 70$ °C AUS Ex 1249X)/T5 IP66 (for	r non-Fieldbus) Foundation Fieldbus/Profibus)	
Manufactured By:	Rosemount Inc 8200 Market Boulevard Chanhassen MN 55317	USA	Emerson Proces	
Issued by:			ORDER N Customer:	UMBERS 23
	919 Londonderry Re Phone: (02) 4724		02) 4724 4999 Accredital System of	JAS-ANZ JOSE ion by the Joint Accreditation (Australia and New Zealand, Acc No. Z2221100AS
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	Standards Australia Quality Assu	rance Services Ptv L	imited A.B.N. 67 050 611 642	Page 1 of

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EXPLOSION PROTECTED ELECTRICAL EQUIPMENT

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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.

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EXPLOSION PROTECTED ELECTRICAL EQUIPMENT

Administered by: Standards Australia Quality Assurance Services

Schedule

Certificate No: AUS Ex 1249X

Issue: 5

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 Configuration				
Ref.	Description	Drawing No.		
Any one of t	he following terminal boards:	· · · · · · · · · · · · · · · · · · ·		
Ter.e	Standard 3051 Fieldbus	03031-0467		
Ter.f	Transient Protection 3051 Fieldbus (T1 Option)	03031-0486		
Micro-board	assembly:			
Micro.a1	3051 Fieldbus Analog	03031-0477		
Micro.a2	3051 Fieldbus Digital	03031-0481		
Optional LC	D 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 Lis	st below)		

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EXPLOSION PROTECTED ELECTRICAL EQUIPMENT

Administered by: Standards Australia Quality Assurance Services

Certified Equipment: (Continued)

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

	(b) Low Power Transmitter Configuration			
Ref.	Description	Drawing No.		
Any one of	the 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	assembly:			
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 sensor boards can be used: (Refer to Sensor Board List be	elow)		

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

	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			

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EXPLOSION PROTECTED ELECTRICAL EQUIPMENT

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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:

ſ	(a) Foundation Fieldbus/Profibus Transmitter Configuration				
	Entity Parameters	With or without trans	sient protected T1 option		
ľ	Ui	3	30 V		
	li	30	0 mA		
I	Pi	1	.3 W		
I	Ci	· · · · · · · · · · · · · · · · · · ·)μF		
	Li	C) μH		

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

	(c) Analog/HART Transmitter Configuration					
Entity Parameters	Without transient protected T1 option	With transient protected TL 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				

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EXPLOSION PROTECTED ELECTRICAL EQUIPMENT

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

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.
 - 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.

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EXPLOSION PROTECTED ELECTRICAL EQUIPMENT

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

Document No.	Document Fitle	Sheets	Issue	Date
00268-0031	Index of I.S. Barrier System for MOD.268 Smart Family	1 to 7	M	08/04/1993
00208-0031	Interface	1.007	141	9010-11-999
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	H	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

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EXPLOSION PROTECTED ELECTRICAL EQUIPMENT

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Addendum to Certificate No Ex 1249X-5

Drawings Relating to Variations Permitted by Issue 5 (Continued)

Document	Document Title	Sheets	Issue	Date
.No.				10/00/2001
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,	1 to 4	AK	04/03/2002
	3051/3001 & Probar			10/11/100/
03031-0585	Schematic Sensor Board 3	1 to 2	B	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	1 to 3	AF	19/06/2000
	Board, 2 Line			10/00/1007
03031-0604	Schematic Diagram 3051C Low Power Terminal Block	<u>1 of 1</u>	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.	1 to 3	AC	07/08/1997
	Block, 3051C			
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

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EXPLOSION PROTECTED ELECTRICAL EQUIPMENT

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

Drawings Relating to Variations Permitted by Issue 5 (Continued)

Document	Document Title	Sheets	Issue	Date
No. 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	С	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	1 to 6	AH	30/11/2000
	Safe			
03031-1022	Model 3051C/L/P/H, 3001C/S Intrinsically Safe and Type N	1 to 10	AG	28/05/2003
	Configuration, SAA			
03031-1026	SAA LS. 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	<u> </u>	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

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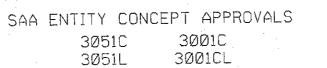
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CONFIDENTIAL AND PROPRIETARY INFORMATION IS CONTAINED	1	REVISIONS					
HEREIN AND MUST BE HANDLED ACCORDINGLY	REV	DESCRIPTION	CHG. NO.	APP'D	DATE		
	AA	UPDATE ENTITY PARAMETERS	RTC1002910	J.D.J.	12/2/97		
	AB	ADD FIELDBUS AND	RTC1006448	J.D.J.	4/26/99		
		PROFIBUS			<u> </u>		



3051P 3001CH 3051H 3001S 3051CA 3051T

OUTPUT CODE A (4-20 mA HART) SEE SHEETS 2 OUTPUT CODE M (LOW POWER) SEE SHEETS 3 OUTPUT CODE F / W (FIELDBUS, PROFIBUS) SEE SHEETS 4

THE ROSEMOUNT PRESSURE TRANSMITTERS LISTED ABOVE ARE INTRINSICALLY SAFE WHEN USED IN THE CURCUIT WITH SAA APPROVED BARRIERS WHICH MEET THE LIST ENTITY PERAMETERS.

TO ASSURE AN INTRINSICALLY SAFE SYSTEM, THE TRANSMITTER AND BARRIER MUST BE WIRED IN ACCORDANCE WITH THE BARRIER MANUFACTURER'S FIELD WIRING INSTRUCTIONS AND THE APPLICABLE CIRCUIT DIAGRAM.

CAD Maintained, (MICROSTATION)

certification

This drawing forms part of

Australia

TestSafe

Certification

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UNLESS OTHERWISE SPECIFIED DIMENSIONS IN INCHES [mm], REMOVE ALL BURRS AND	CONTRACT NO.	FISHER-ROSEMOUNT
SHARP EDGES, MACHINE SURFACE FINISH 125	DR. Mike Dobe 12/30/91	SAA I.S. INDEX FOR
-TOLERANCE- .x ± .1 [2,5]	СНК′Д	3051 & 3001
.XX ± .02 [0.5]	APP'D. GLEN MONZO 5/8/92	
.XXX ± .010 [0,25] <u>FRACTIONS</u> <u>ANGLES</u> ± 1/32 = # 2*		SIZE FSCM NO DWG NO. Ø3031-1026
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THE ROSEMOUNT PRESSURE TRANSMITTERS LISTED BELOW ARE INTRINSICALLY SAFE WHEN USED IN THE CIRCUIT WITH SAA APPROVED BARRIERS WHICH MEET THE LISTED ENTITY PARAMETERS.

APPROVED TRANSMITTERS

 3051C
 3051H
 3001C
 3001S

 3051L
 3051T
 3001CL
 3051P
 3051CA
 3001CH

ENTITY PARAMETER FOR Ex in IIC T5 CLASS I, ZONE 0 PROTECTION:

APPARATUS PARAMETER	BARRIER PARAMETER
Vmax = 30V Imax = 300mA Pmax = 1.3W	Voc IS LESS THAN OR EQUAL TO 30V Isc IS LESS THAN OR EQUAL TO 300mA Voc * Isc 4 IS LESS THAN OR EQUAL TO 1.3W
Ci = 0 μF Li = 0μH	Ca IS GREATER THAN 0 MICROFARADS La IS GREATER THAN 0 MICROHENRIES

THE ENTITY CONCEPT ALLOWS INTERCONNECTION OF INTRINSICALLY SAFE APPARATUS NOT SPECIFICALLY EXAMINED IN COMBINATION AS A SYSTEM.

TO ASSURE AN INTRINSICALLY SAFE SYSTEM THE TRANSMITTER AND BARRIER MUST BE WIRED IN ACCORDANCE WITH THE BARRIER MANUFACTURERS FIELD WIRING INSTRUCTIONS AND THE CIRCUIT DIAGRAM SHOWN BELOW.

	HAZARDOUS ARE	A 1	NON-HAZARDOUS AREA
Z	5	. } 	+ SAA APPROVED BARRIER
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Certificate of Conformity

Certificate No:	AUS Ex 3155X	Issue 0: Issue 8:	Original Issue 09/05/1995 29/08/2003
Date of Expiry:	09/05/2005		
Certificate Holder:	Fisher Controls Pty Limited 8 Walker Place WETHERILL PARK NSW	2164	
Electrical Equipment:	Models DVC5000 and DVC5 Foundation Fieldbus, Profibu	5000f Digital V s, or FISCO in	Valve Controllers, with 4-20 mA / HART, nput.
Type of Protection:	Ex n Ex ia		
Marking Code:	DVC5000f-series (Fieldbus) Ex n IIC T6 (T _{amb} = Ex ia IIC T6(T _{amb} = DVC5000f-series (FISCO)	60 °C)/T5 (T _a 70 °C) / T5 (1 45 °C) / T5 (1	$_{mb} = 70 \text{ °C})/T4(T_{amb} = 80 \text{ °C})$ 1P65
Manufactured By:	Fisher Controls International MARSHALLTOWN IOW.	l Inc A USA	

Issued by:

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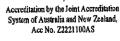


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This certificate is granted subject to the conditions as set out in Standards Australia Miscellaneous Publication MP69 and the Procedure (Doc $Q\overline{7}134$) of the scheme.

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'

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

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 12628, 13632, 15825, 17271, and TestSafe 18781, 19360, 20527, 21904 and 23229

File Reference: TestSafe 95/6811-TSA 0001, 0002, 0003, 0004, 0005, 0006 and 2002/031096

Signed for and on behalf of issuing authority

Laboratory Systems Manager **Position**

29/08/2003 Date of Issue

Ex 3155X-8

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 it being revoked or not renewed.

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Schedule

Certificate No: AUS Ex	3155X	Issue:	8	Date of Issue:	29/08/2003
Certified Equipment:	The 'FIELDVUE Controllers and comprises:	' DT-Serie Positioners	es of Dig are desig	ital Transducers and DVC-S med for use in process con-	eries Digital Valve trol application and
	converts a	n analog ir r	put signal	ducer, which is an electro-pn to a pneumatic pressure, output	t which can be led to
	(b) Series DV	C5000 Di	lve nositio	Controller, which is a loop, proportion to the input signal.	
	(c) Series EV it to the r	P500 Digit equired pro- nal to the in	al Position cumatic ou put signal.	er, which receives a direct analo put signal pressure, providing :	a valve stem position
	(d) Minor mo	difications	to the term	inal box and the I/P Transducer	

The equipment in the range utilise identical die cast aluminium enclosures, consisting of a cylindrical terminal enclosure with a threaded cover, which connects to the module base through a potted neck.

Conditions of Certification:

Protection to IP65 is conditional on the transducer being mounted in the vertical plane with the terminal compartment uppermost.

Drawing No	Drawing Title	Issue	Date
	Type DT4000 Transducer Certification Drawing	В	6/2/95
44B2014 Shts 1 to 6	Type D14000 Transducer Certification Drawing	Ā	2/6/94
44B2014 Shts 7 to 12	Type DT4000 Transducer Certification Drawing	B	6/2/95
44B2014 Sht 13	Type DT4000 Transducer Certification Drawing		
14B9533 Sht 1	Type DVC5010 Nameplate SAA Explosion-proof	A	23/3/95
14B9534 Sht 1	Type DVC5020 Nameplate SAA Explosion-proof	A	23/3/95
	Type 4B2021 Nameplate SAA Explosion-proof	A	23/3/95
14B2020 Sht 1	Additional Drawing Information Etched Nameplate	A	12/7/90
12B4541		A	12/10/64
IP4269	Self-Tapping Screw		12/10/04

Drawing Schedule Relating to Original Issue

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Addendum to Certificate No. 3155X-8

Schedule of Variations

Variations Permitted by Issue 1:

1. Change of Certificate Holder's name from Fisher-Controls Pty Limited to Fisher-Rosemount Pty Limited.

The inclusion of an Intrinsically safe (Ex ia) version of the Model DT4000 Digital Transducer and the Models 2. DVC5010, DVC5020 and DVC5030 Digital Valve Controllers.

Conditions of Certification Relating to Variations Permitted by Issue 1:

The equipment has been assessed to the 'Entity' Concept and accordingly the following electrical parameters must be taken into account during installation:

Maximum Input Voltage (Ui)	=	30 Volts
Maximum Input Current (I _i)	=	226 milliamperes
Input Capacitance (C _i)	=	0 F
Input Inductance (L _i)	=	0 H

Drawing Schedule Relating to Variations Permitted by Issue 1

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Drawing No	Drawing Title	Issue	Date
	DFI PCB Schematic	012781	10/7/95
2929.002 Shts 1 & 2		012781	10/7/95
2929.003 Shts 1 to 11	Digital field Instruments	EC12427	2/2/95
	DFI Board-Assembly		20/7/95
44B8241 Shts 1 to 10	Certification Drawing	A	2011175

Variations Permitted by Issue 2:

- 1. A change to the name of the Certificate Holder.
- Addition to the Model DVC5040 Digital Valve Controller to the range of certified equipment. The Model DVC5040 2. is identical to the Models DVC5010, DVC5020 and DVC5030 except for the mounting base.
- 3. Inclusion of modified I/P Converter differing only in mechanical arrangement.
- A change in group classification to include IIC for the 'Ex n' models. 4.
- Omission of the Condition of Certification relating to the mounting orientation for IP65. 5.

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Addendum to Certificate No. 3155X-8

Conditions of Certification Relating to Variations Permitted by Issue 2:

The equipment has been assessed to the 'Entity' Concept and accordingly the following electrical parameters must 1. be taken into account during installation:

Maximum Input Voltage (Ui)	=	30 Volts
Maximum Input Current (I _i)	=	226 milliamperes
Maximum Internal Capacitance (C _i)	Ξ	6 nF
Maximum Internal Inductance (Li)	=	40 µH

2. It is a condition of safe use for installation in an environment with ambient temperature in excess of 75° C that the interconnecting cables have a minimum thermal rating of 85 °C.

Drawing Schedule Relating to Variations Permitted by Issue 2				
Drawing No	Drawing Title	Issue	Date	
44B8 241 Sht 1	Type DT 4000 Transducer DVC5000 Series Valve Controller	F	14/5/97	
44B8 241 Sht 2 & 3	Certification Drawing Type DT 4000 Transducer DVC5000 Series Valve Controller	с	14/11/96	
44B8 241 Sht 4	Certification Drawing Type DT 4000 Transducer DVC5000 Series Valve Controller	с	15/11/96	
44B8 241 Sht 5	Certification Drawing Type DT 4000 Transducer DVC5000 Series Valve Controller	D	29/10/96	
44B8 241 Sht 8	Certification Drawing Type DT 4000 Transducer DVC5000 Series Valve Controller	С	19/11/96	
44B8 241 Shts 9 & 10	Certification Drawing Type DT 4000 Transducer DVC5000 Series Valve Controller	D	15/11/96	
44B8 241 Shts 11 & 12	Certification Drawing Type DT 4000 Transducer DVC5000 Series Valve Controller	D	14/5/97	
34B3146	Certification Drawing Type DVC 5000 Series, Terminal Box Printed Wiring Board	В	8/5/97	
24B0553	Schematic Type DVC 5000 Series Coil Assembly Type DVC 5000, DT4000 Filter	F F	22/11/96	
14B1555	1 ype DvC 5000, D14000 Pitter			

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Addendum to Certificate No. 3155X-8

Variations Permitted by Issue 3:

1. A change to the terminal board assembly with the provision of additional filtering components.

- 2. Minor electrical and mechanical changes to the main printed circuit board, involving:
 - Use of an alternative pressure sensor having a changed mechanical arrangement.
 - (i) A change to the material used to encapsulate the equipment. (ii)
 - Omission of a DIP switch assembly. (iii)

Conditions of Certification Relating to Variations Permitted by Issue 3:

1. The equipment has been assessed to the 'Entity' Concept and accordingly the following electrical parameters must be taken into account during installation:

Maximum Input Voltage (U _i) Maximum Input Current (I _i) Maximum Internal Capacitance (C _i)	= = =	30 Volts 226 milliamperes 6 nF 40 uH
Maximum Internal Inductance (L _i)	=	40 µH

2. It is a condition of safe use for installation in an environment with ambient temperature in excess of 75 °C that the interconnecting cables have a minimum thermal rating of 85 °C.

Drawing Schedule	Relating to	Variations	Permitted by Issue 3
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	Drawing Schedule Relating to Variations 2 of the Drawing Title	Issue	Date
Drawing No		Α	4/8/97
17B8800	Capacitor	A	4/8/97
27B8098	Type DVC5000 Series inductor DVC5000 Series valve controller Certification drawing	J	12/12/97
44B8241 Sht 1	DVC5000 Series valve controller Certification drawing	D	4/6/97
44B8241 Sht 3	DVC5000 Series valve controller Certification drawing	D	4/6/97
44B8241 Sht 4	DVC5000 Series valve controller Certification drawing	Ē	4/6/97
44B8241 Sht 5	DVC5000 Series valve controller Certification drawing	D	4/6/97
44B8214 Sht 8	DVC5000 Series valve controller Certification drawing	E	21/7/97
44B8241 Sht 9	DVC5000 Series valve controller Certification drawing	Ĝ	12/12/97
44B8241 Sht 10	DVC5000 Series valve controller Certification drawing	F	12/12/97
44B8241 Sht 11	DVC5000 Series valve controller Certification drawing	D	17/12/97
47B8099	Type DVC5000 Series I.S. PWB assy Hart	Ē	5/1/98
15P0245 Shts 1 & 2	Type DVC5000 Series digital field instrument (Fieldvue) PWB	D	6/1/98
47B8809 Shts 1 to 6	Hart DVC5000 Schematic	Ċ	6/1/98
15P0245.L9	Side 1 Silkscreen (Main Board)	l c	6/1/98
15P0245.L1	Side 1 Copper (Main Board)	l c	6/1/98
15P0245.L2	Ground Plane (Main Board)	Ċ	6/1/98
15P0245.L3	Inner Copper 1 (Main Board)		0/1/90

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Addendum to Certificate No. 3155X-8

Drawing Schedule Relating to Variations Permitted by Issue 3 continued					
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Drawing No		С	6/1/98		
15P0245.LA	Inner Copper 2 (Main Board)	-			
15P0245.L5	Inner Copper 3 (Main Board)	C	6/1/98		
	Think Copper 5 (Main Board)		6/1/98		
15P0245.L6	Inner Copper 4 (Main Board)	c	6/1/98		
15P0245.L7	Power Plane (Main Board)				
	Side 2 Copper (Main Board)		6/1/98		
15P0245.L8	Side 2 Copper (drain Deard)		6/1/98		
15P0245.L10	Side 2 Silkscreen (Main Board)				

Variations Permitted by Issue 4:

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- Minor changes to the DVC5000 Series Schematic and PWB Assembly drawings. 1.
- The addition of the DVC5000f Fieldbus Digital Valve Controller (Non-Sparking [Exn] only). 2.
- The deletion of the DT Series Digital Transducer 3.
- Limiting the routine dielectric test to 500V a.c. 4.
- 5. Models now included are: DVC5010, DVC5020, DVC5030 and DVC5040 (Exi) and DVC5010, DVC5010f, DVC5020, DVC5020f, DVC5030, DVC5030f, DVC5040 and DVC5040f (Exn).

Conditions of Certification Permitted by Issue 4:

- 1. It is a condition of safe manufacture that the following condition be adhered to: Each apparatus is to be capable of withstanding a test voltage of not less than 500 Volts with a frequency between 48 Hz and 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 not exceeded for the Model DVC5010, DVC5020, DVC5030, and DVC5040 where they are installed as intrinsically safe equipment.

Input Parameters	
Maximum Input Voltage Ui	30 Volts
Maximum Input Current Ii	226 mA
Maximum Input Power Pi	1.7 Watt
Maximum Internal Capacitance Ci	6 nF
Maximum Internal Inductance Li	40 µH

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Addendum to Certificate No. 3155X-8

Conditions of Certification Permitted by Issue 4 continued:

- The inductance of the connecting cable between the associated electrical equipment and the input terminals of the Digital Valve Controller must not exceed the value allowed by the associated electrical equipment parameters or 20 3. mH, whichever is the lower value.
- 4. It is a condition of safe use in an environment with ambient temperature in excess of 75 °C that the interconnecting cables have a minimum thermal rating of 85 °C.

Additional Information Relating To Issue 4:

The front sheet of this certificate was updated to show the current situation.

Drawing Schedule	Relating to	Variations	Permitted	l by l	Issue 4

and the second second second second second second second second second second second second second second second	Drawing Schedule Relating to Variations Perimitted by Issue 4 Drawing Title	Issue	Date
Drawing No.	Type DVC5010, DVC5021, DVC5030 Terminal Box Assembly	В	13 Sep 99
38B6470	Type DVC5000, DVC5000f Series Valve Controller	K	09 Nov 99
48B1710 Sht 1	Type DVC5000, DVC5000f Series Valve Controller	Е	01 Nov 99
48B1710 Sht 2	Type DVC5000, DVC5000f Series Valve Controller	С	13 Apr 99
48B1710 Sht 3	Type DVC5000, DVC5000f Series Valve Controller	D	01 Nov 99
48B1710 Sht 4	Type DVC5000, DVC50001 Series Valve Controller	B	13 Apr 99
48B1710 Sht 5	Type DVC5000, DVC5000f Series Valve Controller	Ď	09 Nov 99
48B1710 Sht 6	Type DVC5000, DVC5000f Series Valve Controller	E	13 Apr 99
48B1710 Sht 7	Type DVC5000, DVC5000f Series Valve Controller	Ē	09 Nov 99
48B1710 Sht 8	Type DVC5000, DVC5000f Series Valve Controller	Ā	26 Feb 99
48B6039	Type DVC 5000 Series I.S. PWB Assy Hart	Â	02 Mar 99
48B6040	Type DVC 5000F Series PWB Assy Fieldbus		30 Mar 99
27B6446, Shts 1-7	DVC 5000f Analog Card	E	1
27B6937, Shts 1-6	DVC 5000f Digital Card	C	30 Mar 99
15P0461 Shts 1 and 2	DVC 5000f Fieldbus	В	02 Feb 99
	Digital Field Instrument-Analog PWB		
15P0462 Shts 1 and 2	DVC 5000f Fieldbus	C	02 Feb 99
	Analog Card PWB Assembly		
1	Analog Board		
15P0461.L1	Side 1 Copper	A	
15P0461.L2	Ground Plane	A	
15P0461.L3	Inner Copper 1	A	
15P0461.L4	Inner Copper 2	A	1
15P0461.L5	Power Plane	A	
	Side 2 Copper	A	
15P0461.L6			

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Addendum to Certificate No. 3155X-8

Drawing No.	ing Schedule Relating to Variations Permitted by Issue 4 con Drawing Title	Issue	Date
15P0461.L7	Side 1 Soldermask	A	
	Side 2 Soldermask		
15P0461.L8	Fieldbus Analog Board, Bill of Materials	D	20 Oct 98
18B0642 Pages 1-7	DVC5000f Fieldbus	B	02 Feb 99
15P0459 Shts 1 and 2	Digital Field Instrument PWB		
15P0460 Shts 1 and 2	DVC 5000f Bus	B	02 Feb 99
1010400 0110 1 0110 2	Fieldbus Digital PWB-Digital PWB Assembly		
	Digital Board		
15P0459.L1	Side 1 Copper	A	
15P0459.L2	Ground Plane	A	
15P0459.L3	Inner Copper 1	A	
15P0459.L4	Inner Copper 2	A	
15P0459.L5	Inner Copper 3	A	
15P0459.L6	Inner Copper 4	A	
15P0459.L7	Power Plane	A	
15P0459.L8	Side 2 Copper	Α	1
15P0459.L9	Side 1 Solder Mask	A	
15P0459.L10	Side 2 Solder Mask	A	
18B0641 Pages 1 and 2		В	24 Mar 9

Variations Permitted by Issue 5:

- 1. Addition of the range of DVC5000f Fieldbus Digital Valve Controllers to the range of certified Intrinsically Safe equipment. The range of equipment now covered by this certificate is: DVC5010, DVC5010f, DVC5020, DVC5020f, DVC5030, DVC5030f, DVC5040 and DVC5040f for Non-sparking (Ex n) as well as for Intrinsic Safety (Ex ia).
- 2. Modification to some of the tracks on the digital and the analog boards.
- A change in the ambient temperatures for Category Ex ia for classification T6 and T5. The front page of the 3. certificate has been changed to reflect this change.

Conditions of Certification Permitted by Issue 5:

1. It is a condition of safe manufacture that each apparatus be capable of withstanding a test voltage of not less than 500 Volts with a frequency between 48 Hz and 62 Hz applied between input terminals and case for a period not less than 1 minute.

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Addendum to Certificate No. 3155X-8

Conditions of Certification Permitted by Issue 5 continued:

It is a condition of safe use that the following parameters are not exceeded for the Model DVC5010f, DVC5020f, 2. DVC5030f, and DVC5040f where they are installed as intrinsically safe equipment.

Input Parameters	
Maximum Input Voltage Ui	24 Volts
Maximum Input Current li	226 mA
Maximum Input Power Pi	1.36 Watt
Maximum Internal Capacitance Ci	6 nF
Maximum Internal Inductance Li	40 µH

- 3. For Non-sparking the Maximum Input Voltage = 24 Volts
- 4. The inductance of the connecting cable between the associated electrical equipment and the input terminals of the Digital Valve Controller must not exceed the value allowed by the associated electrical equipment parameters or 20 mH, whichever is the lower value.
- 5. It is a condition of safe use in an environment with ambient temperature in excess of 75 °C that the interconnecting cables have a minimum thermal rating of 85 °C.

Additional Information Relating to Issue 5:

The front sheet of this certificate was updated to show the current situation.

Drawing Schedule Relating to Variations Permitted by Issue 5

Drawing No.	Drawing Schedule Relating to Variations Fernitied by a	Issue	Date
19B3442	Type DVC5000F Inductor Cover	A	08 Nov 00
	Type DVC5000, DVC5000f Series Valve Controller	Q	05 Mar 01
48B1710 Sht 1	Type DVC5000, DVC5000f Series Valve Controller	F	24 Apr 00
48B1710 Sht 2	Type DVC5000, DVC5000f Series Valve Controller	D	24 Apr 00
48B1710 Sht 3	Type DVC5000, DVC5000f Series Valve Controller	Ē	24 Apr 00
48B1710 Sht 4	Type DVC5000, DVC50001 Series Valve Controller	B	13 Apr 99
48B1710 Sht 5	Type DVC5000, DVC5000f Series Valve Controller	Ē	24 Apr 00
48B1710 Sht 6	Type DVC5000, DVC5000f Series Valve Controller		27 Nov 00
48B1710 Sht 7	Type DVC5000, DVC5000f Series Valve Controller	(05 Mar 01
48B1710 Sht 8	Type DVC5000, DVC5000f Series Valve Controller		
48B6040	Type DVC 5000F Series PWB Assy Fieldbus	E	20 Nov 00
27B6446, Shts 1-7	DVC 5000f Analog Card	<u> </u>	06 Oct 00

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Addendum to Certificate No. 3155X-8

Drawing Schedule Relating to Variations Permitted by Issue 5 continued				
Drawing little Issue Dute				
Drawing No.	DVC 5000f Digital Card	Е	09 Mar 00	
27B6937, Shts 1-6	DVC 5000f Fieldbus	С	24 Apr 00	
15P0461 Shts 1 and 2	Digital Field Instrument-Analog PWB			
	DVC 5000f Fieldbus	F	11 Oct 00	
15P0462 Shts 1 and 2	Analog Card PWB Assembly			
	Analog Card T WD Associaty Analog Board			
	Side 1 Copper	С		
15P0461.L1	Ground Plane	С		
15P0461.L2		С		
15P0461.L3	Inner Copper 1	С		
15P0461.LA	Inner Copper 2	C C		
15P0461.L5	Power Plane	ССССССС		
15P0461.L6	Side 2 Copper	Ċ		
15P0461.L7	Side 1 Soldermask	С		
15P0461.L8	Side 2 Soldermask	D	20 Oct 98	
18B0642 Pages 1-7	Fieldbus Analog Board, Bill of Materials	Ē	31 Mar 00	
15P0459 Shts 1 and 2	DVC5000f Fieldbus Digital Field Instrument PWB	Ť		
	Digital I loid Live and a	D	31 March 00	
15P0460 Shts 1 and 2	DVC 5000f Bus Fieldbus Digital PWB-Digital PWB Assembly			
	Fieldbus Digital PWB-Digital PWB Assembly Digital Board	1		
	-	C		
15P0459.L1	Side 1 Copper	č		
15P0459.L2	Ground Plane	Ċ		
15P0459.L3	Inner Copper 1	Č		
15P0459.L4	Inner Copper 2	Č		
15P0459.L5	Inner Copper 3			
15P0459.L6	Inner Copper 4			
15P0459.L7	Power Plane	lč		
15P0459.L8	Side 2 Copper	с с с с с с с с с с		
15P0459.L9	Side 1 Solder Mask	l c		
15P0459.L10	Side 2 Solder Mask	B	24 Mar 98	
18B0641 Pages 1 and 2	Fieldbus Digital Board, Bill of Materials	<u> </u>	1 47 IVAUL 20	

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Addendum to Certificate No. 3155X-8

Variations Permitted by Issue 6:

This supplementary certificate was issued to correct several typographical errors in the conditions of supplementary 4 and 5.

Conditions of Certification Permitted by Issue 6:

- 1. It is a condition of safe manufacture that each apparatus be capable of withstanding a test voltage of not less than 500 Volts with a frequency between 48 Hz and 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 not exceeded for the Model DVC5010f, DVC5020f, DVC5030f, and DVC5040f where they are installed as intrinsically safe equipment.

Input Parameters	
Maximum Input Voltage Ui	24 Volts
Maximum Input Current li	226 mA
Maximum Input Power Pi	1.36 Watt
Maximum Internal Capacitance Ci	6 nF
Maximum Internal Inductance Li	40 µH

- 3. For Models DVC5010, DVC5020, DVC5030 and DVC5040 where installed as Non-sparking equipment, the Maximum Input Voltage = 30 Volts
- 4. For Models DVC5010f, DVC5020f, DVC5030f and DVC5040f where installed as Non-sparking equipment, the Maximum Input Voltage = 32 Volts
- 5. The inductance of the connecting cable between the associated electrical equipment and the input terminals of the Digital Valve Controller must not exceed the value allowed by the associated electrical equipment parameters or 20 mH, whichever is the lower value.
- 6. It is a condition of safe use in an environment with ambient temperature in excess of 75 °C that the interconnecting cables have a minimum thermal rating of 85 °C.

Additional Information Relating to Issue 6:

The front sheet of this certificate was updated.

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Certification of

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Addendum to Certificate No. 3155X-8

Variations Permitted by Issue 7:

- 1. Additional capacitor (C61=0.039 μ F) on VCC detect line on the HART Board.
- 2. Dual footprint for Crystals Y1 and Y2 on the HART Board to allow the use of alternative components.
- 3. Replacement of the Terminal Box for the previously certified (Ex 3725X) model on the DVC5000 model.
- 4. Changes to the marking label drawings with respect to the application of labels to the HART final assembly.

Drawing Schedule Relating to Variations Permitted by Issue 7

Drawing No	Drawing Schedule Kelating to Variations Permitte	Issue	Date
15P0245	Type DVC5000 Series Digital Field Instrument	E	24 May 2000
Sheets 1 and 2	(Fieldvue) PWB		
15P0245.L1	Side 1 Copper	Е	-
15P0245.L2	Ground Plane	E	
15P0245.L3	Inner Copper 1	E	-
15P0245.L4	Inner Copper 2	E	-
15P0245.L5	Inner Copper 3	Е	
15P0245.L6	Inner Copper 4	E	
15P0245.L7	Power Plane	E	-
15P0245.L8	Side 2 Copper	E	<u> </u>
15P0245.L9	Side 1 Solder Mask	E	_
15P0245.L10	Side 2 Solder Mask	E	-
15P0246	Type DVC5000 Series Digital Field Instrument	H	24 May 2000
Sheets 1 and 2	(Fieldvue) PWB Assembly		
28B3398	Type DVC6000 Series PWB/Term Strip Assy	Α	11 Jan 2001
29B2137	Terminal Board Schematic	С	12 Dec 2000
29B2138	Type DVC6000 Series Terminal PWB	В	20 Nov 2000
39B3401	Type DVC5010, DVC5020, DVC5030	A	08 Mar 2001
Sheets 1 and 2	Terminal Box Assembly		
39B3402	Type DVC 5040 Terminal Box Assembly	Α	08 Mar 2001
Sheets 1 and 2		<u> </u>	
47B8809	Hart DVC 5000 Schematic	F	8 Jun 2000
Sheets 1 to 6			<u> </u>

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Addendum to Certificate No. 3155X-8

Drawing No	Drawing Title	Issue	Date
48B1710	Type DVC5000, DVC5000f Series Valve	R	15 Mar 2001
Sheet 1	Controller Certification DWG		
48B1710	Type DVC5000, DVC5000f Series Valve	G	15 Mar 2001
Sheet 2	Controller Certification DWG		
48B1710	Type DVC5000, DVC5000f Series Valve	Е	15 Mar 2001
Sheet 3	Controller Certification DWG		
48B1710	Type DVC5000, DVC5000f Series Valve	F	15 Mar 2001
Sheet 4	Controller Certification DWG		
48B1710	Type DVC5000, DVC5000f Series Valve	B	13 Apr 1999
Sheet 5	Controller Certification DWG		
48B1710	Type DVC5000, DVC5000f Series Valve	F	15 Mar 2001
Sheet 6	Controller Certification DWG		
48B1710	Type DVC5000, DVC5000f Series Valve	н	27 Nov 2000
Sheet 7	Controller Certification DWG		
48B1710	Type DVC5000, DVC5000f Series Valve	Н	05 Mar 2001
Sheet 8	Controller Certification DWG		
48B6039	Type DVC5000 Series I.S. PWB ASSY HART	C	06 June 2000

awing Schedule Relating to Variations Permitted by Issue 7 continued

Conditions of Certification Permitted by Issue 7:

- It is a condition of safe manufacture that each apparatus be capable of withstanding a test voltage of not less than 1. 500 Volts with a frequency between 48 Hz and 62 Hz applied between input terminals and case for a period not less than 1 minute.
- It is a condition of safe use that the following parameters are not exceeded for the Model DVC5010, DVC5020, 2. DVC5030, and DVC5040 where they are installed as intrinsically safe equipment.

Input Parameters	
Maximum Input Voltage Ui	30 Volts
Maximum Input Current li	226 mA
Maximum Input Power Pi	1.7 Watt
Maximum Internal Capacitance Ci	6 nF
Maximum Internal Inductance Li	40 µH

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Addendum to Certificate No. 3155X-8

Conditions of Certification Permitted by Issue 7 continued:

It is a condition of safe use that the following parameters are not exceeded for the Model DVC5010f, 3. DVC5020f, DVC5030f, and DVC5040f where they are installed as intrinsically safe equipment.

Input Parameters	
Maximum Input Voltage Ui	24 Volts
Maximum Input Current Ii	226 mA
Maximum Input Power Pi	1.36 Watt
Maximum Internal Capacitance Ci	6 nF
Maximum Internal Inductance Li	40 µH

- For Models DVC5010, DVC5020, DVC5030 and DVC5040, where installed as Non-sparking equipment, the 4. Maximum Input Voltage = 30 Volts
- For Models DVC5010f, DVC5020f, DVC5030f and DVC5040f, where installed as Non-sparking equipment, the 5. Maximum Input Voltage = 32 Volts
- The inductance of the connecting cable between the associated electrical equipment and the input terminals of б. the Digital Valve Controller must not exceed the value allowed by the associated electrical equipment parameters or 20 mH, whichever is the lower value.
- It is a condition of safe use in an environment with ambient temperature in excess of 75 °C that the 7. interconnecting cables have a minimum thermal rating of 85 °C.

Variations Permitted by Issue 8:

- The new DVC5000f Analog Card (Schematic) Drawing no. 20C2184 issue B, in addition to the existing 1. DVC5000f Analog Card (Schematic) Drawing no. 27B6446 issue H.
- The new DVC5000f Terminal Board (Schematic) Drawing no. 20C0988 issue A, in addition to the existing 2. DVC5000 Terminal Board Schematic Drawing no. 29B2137 issue C.
- To include FISCO option with revised terminal board and analog board. 3.

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Addendum to Certificate No. 3155X-8

Conditions of Certification Permitted by Issue 8:

- All Conditions of Certification used in the previous issues of this Certificate remain unchanged. 1.
- It is a condition of safe use that the following input parameters for FISCO (fieldbus) option shall be taken into 2. account during installation.

TO I	Power / Loop Terminals J1
I.S. Inputs/Outputs Parameters	17.5 V
Maximum Input Voltage U _i	380 mA
Maximum Input Current I _i Maximum Input Power P _i	5.32 W
Maximum Internal Capacitance C_i	5 nF
Maximum Internal Inductance L_i	10 μH

The input parameters for Fieldbus options may also be used if required.

1.S. Input Parameters	Power / Loop Terminals J1
$\begin{array}{c} 1.5. \text{ Input I at antecers} \\ \text{Maximum Input Voltage } U_i \end{array}$	24 V
Maximum Input Voltage U_i	226 mA
Maximum Input Power P_i	1.36 W
Maximum Internal Capacitance C_i	6 nF
Maximum Internal Inductance L _i	40 µH

Drawing Schedule Relating to Variations Permitted by Issue 8

Drawing Schedule Realing to Junior	Sheets	Rev	Date
	1 of 1	A	15/05/2002
		A	15/05/2002
Type DVC5000F Terminal FWD			17/01/2003
**	1011	~	
	1 to 7	В	24/09/2002
DVC5000F Analog Card		В	11/08/2003
		-	
Tame DVC6000 Series Terminal PWB	1 of 1	C	20/12/2001
Type DVC0000 Series Terminar TVD		B	20/02/2003
		1 -	
Terminal Box Assembly	1 to 2	Α	16/05/2002
	Document Title DVC5000F Terminal Board Type DVC5000F Terminal PWB Type DVC5000F Series PWB/Term Strip Assy DVC5000F Analog Card Type DVC5000F Series Loop Schematic, SAA Intrinsically Safe Type DVC6000 Series Terminal PWB Type DVC5010F, DVC5020F, DVC5030F Terminal Box Assembly	Document TitleSheetsDVC5000F Terminal Board1 of 1Type DVC5000F Terminal PWB1 of 1Type DVC5000F Series PWB/Term Strip1 of 1AssyDVC5000F Analog Card1 to 7Type DVC5000F Series Loop Schematic,1 to 3SAA Intrinsically Safe1 of 1Type DVC5010F, DVC5020F, DVC5030F1 to 2Terminal Box Assembly1 to 2	Document TitleSheetsRevDVC5000F Terminal Board1 of 1AType DVC5000F Terminal PWB1 of 1AType DVC5000F Series PWB/Term Strip1 of 1BAssyDVC5000F Analog Card1 to 7BType DVC5000F Series Loop Schematic,1 to 3BSAA Intrinsically Safe1 of 1CType DVC5010F, DVC5020F, DVC5030F1 to 2BTerminal Box Assembly11 to 2B

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Addendum to Certificate No. 3155X-8

Document No.	wing Schedule Relating to Variations Permitted Document Title	Sheets	Rev	Date
30C2186	DVC5000f Fieldbus Digital Field Instrument	1 to 2	A	08/05/2002
30C2180	- Analog PWB DVC5000f Fieldbus Analog Card	1 to 2	в	07/04/2003
48B1710	PWB Assembly Type DVC5000, DVC5000F Series Valve	1	w	22/07/2003
48B1710	Controller SAA Certification DWG Type DVC5000, DVC5000F Series Valve	2	J	23/07/2002
48B1710	Controller SAA Certification DWG Type DVC5000, DVC5000F Series Valve	3	G	23/07/2002
48B1710	Controller SAA Certification DWG Type DVC5000, DVC5000F Series Valve	4	H	23/07/2002
48B1710	Controller SAA Certification DWG Type DVC5000, DVC5000F Series Valve	5	D	23/07/2002
48B1710	Controller SAA Certification DWG Type DVC5000, DVC5000F Series Valve	6	К	21/02/2003
48B1710	Controller SAA Certification DWG Type DVC5000, DVC5000F Series Valve Controller SAA Certification DWG	7	L	21/02/2003
48B1710	Type DVC5000, DVC5000F Series Valve Controller SAA Certification DWG	8	К	22/07/2003
4002525	Type DVC5000F Series PWB Assy Fieldbus	1 of 1	C	24/07/2003
49B3525 30c2186	Artwork	1 to 2	A	13/08/2002
0002100		L1 to L6	· ·	

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STANDARDS AUSTRALIA

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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

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	
한 경험에 전망했는 것 같은 말 없는 것 같은 것		
	Certificate Holder	
	Murphek Pty Ltd 215 Parramatta Road AUBURN NSW 2144	
Drawing No(s) 15-00-0197; 15-00-0195;	Manufacturer	
15-00-0155; 15-00-0154; 15-01-0082 Rev C; 15-05-344 Rev P; 15-05-345 Rev J; 15-05-346 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; 15-05-650 Rev A; 15-05-0466 Rev D; 65.05.403	Frank W Murphy Manufacturer Inc 3131 South Sheridan Tulsa 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)	
Certification Conditions	SCC TR NO: 60015	
	Australian Standard(s)	
	AS 2480-1981	
	SAA File Reference	
	P/3: 84122/M121	
Remarks	Effective Date	
	1985-09-05	
	Date of Issue	
	1985-09-06	

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or conditions under which this certificate was issued.

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.

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

SUPPLEMENTARY CERTIFICATE FOR EXPLOSION PROTECTED ELECTRICAL EQUIPMENT

No. FJ.P 693 - 1

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

This pertificate may be withdrawn at any time if in the opinion of SAA Committee EL/29, 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 N/A To recognize changes in the components and catalogue numbers of the following instruments Type of Protection (....) (a) Switch Enclosure Cat. No. FNS51 N/A (b) Pilot Light System Cat. No. FNL11 **Certificate Holder** (c) Push-button Station Cat. No. FNP1L Safe Appliance and Equipment Co. Pty. Ltd., as detailed in Schedule 26-28 Kent Road MASCOT, NSW, 2020. Manufacturer Metalcraft Engineering Co. 26-28 Kent Road MASCOT, NSW, 2020. Drawing Nos. Test Report No(s) From 79 - 007 - AD - 002 Issue A to 79 - 023 - AD - 002 Issue A N/A inclusive Australian Standard(s) N/A SAA File Reference EL/29: 79068/M90 **Effective Date** 1980-02-20 Date of Issue 1980-07-03

Director Standards Association of Australia

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

CERTIFICATE FOR EXPLOSION PROTECTED ELECTRICAL EQUIPMENT

SCHEDULE 1

Continuation of Certificate No. FLP 693 -1

New Cat. No.	Short Description	Originated from	Changes
FNL 1.1 (1M) FNL 1.2 (2M)	Indicating Lamp Single Position	FNL 1"	One position deleted
FNP 1.1 (1M) FNP 1.2 (2M)	Push Button Station 2 Positions	FNP 11	One position was to stay put. Now both positions no stay put and external modification.
() 15.1 (1M) FNP 15.2 (2M)	Push Button Station 2 Positions	FNP 1L	As for FNP 1.1/FNP 1.2 but with both buttons shrouded
FNP 11.1 (1M) FNP 11.2 (2M)	Push Button Station 1 position	FNP 1L	One position deleted and no position stay put and external modification.
FNP 11K.1 (1M) FNP 11K.2 (2M)	Push Button Station Key operated 1 position	FNP 1L	One position deleted and external modufication.
FNP 11M.1 (1M) FNP 11M.2 (2M)	Push Button Station Palm operated 1 positio	FNP 1L	One position deleted and no position stay put and external modification.
FNP 118.1 (1M) FNP 118.2 (2M)	Push Button Station 1 position (shrouded)	FNP 1L	One position deleted and no position stay put with button shrouded and external modification
FNP 1K.1 (1M) FNP 1K.2 (2M)	Push Button Station 2 positions with 1 key operated	FNP 1L	External modification
FNP 11L.1 (1M) FNP 11L.2 (2M)	Push Button Station 1 position stay put	FNP 1L	One position deleted and single position stay put only and external modification.
FNP L1 (1M) FNP L2 (2M)	Push Button Station and Pilot Light combined.	FNP IL	Combinations of FNP 1L and FNL 11 with one button position deleted and pilot light deleted.
FNS 15.1 (1M) FNS 15.2 (2M)	Switch 240 V a.c. 15A DPDT or	FNS 51	Changing interiors of switch to Ring-Grip FS 169/15 DP.
	240 V а.с. 15А 2 wayв		

Jun Director Btenderds Association of Australia



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STANDARDS ASSOCIATION OF AUSTRALIA

Incorporated by Royal Charter

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

CERTIFICATE FOR EXPLOSION PROTECTED ELECTRICAL EQUIPMENT

SCHEDULE 1 (Continued)

Continuation of Certificate No. FLP 693 -

New Cat. No.	Short Desctiption	Originated from	Changes
FNS 52.1 1M) FNS 52.2 2M)	Switch 500 V a.c. 15A DP 3 positions	FNS 51	Changing interiors of switch to Federal type 15510302 PM1 and externel excutcheon plate
FNS 51K.2 1M) FNS 52K.2 2M)	Switch with key lockable device 500 V a.c. 15A	FNS 51	Changing interiors of switch to Kraus & Naimer type B11 B2K911 and external locking device.
FNS 65/*1 (1M) FNS 65/*2 (2M)	Switch 500 V a.c. 20 A 3 positions	FNS 51	Changing interiors of switch to Kraus & Naimer type B11 and U17 series
FNS 66/*1 (1M) FNS 66/*2 (2M)	Switch 500 V a.c. 20 A Multi-positions	FINS 51	Changing interiors of switch to Kraus & Naimer type B11 and C17 series and external modification.
FNP 18G.1 (1M) FNP 18G.2 (2M)	Push button Station 2 position with pad- locking facility	FNP 1L	One position was to stay put Now both positions no stay put with both buttons shrouded and external modification.
FNP 118G.1(1M) FNP 118G.2(2M)	Push Button Station 1 position with padlocking facility	FNP 1L	One position deleted and no position to stay put and external modification.

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Director 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. FLP 693 -

SCHEDULE 1 (Continued)

NOTES:

Code of Cat. No.

Suffix .1 denotes 0.75 in entries Suffix .1M denotes 20 mm entries Suffix .2 denotes 1 in entries Suffix .2M denotes 25 mm entries

2. The * for switches FNS 65 and FNS 66 will be a number which is allocated to denote a switch function from one of the Fraus & Naimer B11 or C17 switch series.

л Director

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 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

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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.

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Chairman of Opmmittee BL/29

Director, Standards Association of Australia

E1/29 Date 3.6.74

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Certification of EXPLOSION PROTECTED ELECTRICAL EQUIPMENT

Administered by: Standards Australia Quality Assurance Services

Certificate of Conformity

Certificate No:	AUS Ex 3640	Issue 0: Issue 1:	Original Issue 24/7/2001	8/12/1999
Date of Expiry:	8/12/2009			
Oertificate Holder:	Yokogawa Electric Corporat 2-9-32 Nakacho, Musashino- TOKYO 180-8750 JAPA	Shi		
Electrical Equipment:	Model YTA Series Tempera	ture Transmitt	er	
Type of Protection:	Ex d			
Marking Code:	Ex d IIC T6 (T _{amb} 75°C) II AUS Ex 3640	266/67		
Manufactured By:	Yokogawa Electric Corporat 2-9-32 Nakacho, Musashino- TOKYO 180-8750 JAPA	Shi		

Issued by.



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



Page 1 of

EXPLOSION PROTECTED ELECTRICAL EQUIPMENT

Administered by: Standards Australia Quality Assurance Services

Ex 3640-1

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 2380.2-1991 Electrical equipment for explosive atmospheres Explosion-protection techniques 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 Standard(s) above.

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

Test Report No: TestSafe 19223 and 21620

File Reference: TestSafe 99/9156 and 99/9157-TSA0004

Signed for find on behalf of issuing authority Technical Services Manager TestSafe Australia

Position

24/7/2001

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:





EXPLOSION PROTECTED ELECTRICAL EQUIPMENT

Administered by: Standards Australia Quality Assurance Services

Certificate No: AUS Ex 3640



Date of Issue: 24/7/2001

4

Certified Equipment: The Model YTA Series Temperature Transmitter consists of a cast aluminium or a stainless steel enclosure having two separate compartments. One compartment houses a series of field wiring terminals and having two ½" NPT threaded entries. The other compartment is for the amplifier/electronics. Each compartment has a threaded cover which may have an optional window, cemented and clamped in place. Electrical connection between compartments is via a potted joint.

'O' Ring seals on both covers afford a degree of protection of IP66/IP67.

Drawing No	Drawing Title	Issue	Date
			(dd/mm/yy)
DSA012-A05	Model Code	Original	24/4/99
DSA012-A06	General Description	Original	24/4/99
DSA012-A09 Page 1	8.1 Housing Assembly (without indicator)	1	8/9/99
DSA012-A09 Page 2	8.1 Housing Assembly (without indicator)	Original	24/4/99
DSA012-A09 Page 3	8.2 Housing Assembly (with indicator)	Original	24/4/99
DSA012-A09 Page 4	8.3 Chemical Composition of Aluminium Alloy Casting	Original	24/4/99
DSA012-A11	Marking	2	29/11/99

Drawing Schedule Relating to Original Issue



Schedule of Variations

Variation Permitted by Issue 1:

- Addition of "fieldbus" which is a new software package.
- Optional stainless steel housing.

Issued by:





EXPLOSION PROTECTED ELECTRICAL EQUIPMENT

Administered by: Standards Australia Quality Assurance Services

Addendum to Certificate No....Ex 3640-1

Drawing Schedule	Relating to Variations	Permitted by Issue 1

Drawing No	Drawing Title	Issue	Date
			(dd/mm/yy)
DSA012-A05	Model Code	1	16/8/2000
DSA012-A09 Page 2	8.1 Housing Assembly (without indicator)	1	16/8/2000
DSA012-A09 Page 3	8.2 Housing Assembly (with indicator)	1	16/8/2000
DSA012-A10	Block Diagram	1	16/8/2000

Issued by:





EXPLOSION PROTECTED ELECTRICAL EQUIPMENT

Administered by: Standards Australia Quality Assurance Services

Certificate of Conformity

Certificate No:	AUS Ex 3652X	Issue 0: Issue 1: Issue 2:	Original Issue 14/10/1999 22/12/1999 14/3/2000		
Date of Expiry:	14/10/2009				
Certificate Holder:	Yokogawa Electric Corporat 2-9-32 Naka-cho, Musashino TOKYO, 180-8750 JAPAN	o-shi			
Electrical Equipment:	Model YTA Series Temperature Transmitter				
Type of Protection:	Ex ia IIC T4 (Tamb=70°C) IP66/IP67 Zone 0 Ex n IIC T4 (Tamb=70°C) IP66/IP67 Zone 2				
Marking Code:	Ex ia IIC T4 (Tamb=70°C) IP66/IP67 Ex n IIC T4 (Tamb=70°C) IP66/IP67 AUS Ex 3652X				
Manufactured By:	Yokogawa Electric Corpora 2-9-32 Naka-cho, Musashin TOKYO, 180-8750 JAPAN	o-shi			

Issued by:





EXPLOSION PROTECTED ELECTRICAL EQUIPMENT

Administered by: Standards Australia Quality Assurance Services

Ex 3652X-2

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 Standard(s) listed above

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

Test Report No: TestSafe 19225 and 19899

File Reference: TestSafe 99/9157-TSA-0003

igned for the on behalf of issuing authority Technical Services Manager TestSafe Australia

Position

14/3/2000

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:



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 Fax: (02) 4724 4999



Certification of

EXPLOSION PROTECTED ELECTRICAL EQUIPMENT

Administered by: Standards Australia Quality Assurance Services

Addendum to Certificate NoEx.3652X-2.

Schedule of Variations

Variations Permitted by Issue 1:

The label may be manufactured showing three types of protection provided the two that are not relevant for a particular application are crossed out on the label. The drawings listed in this table supersede and replace all previously listed drawings

Drawings Relating to variations Permitted by Issue 1	
Fig. 1. Sec. and S. S. S. Market and S. Markalla, "Contract of the second state of	10,11
Drawing Title	

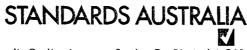
Drawing No	Drawing Title	Issue	Date
ISA019-A13 P.2	Outline Dimensions	Original	10/4/99
ISA019-A13 P.3	Mechanical Construction	Rev 1	14/10/98
ISA019-A13 P.4	Composition of the Printed Circuit Boards and Internal Wiring	Original	10/4/99
ISA019-A13 P.5	Block Diagram	Original	10/4/99
ISA019-A13 P.6	Schematic Circuit Diagram – Terminal Board	Original	10/4/99
ISA019-A13 P.7	Base Board	Original	10/4/99
ISA019-A13 P.8	CPU Board 1/2	Original	10/4/99
ISA019-A13 P.9	CPU Board 2/2	Original	10/4/99
ISA019-A13 P.10	LCD Board	Original	10/4/99
ISA019-A13 P.11	Trace Layout of the Printed Circuit Boards – Terminal Board	Original	10/4/99
SA019-A13 P.12	Base Board	Original	10/4/99
ISA019-A13 P.13	CPU Board 1/2	Original	10/4/99
ISA019-A13 P.14	CPU Board 2/2	Rev.1	6/10/99
ISA019-A13 P.15	LCD Board	Original	10/4/99
ISA019-A13 P.16	Name Plate	Rev 2	1/12/99

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Certification of

EXPLOSION PROTECTED ELECTRICAL EQUIPMENT

Administered by: Standards Australia Quality Assurance Services

Addendum to Certificate NoEx.3652X-2.

5 Page

5

Variations Permitted by Issue 2:

- 1. Addition of a stainless steel enclosure option.
- 2. Minor changes to the CPU board artwork.
- 3. Addition of R90 to R95 and C17.
- 4. Modification of resistance values for resistors R44 and R56.
- 5. Modification of the type of resistor R1 and values of resistors R7, R19, R20 and capacitor value of C43.
- 6. Changes to the internal capacitance Ci with the new input parameters as follows:

Input Parameters	Terminals +&-/ C
Maximum Input Voltage U_i	30 V
Maximum Input Current I_i	165 mA
Maximum Input Power P_i	0.9 W
Maximum Internal Capacitance C_i	31.45 nF
Maximum Internal Inductance L_i	738 µH

Drawings Relating to Variations Permitted by Issue 1

Drawing No	Drawing Title	Issue	Date
ISA019-A11 P.1&P.2	Part List	Rev 1	28/1/2000
ISA019-A13 P.3	Mechanical Constructions	Rev 2	6/3/2000
ISA019-A13 P.8	CPU Board 1/2	Rev 1	28/1/2000
ISA019-A13 P.13	CPU Board 1/2	Rev 1	28/1/2000
ISA019-A13 P.14	CPU Board 2/2	Rev 2	28/1/2000

Issued by:



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



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

Incorporated by Royal Charter

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

CERTIFICATE FOR EXPLOSION PROTECTED ELECTRICAL EQUIPMENT.

NoEx 547

(Sheet 1 of 2) !

This certifies that the equipment described hereunder has been examined of the Australian standard(s) specified herein, and such equipment has l	t and tested in accordance with the requirements been found to comply with these requirements.
This certificate may be withdrawn at any time if in the opinion of SAA Con for Hazardous Locations, the relevant standard has been altered or revi considered suitable for installation in the hazardous location stated, or if the or conditions under which this certificate was issued Austral Er 36-38 Rick	sed to a decree that the equipment is no longer
Tel: (08) 2	297 2677. Telex: AA82368.
Description of Equipment	Hazardous Location
'Dresser and Ashcroft! B7 and D7	Class I Zone 1
Series Pressure and Differential	Type of Protection
Pressure switches	Ex d IIB T6
Refer Schedule 1	Certificate Holder
	Austral Engineering Supplies Pty Ltd
	Mary Street
	ERMINGTON NSW 2115
Drawing No(s)	Mānufacturer
476C103 Rev G, BD-003-03, 476C104	Dresser Instrument
Rev HH, 552A105 Rev M, 110A124,	Division
117A168, 117A117 Rev H and AD-003-04	Stratford CONNECTICUT 06497 USA
Rev 2	CONNECTION 08497 034
	Test Report No(s)
	SCC TR NO: 59294
Certification Conditions	
	Australian Standard(s)
	AS 2480-1981
	SAA File Reference
Remarks	P/3: 84016/M117
	Effective Date
	1984-07-09
가슴, 정말 가지 않는 것 같은 것 같은 것 같은 것 같은 것 같은 것 같은 것 같은 것 같	Date of Issue
	1984-07-16
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14 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 EQUIL MENT

Continuation of Certificate No: Ex 547 (Sheet 2 of 2)

1

Austral Engineering Supplies Pty. Limited, 36-38 Richmond Road, Keswick, S.A. 5035. Tel: (08) 297 2677. Telex: AA82368.

SCHEDULE 1

DESCRIPTION

1

An aluminium enclosure incorporating:

	and the second second	
a)	One -	3 5/8 inch 16UN2B threaded joint
		Neoprene 'O' ring gasket
n An a sti	Two -	1 inch NPT conduit entries or
		alternatively:
	Two -	3/4 inch NPT conduit entries
4 C - 1		

(b) A pressure operated actuator seal assembly with:

- One Plunger (see Drawing No. 552A105 Rev M)
- One Nut (see Drawing No. 117A168)
- One Guide (see Drawing No. 110A124)

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Director—Administration & Approvals Standards Association of Australia

Incorporated by Royal Charter

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

SUPPLEMENTARY CERTIFICATE FOR EXPLOSION PROTECTED ELECTRICAL EQUIPMENT

No. Ex 547-1

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 Modification

Dresser Ashcroft 17 Series Temperature Switches Hazardous Location

Class I Zone 1 Type of Protection

Ex d IIB T6

This supplementary certificate has been issued to cover the optional fitting of T7 series Temperature Switches to the enclosures certified on Ex 547, to replace the Pressure or Differential Pressure Switches.

Certificate Holder Austral Engineering Supplies

ERMINGTON	NSW	2115
Mary Street		
Pty Ltd		
	- - -	

Manufacturer

DResser Instrument Division 250 East Main Street STRATFORD CONN 06497 USA

Drawing No(s)

451B149; 451B154; 451B157 and 577A118

Test Report No(s)

Australian Standard(s)

AS 2480-1981

SAA File Reference

P/3: 86132/M132

Effective Date

1986-09-10

Date of Issue

1986-10-13

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Director—Administration & Approvals Standards Association of Australia 22/09/2000 08:39 61-3-95874755

TYCO KEYSTONE VALVES

Cartificate No

PAGE

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Certificate of Compliance

This certificate is issued for the electrical equipment:

F792K Series Switch Boxes

Submitted for certification by: Keystone Pacific Pty Ltd 114 Albatross Road NOWRA NSW 2541

and manufactured by: Keystone Pacific Pty Ltd

This electrical equipment and any acceptable variation thereto is specified in the Schedule or Schedules attached hereto and in the documents referred to therein.

This certifies that the equipment described has been found to comply with AS 2380.1-1989, AS 2380.2-1991 incorporating Amendment 1, AS 2236-1985 and AS 1939-1990.

TYPE OF PROTECTION: Er d IIB T6 IP63/IP67 Class I Zone 1 DIP T6 IP65/IP67 Class II

This certificate is granted subject to the conditions as set out in Standards Australia Miscellaneous Publication MP42 and any additional conditions as may be prescribed by Standards Australia.

Test Report No: LOSC 8443, 8444

File: P/3: 92135.M170

Date of Issue: 13 April 1993

Date of Expiry of Validity: 13 April 2003

Page 1 of 3

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Signed for and on behalf of Standards Australia

General Manage Outliny Assurance Services

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FILE NO.074 15/01 '02 - 10:55 ID:TYCO FLOW CONTROL

22/09/2000 08:39

61-3-95874755



SUPPLEMENTARY Carificate No

Certificate of Compliance

This is to certify that Standards Australia Certificate No. Ex 1416 issued to:

Keystone Pacific Pty Ltd 114 Albatross Road NOWRA NSV 2541

for the F79ZK Series Switch Boxes is hereby extended to include changes as detailed in the following schedule.

SCHEDULE

Description of changes;

Change of part numbers as shown in the following tables. The flemeproof range comprises:

AUST 6 DIGIT PART NUMBER	USA 15 DIGIT Part Number	CONFIGURATION
274384	221-954-307-79 2-710	2-SPDT, BZ Style Switches
830590	221-954-307-792-720	2-DFDT, DT Style Switches
535812	221-954-307-792-711	2-SPDT, V3 Style Switches with Terminal Strip
586868	221-954-507-792-713	2-SPDT, V3 Style Switches with Terminal Strip and Potentiometer
160705	221-954-507-792-810	4-SPDT, BZ Style Switches
720941	221-954-507-792-820	4-DPDT, DT Style Switches
420460	221-954-307-792-811	4-SPDT, V3 Style Switches with Terminal Strip
141950	221-954-507-792-813	4-SPDT, V3 Style Switches with Terminal Strip and Potentiometer

Page 2 of 3

Signed for and on behalf of Standards Australia

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Quality Assurance Services

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22/09/2000 08:39

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PAGE 03



Continuation of SUPPLEMENTARY Certificate No

Ex 1416-1

Certificate of Compliance

The DIP range comprises:

AUST 6 DIGIT PART NUMBER	USA 15 DIGIT Part Number	CONFIGURATION
274384	221-954-307-792-710	2-SPDT. BZ Style Switchs;
830590	221-954-307-792-720	2-DPDT. DT Style Switches
535812	221-954-307-792-711	2-SPDT, V3 Style Switches with Terminal Strip
385860	221-954-507-792-713	2-SPDT, V3 Style Switches with Terminal Strip and Potentiometer
160705	221-954-307-792-810	4-SPDT, BZ Style Switches
720941	221-954-507-792-820	4-DPDT, DT Style Switches
429460	221-934-507-792-811	4-SPDT, V3 Style Switches with Terminal Strip
141950	221-954-507-792-813	4-SPDT. V3 Style Switches with Terminal Strip and Potentiometer

File: P/3: 93134

Date of Issue: 23 August 1993

Date of Expiry of Validity: 13 April 2003

Page 3 of 3

Signed for and an behalf of Standards Australia

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Ouality Assurance Services

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Standards Australia Quality Assurance Services Fiv Limited A C N ASA 411 412

PAGE 4

FAX:+0882405333

10:22 ID:1ACO EFOM CONLEOF

Certification of

EXPLOSION PROTECTED ELECTRICAL EQUIPMENT

Administered by: Standards Australia Quality Assurance Services

Certificate of Conformity

Certificate No:	AUS Ex 321	Issue 0: Issue 5:	Original Issue 20/4/1982 17/9/1998
Date of Expiry:	16/5/2004		
Certificate Holder:	Parker Hannifin (Australia)) 9 Carrington Road CASTLE HILL NSW 21		
Electrical Equipment:	"LUCIFER" Explosion Proo	f Coil/Housin	g Assemblies
Type of Protection	Ex m IIC T* IP65/IP67 Cl Ex me IIC T* IP65/IP67 C DIP T* IP65/IP67 Class II	Class I Zone	
Marking Code:	Ex m IIC T* IP65/IP67 Ex me IIC T* IP65/IP67 DIP T* IP65/IP67 AUS Ex 321 (* see schedule)		
Manufactured By	Parker Lucifer		

Issued by:



Londonderry Occupational Safety Centre

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









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 2380.1-198	9 Electrical equipment for explosive atmospheres - Explosion-protection techniques - General requirements
AS 2380.6-198	8 Electrical equipment for explosive atmospheres - Explosion-protection techniques - Increased safety 'e'
AS 2431-1981	Electrical equipment for explosive atmospheres - Encapsulated apparatus - Type of protection 'm'
AS 2236-1994	Electrical equipment for explosive atmospheres - Dust-excluding Ignition-proof (DIP) enclosures
AS 1939-1990	Degrees of protection provided by enclosures of electrical equipment (IP Code)

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

Test Report No: LOSC 10601 File Reference: LOSC 92/4654

and on behalf of issuing authority

17/9/1998 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:



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PARKER HANNIFIN P/L

Certification of



Administered by: Standards Australia Quality Assurance Services

Schedule

Certificate No: AUS Ex 321

Issue:

5

Date of Issue: 17/9/1998

A range of "Lucifer" Explosion Proof Coil/Housing Assemblies. Certified Equipment:

Schedule of Variations

Variations Permitted by Issue 3:

Inclusion of additional solenoid coils, designated Series 49 Models 492070.03, 492190.03 and 492310.03, to the range of certified equipment. The additional solenoid coils are classified as shown in Table 1 and are rated for operation at up to and including 440 Volta 50/60Hz ac or 120 Volts dc.

Table 1: Classification of Series 49 Solenoids

Model	IP Classification	Temperature Classification		
		@ 40°C ambient	@ 75°C ambient	
492070.03	IP65/IP67	TS	T4	
492190.03	IP65	T4	Т3	
492310.03	IP65	T5	T4	

Drawings Relating to Variations Permitted by Issue 3

Drawing No	Drawing Tltle	Issue	Date
DY 492310.03	Electrical Part Ex me	2	4/2/94
DY 492190.03	Electrical Part Ex me	1	4/2/94
CY 492070.03	Electrical Part Ex me	original	24/3/93
CZ 6982	Characteristics	2	12/12/91
CZ 1203	Characteristics	0	12/12/91

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STANDARDS AUSTRALIA

PARKER HANNIFIN P/L

Certification of



Administered by: Standards Australia Quality Assurance Services

Addendum to Certificate No. Ex 321-5

Drawings Relating to Variations Permitted by Issue 3 (continued)

Drawing Not:	Drawing Title	Issue	Date
BZ 1222	Comparative Table	original	1/4/93
BZ 1202	Characteristics for Fuses and Diodes	1	17/3/92
BY 492165	Bobin EEx me	1	24/11/92
BY 492065	Bobin EEx m	1	27/11/91
BY 492063	Circuit Electronics	1	27/11/91
BY 492061	Circuit Electronics	1	27/11/91
BY 481000E	Coil 8W	original	20/2/91
482696	Label Detail	5.	3/3/94
482697	Label Detail	6	3/3/94

Variations Permitted by Issue 4:

Certificate of Conformity re-issued to correct typographical errors.

Variations Permitted by Issue 5:

A change to the name and address of the Certificate Holder.

Issued by:



Londonderry Occupational Safety Centre

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





Standards Association of Australia

INCORPORATED BY ROYAL CHARTER



Re: SUPPLEMENTARY CERTIFICATE FOR EXPLOSION PROTECTED ELECTRICAL EQUIPMENT

We have pleasure in forwarding the enclosed supplementary certificate of compliance:

Certificate No LEX 321-1

Date of Issue 1984 04 11

We would remind you of the undertaking that you have entered into in signing the application; that is not to make any modifications whatso-ever to the equipment before applying to and obtaining from the Association a supplementary certificate covering such modification. Further, the Association reserves the right to cancel any certificate issued to you if in the opinion of SAA Committee P/3, the relevant standard(s) has been altered to a degree that the equipment is no longer considered suitable for installation in the hazardous location, or if the certificate holder has breached any of the terms or conditions under which the certificate was issued.

Yours faithfully,

Gayle Valentino

Gayle Valentine Executive Officer COMMITTEE P/3 - CERTIFICATION OF ELECTRICAL EQUIPMENT FOR HAZARDOUS LOCATIONS

Autorian Member DECANIZATIONAL DEGANIZATION FOR STANDARDIZATION INTERNATIONAL ELECTRO TECHNICAL COMMISSION

(

1

Incorporated by Royal Charter

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

SUPPLEMENTARY CERTIFICATE FOR EXPLOSION PROTECTED ELECTRICAL EQUIPMENT

No. Ex 321-1 (Page 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 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 Modification	Hazardous Location
'Lucifer' Explosion Proof Coil/Housing	Class I Zone 1
Assemblies	
This supplementary certificate relates to the	Type of Protection
range of assemblies as detailed in Schedule 1, and which add to the range of equipment already	Refer Schedule 2
certified under SAA Certificate No. Ex 321.	
	Certificate Holder
	Sperry Vickers Automation and Pneumatics
	19 Pakington Street
Drawing No(s)	ST KILDA VIC 3182
CA 48.8210.03E Modification 3, CA 488890.03E	Manufacturer
Modification 3, CY 482697 Modification 2,	Sperry Vickers
CY 48 2060.03E Modification 2, CY 483430	Automation and Pneumatics
Modification 1, BZ 1028 page 1 and BZ 1029 page 2.	Lucifer Division P.O. Box 465
hage 2.	Geneva Switzerland
	Test Report No(s)
	SCC TR No: 58892
	Australian Standard(s)
	AS 2431-1981 AS 1593-1982
	SAA File Reference
	P/3:83193/M115
	173:03193/0115
	Effective Date
	1984 04 10
	Date of Issue
	1984 04 11

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Ytray Director-Administration & Approvals Standards Association of Australia

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

CERTIFICATE FOR EXPLOSION PROTECTED ELECTRICAL EQUIPMENT

Continuation of Certificate No: Ex 321-1 (Page 2 of 3)

SCHIDULE 1 Description of Modification (Continued)

.

F.

'Lucifer' Explosion-Proof. Coil/Housing Assemblies

Assumbly Type	Voltage V	Frequency Hz	Power W
48.2060.03	24 a.c. 110 a.c. 220 a.c. 24 d.c. 48 d.c.	50 and 60 50 and 60 50 and 60 -	6 6 6 6 6
48.8210.03	24 a.c. 48 a.c. 110 a.c. 220 a.c. 24 d.c. 48 d.c. 60 d.c. 110 d.c. 220 d.c.	50 and 60 50 and 60 50 and 60 50 and 60 -	11 11 11 9 9 9 9 9 9
48.5900.03	24 a.c. 48 a.c. 110 a.c. 220 a.c. 12 d.c. 24 d.c. 48 d.c. 60 d.c. 110 d.c.	50 and 60 50 and 60 50 and 60 50 and 60 - -	8 8 8 8 8 8 8 8 8
48.8880.03	24 a.c. 110 a.c. 220 a.c. 24 d.c. 48 d.c.	50 and 60 50 and 60 50 and 60	5 5 5 5 5
48.8890.03	24 a.c. 110 a.c. 220 a.c. 24 d.c. 48 d.c.	50 and 60 50 and 60 50 and 60 -	6 6 6 6

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Director-Administration & Approvals Standards Association of Australia

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

CERTIFICATE FOR EXPLOSION PROTECTED ELECTRICAL EQUIPMENT

Continuation of Certificate No: Ex 321-1 (Page 3 of 3)

. . . .

SCHEDULE 1 Description of Modification (Continued)

NOTES:

- 1. All assemblies are totally encapsulated with "Scotchcase 241" epoxy resin enclosed in a plastic case.
- 2. Assemblies Type 48.5900.03 and 48.8880.03 are provided with a three-core flexible cord.
- 3. Assemblies Type 48.2060.03, 48.8210.03 and 48.8890.03 are provided with a terminal enclosure.

SCHEDULE 2 Type of Protection (Continued)

Types	48.2060.03,	48.8890.03	:	Ex m e IIC T6
Туре	48.8210.03		:	Ex m e IIC T5
Type	48.8880.03		:	Ex m IIC T6
Type	48.5900.03		:	Ex m IIC T5

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Director—Administration & Approvals Standards Association of Australia

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Certificate Search AUSEx_1211 Search Advanced Search Price: \$27.50 (incl 10 % GST) Username AUSEx_1211 Certificate #: Issue Date: 14/08/1995 Password Issue #: 2 Expiry Date: 8/04/2001 EXPIRED Status: Login Lost Password? **Certificate Holder:** United Electric Controls (Aust) Pty Ltd No account yet? Register 615 Warrigal Road Ashburton Victoria 3147 Australia Address: Manufacturer: United Electric Control Co Download Area Product Description: Series 119 | Pressure and Temperature Controls with M903 Option Show Cart Equipment Category: Process Control Equipment Your Cart is currently Protection Type: d DIP empty. IIC Gas Group: Links Marking Group: IEC Ex Certificates IP Rating: IP 66 " LOSC12961A, LOSC4441 " Issued by: Test Report #: TestSafe Australia AS 2380.1-1989 AS 2380.2-1991 AS 2236-1994 Standards: Notes: N/A Add to Cart more categories ANZEx Certificates AUSEx Certificates Vintage SAA Certs Workshop Certificates

Certificate of Conformity: IECEx BAS 09.0076X

	X	CEx Certifie	
	ertification Scher	TROTECHNICAL CO me for Explosive Atr he IECEx Scheme visit www.iecex.c	nospheres
Certificate No.:	IECEX BAS 09.0076X	issue No.:0	Certificate history:
Status:	Current		Issue No. 1 (2011-7-22) Issue No. 0 (2010-6-2)
Date of Issue:	2010-06-02	Page 1 of 3	
Applicant:	Rosemount Incorporate 8200 Market Boulevard Chanhassen Minnesota 55317 United States of Americ		
Electrical Apparatus: Optional accessory:	Model 3051 Series Press	sure Transmitters	
Type of Protection:	Intrinsic Safety		
Marking:	IECEx BAS 09,0076X Ex ia IIC T5 (-60°C ≤ Ta ≤ + T4 (-60°C ≤ Ta ≤ +70°C) – Ex ia IIC T4 (-60°C ≤ Ta ≤ +		
Approved for issue on Certification Body:	behalf of the IECEx	R.S. Sinclair	
Position:		Managing Director	
Signature: (for printed version)			
Date:			
 This certificate is not The Status and authors 	chedule may only be reproduc transferable and remains the enticity of this certificate may b		x Website.
Certificate issued by:	Baseefa Rockhead Business Park		
	Staden Lane Buxton		
	Derbyshire SK17 9RZ United Kingdom		
IEC IECE	A	CEx Certifi	
		of Conform	ity
Certificate No.:	ECEX BAS 09.0076		
Date of Issue:	2010-06-02		e No.: 0
Manufacturer:	Rosemount In 8200 Market Bou Chanhassen Minnesota 55317 United States	corporated levard	2 of 3
Manufacturing location	n(s):		
This equipment maybe manufactured at any locations listed in QAF GB/BAS/QAR06.0072	of the २		
found to comply with t covered by this certifi	he IEC Standard list below and cate, was assessed and found	(s), representative of production, w that the manufacturer's quality syst t o comply with the ECEx Quality sy out in IECEx Scheme Rules, IECEx 02	em, relating to the Ex products stem requirements. This
	us and any acceptable variation d to comply with the following	ns to it specified in the schedule of th standards:	nis certificate and the identified

Certificate of Conformity: IECEx BAS 09.0076X

Model 3051CFA Integral Orifice Tiered Flow meter ONDITIONISIOF CHETHEICATIGON: VIESS-asTisched/Flowerfetw: Model 3051CFP Integral Orifice Tiered Flow meter If the apparatus is fitted with an optional 90V transient suppressor, it is not capable of withstanding the 500V selaastificester équired floy apparatos pratoneller60079-11: 2006. This must be taken into account when installing the sparatus.	Edition: 4.0	Electrical apparatus for explosive gas	atmospheres - Part 0: General requirements
<text><section-header><table-row>The Carteficate does not indecate compliance with electrical safety and performance requirements often than the several site of above. FINE ASSESSIMENT REPORTS: A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded on Tarting of the equipment listed has successfully met the examination and test requirements as recorded on Tarting of the equipment listed has successfully met the examination and test requirements as recorded on Tarting of the equipment listed has successfully met the examination and test requirements as recorded on Tarting of the equipment listed has successfully met the examination and test requirements as recorded on Tarting of the equipment listed has successfully met the examination and test requirements as recorded on Tarting of the equipment listed has successfully met the examination and test requirements as recorded on Tarting of the equipment distribution of the equipment listed has successfully met the examination and test requirements as recorded on Tarting of the equipment distribution</table-row></section-header></text>		Explosive atmospheres - Part 11: Equi	pment protection by intrinsic safety "i"
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Date of Issue: 2010-06-02 Issue No.: 0 Page 3 of 3 Schedule CUPMENT: puipment and systems covered by this certificate are as follows: The Model 3051 Series Pressure Transmitters is designed to convert process pressure measurements into a 4-20mA ART, Fieldbus or FISCO signal. The apparatus contains a number of printed circuit boards consisting of an appropriate the Model 3051 Series Pressure Transmitters is designed to convert process pressure measurements into a 4-20mA ART, Fieldbus or FISCO signal. The apparatus contains a number of printed circuit boards consisting of an appropriate ther a polyurethane coated aluminium or stainless steel enclosure. When the optional display is fitted the housing cover ontains a glass window. External connections to the integral terminal block are made via one of tw o tapped holes. Then the apparatus is instaled in combustible dust environments the installation of external connections and the plugging the unused entry must be carried out using appropriate Ex or Ex n cable glands or blanking plug components with a ninimum Prating of IP66 certified by an approved certification body. This certificate covers the Revision 1 Model 3051C, 3051L, 3051H, 3051P, 3051T, 3051CA, 3001C, 3001C, and 3051CH essure Transmitters and the Revision 5 Model 3051C Pressure Transmitter with 4-20mA HART connection, which ary in the process connection. This certificate also covers the Model 3051 Fieldbus Pressure Transmitter designed to be connected to either Foundation eldbus or Profibus PA systems. This variant can alternatively be fitted with a FISCO transient protection board to form a SCO variant of the Model 3051 Fieldbus Pressure Transmitter. Undel 3051CFA Integral Orifice Tiered Flow meter Model 3051CFP Integral Orifice Tiered Flow meter Model 3051CFP Integral Orifice Tiered Flow meter Model 3051CFD Integral Orifice Tiered Flow meter Model 3051CFP In	Certificate No.:		,
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addbus or Profibus PA systems. This variant can alternatively be fitted with a FISCO transient protection board to form a SCO variant of the Model 3051 Fieldbus Pressure Transmitter. I variants of the Model 3051 C Pressure Transmitters can be alternatively mounted on process pipew ork to form the low ing Row meters:- Model 3051 CFA Integral Orifice Tiered Flow meter SNDTFU0MSide CESCHECK Attion. VGBS::asTishadvFlobefow: Model 3051 CFP Integral Orifice Tiered Flow meter If the apparatus is fitted with an optional 90V transient suppressor, it is not capable of withstanding the 500V velicibilitiester equilation of pages for an EEC 0079-11: 2006. This must be taken into account w hen installing the paratus. The enclosure may be made of aluminium aloy and given a protective polyurethane paint finish; how ever, care	rminal block, one or two o her a polyurethane coate intains a glass window . E hen the apparatus is insta the unused entry must be	output boards, a sensor board, a sensor an ad aluminium or stainless steel enclosure. W External connections to the integral terminal alled in combustible dust environments the i e carried out using appropriate Ex e or Ex n	d an optional liquid crystal display al housed in /hen the optional display is fitted the housing cover block are made via one of two tapped holes. nstallation of external connections and the plugging
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	his certificate covers the f ressure Transmitters and ary in the process connec- his certificate also covers eldbus or Profibus PA sys- SCO variant of the Model score variant of the Model 30 llowing Flow meters;- Model 3051CFA In CONDITIONSIGE CERTIFIC	the Revision 5 Model 3051C/T Pressure Tra tion. the Model 3051 Fieldbus Pressure Transmi stems. This variant can alternatively be fitte 3051 Fieldbus Pressure Transmitter. 151C Pressure Transmitters can be alternati tegral Orifice Tiered Flow meter ATIFON: (YES:asTiehex/Fibberfe/er.	insmitters with 4-20mA HART connection, which itter designed to be connected to either Foundation d with a FISCO transient protection board to form a
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Annexe: IECEx BAS 09.0076X Annex.pdf

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

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Signed for and on behalf of Standards Australia

General Monoger Genity Assurance Services

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



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

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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

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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 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 Issue A		

Original

Revision 2

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UEA-1200G

UEA-1200L

Francia

Director—Administration & Approvals Standards Association of Australia

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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

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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



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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

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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

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

Certificate No

Ex 542-3

Certificate of Compliance

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

ELECTRICAL EQUIPMENTSUPPLEMENTARY

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

SCHEDULE

Description of changes:

Change of Address of Certificate Holder to:

Unit 2, 615 Warrigal Road Ashburton Vic 3147

EXPLOSION PROMECTED

File: P/3: 92220

Date of Issue: 21 December 1992

Date of Expiry of Validity: 21 April 2002

Page 1 of 1

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General Manager Genety Assurance Services

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

Certificate of Conformity: IECEx CSA 05.0005

	ix	ECEx Certi of Conform	
	Certification Sch	ECTROTECHNICAL eme for Explosive , of the IECEx Scheme visit www.iec	Atmospheres
Certificate No.:	IECEx CSA 05.0005	issue No.:2	Certificate history:
Status:	Current		Issue No. 6 (2011-6-23) Issue No. 5 (2010-5-7)
Date of Issue:	2006-12-15	Page 1 of 4	Issue No. 4 (2009-7-24) Issue No. 3 (2008-6-24) Issue No. 2 (2006-12-15)
Applicant:	Yokogawa Electric Cor 2-9-32 Naka-cho, Musashi Tokyo 180-8750 Japan		
Electrical Apparatus: Optional accessory:	Pressure Transmitters	, Series EJX	
Type of Protection:	Ex i; Ex n		
Marking:	IECEx CSA 05.0005 Ex ia IIC T4, Ex nL IIC T4 IP66, IP67 (Refer to Schedule)		
Approved for issue on Certification Body:	behalf of the IECEx	Joe Gryn	
Position:		Director, Conformity Assessme	nt
Signature: (for printed version)			
Date:			
2. This certificate is no 3. The Status and auth Certificate issued by:	enticity of this certificate may CSA International 178 Rexdale Boulevard oronto, Ontario M9W IR3 Canada and	e property of the issuing body. y be verified by visiting the Official	IECEx Website.
	1707 - 94th Street Edmonton, AB T6N 1E6 Canada	_	
	Ex II	ECEx Certi of Confor	
Certificate No.:	IECEX CSA 05.00	005	
Date of Issue:	2006-12-15		Issue No.: 2
			Page 2 of 4
Manufacturer:		ec tric Corporation o, Musashino-shi)	
found to comply with	c Kofu⊢shi -8558 ⊔ed as verification that a sam the EC Standard list below a		system, relating to the Ex products
		und to comply with the IECEx Quali set out in IECEx Scheme Rules, IEC	ty system requirements. This Ex 02 and Operational Documents as
The electrical appara	tus and any acceptable varia nd to comply with the follow ir		of this certificate and the identified
IFC 60079-0 · 2000	n Electrical annaratus	for explosive cas atmospheres - F	Part 0: General requirements

iecex.iec.ch/iecex/iecexweb.nsf/.../IECEx CSA 05.0005 issue No. 2?opendo...

Edition: 3.1 IEC 60079-11 : 1999 Edition: 4		
Luidon. +	Electrical apparatus for	explosive gas atmospheres - Part 11: Intrinsic safety 'i'
IEC 60079-15 : 2001 Edition: 2	⊟ectrical apparatus for	explosive gas atmospheres - Part 15: Type of protection 'n'
This Certificate does r		n electrical safety and performance requirements other than those ed in the Standards listed above.
TEST & ASSESSMENT R A sample(s) of the equip		rnet the examination and test requirements as recorded in
IECEX ATR:		File Reference:
CA/CSA/05/TR172608-1 CA/CSA/ExTR06_0027/0		172608-1626032 172608-1862781(1626032)
	IE	CEx Certificate
		of Conformity
Certificate No.:	IECEx CSA 05.0005	
Date of Issue:	2006-12-15	Issue No.: 2
		Page 3 of 4
he EJX series are two wir		as follows: ich convert differential pressure, gauge pressure or absolute oility for digital communication.
The EJX series are two wir ressure into a 4 to 20mA of The EJX series transmitter of ressure sensor assembly. The electrical amplifier cons	e electronic transmitters w hi dc output signal w ith a possit consists of a field w iring con sists of four printed-circuit bo	ich convert differential pressure, gauge pressure or absolute oility for digital communication. npartment, an electronic amplifier in an aluminum alloy housing and
The EJX series are two wir ressure into a 4 to 20mA of The EJX series transmitter of ressure sensor assembly. The electrical amplifier cons	e electronic transmitters w hi dc output signal w ith a possit consists of a field w iring con sists of four printed-circuit bo ard, Driver board and LCD bo EJX Series F	ich convert differential pressure, gauge pressure or absolute oility for digital communication. npartment, an electronic amplifier in an aluminum alloy housing and pards:
The EJX series are two wir ressure into a 4 to 20mA of The EJX series transmitter of ressure sensor assembly. The electrical amplifier cons Terminal board, CPU boa	e electronic transmitters w hi dc output signal w ith a possit consists of a field w iring con sists of four printed-circuit bo ard, Driver board and LCD bo EJX Series F	ich convert differential pressure, gauge pressure or absolute oility for digital communication. npartment, an electronic amplifier in an aluminum alloy housing and pards: pard. (Refer to ICS014-A12 P.5 and P.6) ressure Transmitters Equipment for Explosive Atmospheres
The EJX series are two wir ressure into a 4 to 20mA of The EJX series transmitter of ressure sensor assembly. The electrical amplifier cons Terminal board, CPU boa Addel: Type of Protection: Andeel: Type of Protection: Andeel: Type of Protection: Andeel: Type of Protection: Andeel:	e electronic transmitters w hi dc output signal w ith a possit consists of a field w iring con sists of four printed-circuit bc ard, Driver board and LCD bc EJX Series P for Electrical Ex ia IIC T4, Ex nL I -50 to 60cC 120oCmax 0 to 100% (No conc	ich convert differential pressure, gauge pressure or absolute offity for digital communication. npartment, an electronic amplifier in an aluminum alloy housing and pards: pard. (Refer to ICS014-A12 P.5 and P.6) ressure Transmitters Equipment for Explosive Atmospheres IC T4
The EJX series are two wir ressure into a 4 to 20mA of the EJX series transmitter of ressure sensor assembly. The electrical amplifier cons Terminal board, CPU boar Addet: Type of Protection: Ambient Temperature: Process Temperature:	e electronic transmitters w hi ic output signal w ith a possit consists of a field w iring con sists of four printed-circuit bo ard, Driver board and LCD bo EJX Series P for Electrical Ex ia IIC T4, Ex nL I -50 to 600C 1200Cmax 0 to 100% (No conc bosure: IP66 and IP67): UI=30V, I=200mA	ich convert differential pressure, gauge pressure or absolute offity for digital communication. spartment, an electronic amplifier in an aluminum alloy housing and bards: bard. (Refer to ICS014-A12 P.5 and P.6) ressure Transmitters Equipment for Explosive Atmospheres IC T4 densation) , PI=0.9W, CI=10nF, LI=0



11/17/11

Certificate of Conformity: IECEx CSA 05.0005

Certificate No.:	IECEx CSA 05.0005	
Date of Issue:	2006-12-15	Issue No.: 2
		Page 4 of 4
	NGES (for issues 1 and above):	
CA/CSA/ExTR06.0027/00	dance with Document ICS014. Rev 2: Minor revision	is not arrecting explosion protection -
<u> </u>	Annexe: IECEx CSA 05.0005_ICS014.pdf	

	× IE	ECEx Certif of Conforn	
	ertification Sche	CTROTECHNICAL C me for Explosive A the IECEx Scheme visit www.iece	tmospheres
Certificate No.:	IECEx UL 05.0003	issue No.:1	Certificate history
Status:	Current		
Date of Issue:	2006-12-05	Page 1 of 5	
Applicant:	Thermon Manufacturin 100 Thermon Drive San Marcos, TX 78666 United States of Ameri	-	
Eectrical Apparatus: Optional accessory:	Terminator Series, Pow	ver, Splice and End-Terminatio	n Kits
Type of Protection:	Increase Safety		
Marking:	Ex e II T4-T6 -60°C ≤ Tamb ≤ +55°C		
Approved for issue on Certification Body:		Paul T. Kelly	
Position:		Operations Manager	
Signature: (for printed version)			
Date:			
1	rwriters Laboratories Inc 333 Pfingsten Road Northbrook IL 60062-2096 United States of America	(UL)	Working for a safer world
	× IE	ECEx Certif of Conforn	
Certificate No.:	IECEx UL 05.0003		
Date of Issue:	2006-12-05	ls	sue No.: 1
Manufacturer:	Thermon Man 100 Thermon Dri San Marcos, TX United States	ufacturing Co. ive 78666	age 2 of 5
Manufacturing location	2(0):		
This certificate is issu found to comply with covered by this certifi	ed as verification that a samp the IEC Standard list below an cate, w as assessed and four	le(s), representative of production d that the manufacturer's quality si d to comply with the IECEx Quality et out in IECEx Scheme Rules, IECE	ystem, relating to the Ex products
STANDARDS: The electrical apparate	us and any acceptable variati d to comply with the following		of this certificate and the identified
IEC 60079-0 : 2004 Edition: 4.0 IEC 60079-7 : 2001		or explosive gas atmospheres - Pa or explosive gas atmospheres - Pa	
Edition: 3	es not indicate compliance w	ith electrical safety and performan	ce requirements other than those
TEST & ASSESSMEN		ded in the Standards listed above.	
LEAL & ASSESSMEN	SPURIN'		

E40047

IECEx Certificate of Conformity



Certificate No.: Date of Issue: IECEx UL 05.0003

lssue No.: 1 Page 3 of 5

Schedule

EQUIPM ENT:

Equipment and systems covered by this certificate are as follows:

Other	information	
-------	-------------	--

Temperature Class	6mm2 Terminals		4mm2 Terminals	4mm2 Terminals		
	8.4 mm2 Wire	6 mm2 Wire	5.3mm2 Wire	4mm2 Wire	3.3mm2 Wire	
Γ4	70A, Ta=+40°C	62A, Ta=+40°C	52A, Ta=+40°C	42A, Ta=+40°C	38A, Ta=+40°C	
T5	55A, Ta=+40°C	48A, Ta=+40°C	40A, Ta=+40°C	32A, Ta=+40°C	30A, Ta=+40°C	
Г6	46A, Ta=+40°C	41A, Ta=+40°C	34A, Ta=+40°C	28A, Ta=+40°C	25A, Ta=+40°C	
Γ4	64A, Ta=+55°C	56A, Ta=+55°C	45A, Ta=+55°C	37A, Ta=+55°C	35A, Ta=+55°C	
Г5	46A, Ta=+55°C	41A, Ta=+55°C	34A, Ta=+55°C	28A, Ta=+55°C	25A, Ta=+55°C	
Г6	36A, Ta=+55°C	32A, Ta=+55°C	27A, Ta=+55°C	21A, Ta=+55°C	20A, Ta=+55°C	

Other information

Terminator Series: Pow er, Splice and End-Termination Kits Nomenclature Terminator Series Designation Z – Zone, ATEX or IEC Ex Categories Designation Kit Type Designation P - Power Connection L - End of Circuit (Voltage Indication Light) N-Cable Profile Designation L – Large S – Small v-Mounting Designation XP - Pipe WP-Wall The maximum pipe temperature exposure is 250°C. The minimum temperature exposure is -60°C The maximum rated operating voltage is 750V. The maximum rated operating voltage might be limited by the voltage rating of applied terminals. Terminator series is intended to be used with Thermon certified trace heating cables, as specified in the relevant IECEX heating cable certificates.

The temperature classification is depending on the terminal temperature rating, current and size of the terminals and on the heating cables mounted. If cables used in the Junction Box have a lower temperature class (T5, T4, T3 etc.) the temperature class for the Junction Box shall be de-rated in accordance with the temperature class of the cable.

Conduit and Cable entries provided by the end-user must be Certified as Exe II, IP66 as marked on product label.



Manufacturer Documents'. -The designation "TracePlus" was removed from the Product Name, Product Description, Test item and the Nomenclature in 'Other Information' per the manufacturer's request. -Added list of cables evaluated under original examination, in section 'Other Information'. List contains the following IEC-EX Certified cables :BSX, FP, HPT, HTSX, KSX, RSX, TSX, and VSX trace heating cables. -Corrected item number in 'Manufacturer's Documents' to read 5 instead of 10, under Installation Instructions. -The designation 'TracePlus' was removed from the Scope. Note corresponding to

Colou to > TOUTIN INSte	ad or -outhry, boar values are currect su	this revision does not impact the investigation.
	IECEx	Certificate
IEC <i>IEĈEx</i>		
	of Co	onformity
ertificate No.:	IECEX UL 05.0003	
ate of Issue:	2006-12-05	Issue No.: 1
		Page 5 of 5
litional information:		

Certificate of Conformity: IECEx SIM 09.0001X

		ECEx Certifi	cate
		of Conform	ity
	ertification Sch	CTROTECHNICAL Come for Explosive At	OMMISSION mospheres
Certificate No.:	IECEx SIM 09.0001X	issue No.:2	Certificate history:
Status:	Current		Issue No. 2 (2010-12-3) Issue No. 1 (2009-11-10)
Date of Issue:	2010-12-03	Page 1 of 5	Issue No. 0 (2009-3-19)
Applicant:	Govan Industries Pty L 131-149 Link Drive CAMPBELLFIELD VIC 3061 Australia		
Electrical Apparatus: Optional accessory:	ES/DS & EM/DM Range o	f Junction Boxes and Control Sta	tions
Type of Protection:	e, tD		
Marking:	Refer Annex		
Approved for issue on Certification Body:	behalf of the IECEx	Ashraf Chow dhury	
Position:		Principal Engineer	
Signature: (for printed version)			
Date:			
Safety III Milles	Testing and Research Sta 2 Smith Street REDBANK QLD 4301 Australia		Simtars
	×	ECEx Certifi of Conform	
Certificate No.:	IECEx SIM 09.000	01X	
Date of Issue:	2010-12-03		ue No.: 2 ue 2 of 5
Manufacturer:	Govan Industrie 131-149 Link Drive CAMPBELLFIELD V Australia	es Pty Ltd	e 2 01 3
Manufacturing location	n(s):		
found to comply with t covered by this certifie	he IEC Standard list below an cate, was assessed and fou	He(s), representative of production, w nd that the manufacturer's quality sys nd to comply with the IECEx Quality sy at out in IECEx Scheme Rules, IECEx 0	tem, relating to the Ex products /stem requirements. This
	us and any acceptable variati d to comply with the following	ions to it specified in the schedule of f g standards:	his certificate and the identified
IEC 60079-0 : 2004 Edition: 4.0	Electrical apparatus f	or explosive gas atmospheres - Part	0: General requirements
IEC 60079-7 : 2006 Edition: 4	-07 Explosive atmosphere	es - Part 7: Equipment protection by in	creased safety "e"
IEC 61241-0 · 2004	Electrical apparatus f	or use in the presence of combustible	e dust - Part 0: General

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Edition: 1	requirements	
Edition: 1		ance of combustible dust - Part 1: Protection by
This Certificate does n	not indicate compliance with electrical safe expressly included in the Standa	ty and performance requirements other than those rds listed above.
TEST & ASSESSMENT R A sample(s) of the equipr		nation and test requirements as recorded in
Test Report: AU/SIM/ExTR09.0002/00	AU/SIWExTR09.0002/01	AU/SIWExTR09.0002/02
Quality Assessment Repo	ort:	
AU/TSA/QAR06.0004/03		
IEC TECEX		Certificate
	of Co	onformity
Certificate No.:	IECEX SIM 09.0001X	
Date of Issue:	2010-12-03	Issue No.: 2
		Page 3 of 5
	Schedule	
over. The ES Range en ombustible dust (Ex tD f dust and water into th nanufacturer's docume	nploys the increased safety (Ex e) con concept) applications. A gasket in the he enclosures. The cover may incorpo	e cover provides protection against ingress rate two types of windows as per certified cable glands fitted to holes drille
o the ES/DS 3030, 405	0, 5060 and 6090 Enclosures or holes	drilled in the walls as per manufacturer's
o the ES/DS 3030, 4050 ocumentation. The covers for the ES/D ottom of the enclosure an be fitted. The ES/DS	0, 5060 and 6090 Enclosures or holes S 3030, 4050, 5060 and 6090 Enclosu c) or three (left-hand side, right-hand 5 4050, 5060 and 6090 enclosures car	drilled in the walls as per manufacturer's res are fitted with hinges. Either one (in th
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1X

Certificate No.:	IECEx SIM 09.0001X	e of Conformity: IECEx SIM 0	
Date of Issue:	2010-12-03	Issue No.: 2	
		Page 4 of 5	
DETAILS OF CERTIFICAT	E CHANGES (for issues 1 and above):		
Refer Annex			
	IECEx	Certificate	
		onformity	
		, in or inty	
Certificate No :	IECEX SIM 09.0001X		
Date of Issue:	2010-12-03	Issue No.: 2	
		Page 5 of 5	
Additional information:			
Suitable heat-resistant	cables and cable glands, with a contin ntry point for the Range of ES/DS encl	nuous operating temperature of at lea	st 95 °
T5/T95°C.	ity point for the Kange of ES/DS end	sules will temperature dassilitation	

Annexe: IECEx SIM 09.0001X-2 Annex.pdf

Certificate of Conformity: IECEx SIR 08.0008X

	× IE	ECEx Certifi of Conform	
	ertification Sche	CTROTECHNICAL CO me for Explosive Atu the IECEx Scheme visit www.lecex.or	mospheres
Certificate No.:	IECEx SIR 08.0008X	issue No.:0	Certificate history:
Status:	Current		Issue No. 2 (2011-4-12) Issue No. 1 (2010-6-1) Issue No. 0 (2009-1-20)
Date of Issue:	2009-01-20	Page 1 of 4	
Applicant:	Rosemount Analytical 5650 Brittmoore Road Houston Texas 77041 United States of Amer	Gas Chromatograph Division ica	
Electrical Apparatus: Optional accessory:	Analyzer Model 700 Ga	s Chromatograph (GC)	
Type of Protection:	Flameproof		
Marking:	Ex d IIC T4 Gb Tamb = 60°C		
Approved for issue on I Certification Body:	behalf of the IECEx	C Bl aby	
Position:		Certification Officer	
Signature: (for printed version)			
Date:			
Certificate issued by:	SIRA Certification Service Rake Lane Eccleston Chester CH4 9JN United Kingdom	be verified by visiting the Official IEC	Sira ERTIFICATION
IEC IECE	K IE	ECEx Certifi	
		of Conform	ity
Certificate No.:	IECEX SIR 08.0008		
Date of Issue:	2009-01-20		e No.: 0 e 2 of 4
Manufacturer:	Rosemount Ana 5650 Brittmoore R Houston Texas 77041 United States o		sion
Manufacturing location	u(s):		
found to comply with to covered by this certific	he IEC Standard list below an cate, was assessed and four	e(s), representative of production, w d that the manufacturer's quality syst d to comply with the IECEX Quality sy t out in IECEX Scheme Rules, IECEX 0;	em, relating to the Ex products /stem requirements. This
	is and any acceptable variation d to comply with the following	ons to it specified in the schedule of t standards:	his certificate and the identified
IEC 60079-0 : 2007 Edition: 5	-10 Explosive atmosphere	s - Part 0:Equipment - General require	ements
Edition: 5 IEC 60079-1 : 2007- Edition: 6	-04 Explosive atmosphere	s - Part 1: Equipment protection by fla	ameproof enclosures "d"

This Certificate does		electrical safety and performa d in the Standards listed above	nce requirements other than tho e.
TEST & ASSESSMENT I A sample(s) of the equip		r met the examination and test	requirements as recorded in
Test Report: GB/SIR/ExTR09.0002/00		GB/SIR/ExTR09.0003/00	
Quality Assessment Rep	ort:		
GB/SIR/QAR08.0016/01			
		CEx Corti	ficato
IEC <i>TEĈE</i> X		CEx Certi	
		of Conforr	nity
Certificate No.:	IECEX SIR 08.0008X		
Date of Issue:	2009-01-20		ssue No.: 0
			Page 3 of 4
		type analyser that comprises o nnection, see EQUIPMENT (con	f three main parts, an Analyser tinued) for further details.
NDITIONS OF CERTIFIC	SSEMBLY and an Enclosure Co CATION: YES as shown belo	nnection, see EQUIPMENT (con	EC 60079-1:2004; therefore, as
NDITIONS OF CERTIFIC The maximum cc a result of any m	SSEMBLY and an Enclosure Co CATION: YES as shown belo Instructional gap (k) is less the raintenance and/or repair, the M	nnection, see EQUIPMENT (con	EC 60079-1:2004; therefore, as
NDITIONS OF CERTIFIC The maximum cc a result of any m Fitting tube adar Fitting tube adar Fitting tube tabe	CATION: YES as shown belows SATION: YES as shown belows partructional gap (k) is less the maintenance and/or repair, the Mathematic shown is the part of the shown is the part of the shown is the shown is the part of the shown is the shown is the part of the shown is the shown is the part of the shown is the shown is the part of the shown is the shown is the part of the shown is the shown is the shown is the part of the shown is the shown is the shown is the part of the shown is the shown is the shown is the shown is the part of the shown is the shown is the shown is the shown is the part of the shown is the shown is the shown is the shown is the part of the shown is the shown is the shown is the shown is the shown is the part of the shown is the	DW: an that required by Table 2 of follow ing gaps shall be mainta aximum Gap (mm) 100	EC 60079-1:2004; therefore, as ined: Comment Taper fit Paralel fit
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11/17/11

Certificate of Conformity: IECEx SIR 08.0008X

Certificate No.:	IECEx SIR 08.0008X	
Date of Issue:	2009-01-20	Issue No.: 0
		Page 4 of 4
QUIPMENT(continued):		
Analyser Assembly: 1 domed cover, manufactu amplifier, pneumatically of Process pipes enter the SO threaded entry tappe interface between the pu Controller Assembly: manufactured by EGS-C signal processing, data a control the GC functions tapped entries machined Enclosure Connection aluminium conduit fitting, machined at each end ar thread. To connect the e wal of the low er encloss over the upper thread of enclosure base and onto cables connecting the entir conduit. General: The Analyser metal framew ork along w	The Analyser Assembly (upper enclosure) red by EGS-Curlee of Houston Texas. The operated stream switching valves and solid analyser assembly through a purpose deter a in the enclosure wall. This device inco- rocess pipes and the tube entries form a co- rocess pipes and the tube entries form a co- roce service and the tube entries form a co- roce service and the tube entries form a co- roce service and appropriate software. Cablic into the bottom side of the enclosure. The upper and low er enclosures are ph the conduit fitting consists of two parts, a enclosures, the straight conduit is screw e ure. The upper enclosure has an M40 X 1.5 male enclosures, the straight conduit is screw e ure. The upper enclosure has an M40. X 1.5 the straight conduit upper thread. Hame opper and low er chambers pass through the e length of the conduit. The putty is keyed Model 700 comprises all of the above equi- ade, in addition, it may have an alternative) consists of a GUB 5 flameproof enclosure with a is enclosure contains the colurms, detectors, pre- enoids that make up the analyser assembly, signed tube entry that is screw ed into an M32 X 1.5 rporated a tapered, cylindrical flamepath. The cylindrical flamepath. e) consists of a GUB 5 flameproof enclosure is enclosure contains electronics and ports for and telecomunications. This allows the user to e entry to the low er enclosure is via two, M32 X 1.5 raysically connected by a purpose machined a straight conduit pipe with an M32 X 1.5 female thread thread and a through tapped M32 X 1.5 female thread is linto an M32 X 1.5 entry machined into the upper paths are formed by the machined threads. The is conduit and are sealed by epoxy putly tightly d to a %" - 14 NPS female thread machined in the ipment, electrically connected and mounted on a rser can be protected from the weather by an enclosure lid for the Controller Assembly (low er

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Service Facility Certification

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Certificate Search AUSEx_2541X Search Price: \$27.50 (incl 10 % GST) Advanced Search Username Certificate #: AUSEx_2541X **Issue Date:** 19/03/2002 Password Issue #: 0 Expiry Date: 19/03/2012 Valid Status: Login Lost Password? **Certificate Holder:** Parker Hannifin (Australia) Pty Limited No account yet? Register 9 Carrington Road CASTLE HILL NSW 2154 Australia Address: Manufacturer: Parker Skinner Valve & Parker Lucifer SA Download Area Product Description: Solenoid Coils Show Cart Equipment Category: Solenoids Your Cart is currently empty. Protection Type: m Gas Group: IIA Links Marking Group: IEC Ex Certificates IP Rating: N/A SIMTARS Test Report #: NE02/0004 Issued by: Standards: AS 2431-1981 Notes: N/A Add to Cart more categories ANZEx Certificates AUSEx Certificates Vintage SAA Certs Workshop Certificates

Explosion Protected Electrical Equipment

Administered by: Standards Australia Quality Assurance Services

Certificate of Conformity

Certificate No.:

Ex 869X

Issue0:1 NovenIssue1:6 AugusIssue2:8 OctobIssue3:20 Dece

1 November 1988 6 August 1990 8 October 1996 20 December 1999 Original Issue Design Modifications Modification to Seal Revalidation

Date of expiry:

20 December 2009

Certificate Holder:

Govan Industries Pty Ltd 156 Bamfield Rd WEST HEIDELBERG VIC 3081

Electrical Equipment:

Govan GE Range of Ex e Metal Enclosures

Type of Protection and Marking Code:

Ex e IIC T6 IP66/67 Enclosure Only Ex e IIC T6 IP6* as Control Stations (Refer Table 1 for second numeral) AUS Ex 869X

Manufactured by:

Govan Industries 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 6381 Fax: +61 7 3810 6366



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

STANDARDS AUSTRALIA

ZEXPLOSION PROTECTED BLECTRICAL 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 2380.6 - 1988

Electrical equipment for explosive atmospheres - Explosion-protection techniques - Part 6 : Increased safety

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:

^{o:} NE99/0029

File Reference: 99/0077

(P80815)

Signed for and on behalf of issuing authority

Manager Engineering, Testing and Certification Centre Position

20 December 1999

Date of issue

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Issued by:

Certificate No.: Ex 869X

Issue: 3



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

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

STANDARDS AUSTRALIA



Explosion Protected Electrical Equipment

Administered by: Standards Australia Quality Assurance Services

Schedule

Equipment:

This supplementary certificate covers the revalidation of the GE Range of Ex e metal enclosures as listed in Table 1. The range of enclosures are constructed from 1.6 or 2.0mm sheet steel or stainless steel with the latter identified by suffix S on model number. Each enclosure has a double hinged door which is secured with two fastening bolts on model GE33 and four fastening bolts on models GE45 and GE56. Model GE33 incorporates four 3mm thick gland plates and models GE45 and GE56 have two 3mm thick gland plates. The enclosure depth may be either 150mm or 200mm.

The enclosures may be manufactured as control stations by fitting separately certified components and operators as listed in Table 1. Push button and rotary switch operators are made from Nylon 6 and sealing is achieved by an 'O' ring and flat gasket. The control stations may also be supplied with a glass window and/or indicator lens. The degree of protection (IP rating) of a control station is determined by the lowest IP rated panel mount component installed. See Table 1 below.

TABLE 1: ENCLOSURE AND COMPONENT OPTION DETAILS.	

		Enclo	SURE TYPE					
Enclosure Model No.						Explosion Protection		
GE33 GE33S	Mild Stainless	4 . :	300 x 300 x 150/200	Exe	IP66/67			
GE45 GE45S	Mild Stainless	2	500 x 400 x 150/200	Exe	IP66/67			
GE56 GE56S	Mild Stainless	2	600 x 500 x 150/200	Exe	IP66/67			
PANEL MOUNT	COMPONENT OP	TIONS AND DEGRE	E OF PROTECTION (IP RA	TING) FOR CON	TROL STATIONS			
Indicator lens					IP66			
Rotary operat	tor				1P66			
Meter window	1				IP66			
Push button o Mushroom he Raised head	operators: ead - Twist to rel	ease			IP65			

Issued by:

Certificate No.: Ex 869X Issue: 3 Date of Issue: 20 December 1999



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STANDARDS AUSTRAL

JEXPLOSION PROTECTED ELECTRICAL EQUIPMENT

Administered by: Standards Australia Quality Assurance Services

Addendum to Certificate No: Ex.869X

Issue:

Date of Issue: 20 December 1999

3

Drawings:

DRAWING NO.	DRAWING TITLE	REVISION No.	DRAWN/ REVISION DATE
C4184	GE ENCLOSURE EXTERNAL AND INTERNAL MOUNTING DETAIL	1	29/8/95
C4476	HINGE DETAIL ASSEMBLY FOR GOVAN (GE) VERSION "2" RANGE OF ENCLOSURES	2	23/7/96
C4840	Ex e IIC T6 E7 IP6* ref' note#6) SHEET METAL ENCLOSURE GE33 '4' G/PLATE ASSEMBLEY	2	9/8/99
C4841	Ex e IIC T6 (IP6* ref' note#6) SHEET METAL ENCLOSURE GE45 '2' G/PLATE ASSEMBLEY	2	9/8/99
C4842	Ex e IIC T6 E7(IP6* ref' note#6) SHEET METAL ENCLOSURE GE56 '2' G/PLATE ASSEMBLEY	2	9/8/99
C4843	SECTION DETAILS FOR GOVAN GE ENCLOSURES	1	9/8/99
C5031	GE ENCLOSURES GLAND PLATE SEALING DETAIL	0	12/11/96
C5361	DIP IP66 INDICATOR LENS DETAIL	-	22/2/99
C5422	Ex e IIC DIP T6 IP66 METER WINDOW DETAILS	0	27/2/95
C6132	DIP IP65 OPERATOR SHROUD DETAIL	3	25/6/99
C6148	Ex e DIP IP6* CONTROL STATION OPERATORS GENERAL ASSEMBLY GOVAN Cat No: EOP -	2	25/6/9 9

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STANDARDS AUSTRALIA

EXPLOSION PROTECTED ELECTRICAL EQUIPMENT

Administered by: Standards Australia Quality Assurance Services

Addendum to Certificate No: Ex.869X

Issue:

Date of Issue: 20 December 1999

Conditions of Certification:

The power dissipation per enclosure shall not exceed the values given in Table 2 based on an even distribution of separately certified components throughout the enclosure.

Type of Enclosure	Maximum Dissipation (Watts)
GE33	35.4
GE33S	23.2
GE45	70.8
GE45S	46.3
GE56	137.6
GE56S	90.0

TABLE 2 Maximum Allowable Power Dissipation

The maximum number of terminals in an enclosure may be calculated by determining the terminal resistance, cable resistance, current and the maximum allowable power dissipation per enclosure type.

The power dissipation of the enclosure may be calculated using the following equation for each terminal type and conductor size used in the enclosure. Calculated power dissipations for each terminal type and conductor size are to be summated.

$P = l^2 (n.Rc + L.Rt)$

Where:	P I	-	Power dissipation per terminal and conductor size in an enclosure in Current through terminal and conductor in Amperes (Calculated maximum permissible continuous current)	Watts
	Rc	-	Resistance of conductor in ohms per metre	
	Rt	-	Internal resistance of terminal in ohms	
	N	-	Number of terminals	
	·L	-	Total length of conductor in metres	

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STANDARDS AUSTRALIA

Explosion Protected Electerical Equipment

Administered by: Standards Australia Quality Assurance Services

Addendum to Certificate No Ex 869X

Issue:

Date of Issue: 20 December 1999

3

Terminals installed in the Ex e enclosures shall be separately certified Ex e and grouped for an even distribution of heat dissipation throughout the enclosure

For enclosures constructed of 2mm sheet steel or stainless steel the derating factors in Table 3 shall be applied to maximum power dissipation.

Ture	Type Derating Factor	
туре	150 mm deep	200 mm deep
GE 56, GE 56S	0.8	0.895
GE 45, GE 45S	0.8	0.908
GE 33, GE 33S	0.8	0.933

TABLE 3 DERATING FOR 2MM SHEET ENCLOSURES

For looms containing from 7 to 15 conductors and looms containing 15 or more conductors, the maximum permissible continuous current calculated to achieve the maximum allowable power dissipation in Table 2 shall be further derated by a factor of 0.8 or 0.7 respectively.

Components installed in the Ex e enclosures shall be separately certified to an appropriate explosion protection technique and grouped for an even distribution of heat dissipation throughout the enclosure.

Components shall have a temperature class of T6.

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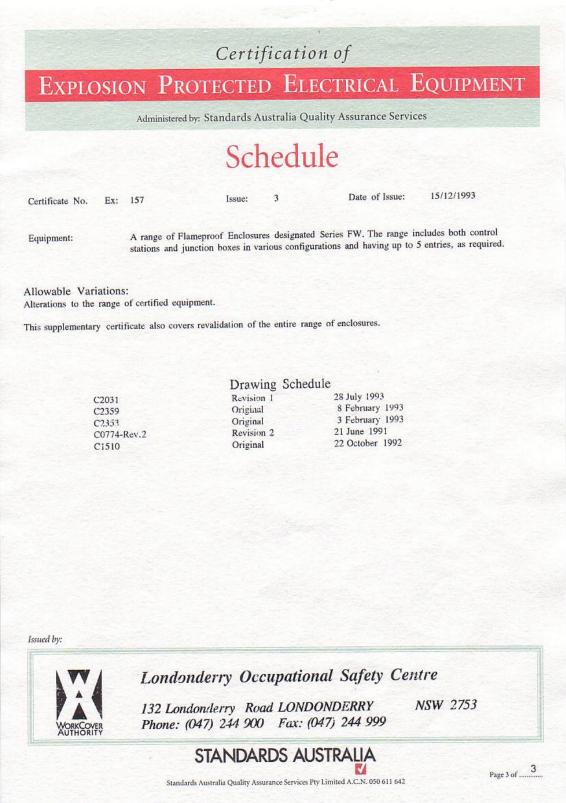
FW0001 (826x1165x16M jpeg)

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

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FW0003 (826x1165x16M jpeg)



EPEE Certificate: Ex 229



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EPEE Certificate: Ex 229

SAI Global	Certificate No.	Ex 229	Latest Issue	Issue 5
			Issue Date	15-09-1993
	Expiry Date	27-03-2000	Expired	
	Certificate Holder	Burn Brite Lights	(Vic) Pty Ltd	
		2-18 Canterbury I	Road	
		Kilsyth Melbourn	e	
		Victoria 3137		
		Australia		
	Equipment Category	Luminaires		
	Product Description			nentary certificate relates to the range d under SAA Certificate Nos: Ex 229
	Protection Type	Type d		
	Marking Code	T5 100 Deg C C	lass I Zone I	I
	Gas Group	ΠB		
	IP Rating	IP 67		
	Manufacturer			
	Test Report Number	4397A		
	Issued By	Quality Assuranc	e Services	
	Standard	AS 2480-1986 A	S 1939-1986	
	NOTED			

NOTES HOME > EPEE > EX 229

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		Status:	EXPIRED	
Certificate Holder: Address:	POGC Pty Ltd 79 Victoria Ave	nue Chatswood N	lew South Wales 2067 Australia	Login Lost Password? No account yet? Register
Manufacturer:	Adalet PLM			
Product Description:	Box XJ-DA Ad	alet Junction Box		Download Area
Equipment Category:	Junction boxes	i		Show Cart
Protection Type:	d			Your Cart is currently
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Marking Group:				Links
IP Rating:	N/A			IEC Ex Certificates
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Standards:	AS 2480-1986			
Notes:	N/A			

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EXPLOSION PROTECTED ELECTRICAL EQUIPMENT

Administered by: Standards Australia Quality Assurance Services

Certificate of Conformity

Certificate No:	AUS Ex 319		Issue 0: Issue 6:	Original Issue1/6/1982 29/9/1998
Date of Expiry:	29/9/2008			
Certificate Holder:	Crouse-Hinds (391 Park Road REGENTS PA			
Electrical Equipment:	Series GUA16	Junction Box	and ELS10 Li	mit Switch
Type of Protection:	GUA16: ELS10:		F6 IP66/IP67 5 IP65 Class	Class I Zone 1 I Zone 1
Marking Code:	GUA16: ELS10: AUS Ex 319	Ex d I/IIC 7 Ex d IIB To	F6 IP66/IP67 5 IP65	
Manufactured By:	Crouse-Hinds 391 Park Road REGENTS PA			

Issued by:



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919 Londonderry Road LONDONDERRY NSW 2753

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3

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STANDARDS AUSTRALIA

EXPLOSION PROTECTED ELECTRICAL EQUIPMENT

Administered by: Standards Australia Quality Assurance Services

Ex 319-6

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

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

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

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

Test Report No: LOSC 17734

File Reference: LOSC 97/8300

of issuing authority

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3 Page 2 of



EXPLOSION PROTECTED ELECTRICAL EQUIPMENT

Administered by: Standards Australia Quality Assurance Services

Schedule

 Certificate No: AUS Ex
 319
 Issue:
 6
 Date of Issue:
 29/9/1998

 Certified Equipment:
 The GUA16 Series Junction Boxes consist of a base and screwed access cover, both manufactured from aluminium, cast iron, stainless steel or high tensile brass. The aluminium version of the equipment is suitable only for group II applications. Electrical connections to

The ELS10 Series Limit Switch is similar in design and construction to junction box except that the base has provision a single threaded entry and an opening fitted with an operator that actuates a switch block mounted in the base. Table 1 includes a summary of the limit switch variants covered by the certificate.

Table 1: Summary of Limit Switch Variants

the equipment is provided by up to 4 threaded entries in the base.

Cat No	Description	Operator
ELS10/FL	Float Switch	ZCK D59
ELS10/P	Plunger Operated Limit Switch	ZCK D10
ELS10/RL	Roller Arm Limit Switch	ZCK D21
ELS10	Foot Pedal Switch	ZCK D21

Drawing	Schedule
---------	----------

Drawing No	Drawing Title	Issue	Date
21-148-GA029	General Arrangement of ELS10 Type Limit Switches	2	13/7/98
21-148-GA22	General Arrangement	7	14/7/98

Schedule of Variations

Variations Permitted by Issue 6: Re-validation of the Certificate of Conformity.

Issued by:



Londonderry Occupational Safety Centre

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3 Page 3 of

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

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AUSEx_2046X

				Search
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Certificate #:	AUSEx_2046X	Issue Date:	11/06/1996	Username
				Password
Issue #:	1	Expiry Date:	26/07/2004	
		Charles	EXPIRED	,
		Status:		Login
Certificate Holder:	" Mercury Instruments, Inc. "			Lost Password?
Certificate Holder:	Mercury Instruments, Inc.			No account yet? Register
Address:	3940 Virginia Avenue Cincinnat	ti 45227 United S	tates of America	
Manufacturer:	" Mercury Instruments, Inc. "			Download Area
Product Description:	Mercor EC-AT Gas Volume Co	rrector		Show Cart
Equipment Category:	Gas Detectors and Monitors			
Protection Type:	ia ib			Your Cart is currently empty.
Protection Type.				
Gas Group:	IIA			Links
Marking Group:				IEC Ex Certificates
IP Rating:	N/A			
Test Report #:	" NI94/0013, N195/0012 "	Issued by:	SIMTARS	
Standards:	AS 2380.1-1989 AS 2380.7-19	87		
Notes:	N/A			
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Vintage SAA Certs Workshop Certificates

EXPLOSION PROTECTED ELECTRICAL EQUIPMENT

AUSEx Scheme

Certificate of Conformity

Certificate No:	AUS Ex 03.3904	Issue 0: Issue 1:	21/11/2003 12/04/2005
Date of Expiry:	21/11/2013		
Certificate Holder:	Elmako Pty Ltd 9 Damosh Ave Carrum Downs Vic 3201		
Electrical Equipment:	HAW Range of Cable Glands	i.	
Type of Protection:	Ex d I/IIC Ex e I/II DIP		
Marking Code:	Ex d I/IIC Ex e I/II DIP A21 AUS Ex 03.3904	IP66/IP68 (3	30 m)
Manufactured By:	Chi An Industrial Co Ltd Changhwaa Taiwan ROC		

Issued by:



919 Londonderry Road Londonderry NSW 2753 Australia



Phone: +61 2 4724 4900 Fax: +61 2 4724 4999

Certification of

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/NZS 60079.0:2000	Electrical apparatus for explosive gas atmospheres – Part 0: General requirements
AS/NZS 60079.1:2002	Electrical apparatus for explosive gas atmospheres – Part 1: Flameproof enclosures 'd'
AS/NZS 60079.7:2002	Electrical apparatus for explosive gas atmospheres – Part 7: Increased safety 'e'
AS/NZS 61241.1.1:1999	Electrical apparatus for use in the presence of combustible dust – Part 1.1: Electrical apparatus protected
	by enclosures and surface temperature limitation - Specification for apparatus
AS 1939-1990	Degrees of protection provided by enclosures for 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: TestSafe 24225, 25530

File Reference: TestSafe 2002/034451, 2004/015114

Signed for and on behalf of issuing authority

Quality & Certification Manager Position

12 April 2005 Date of Issue

AUS Ex 03.3904-1

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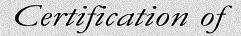
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AUSEx Scheme

Schedule

Certificate No: AUS Ex	03.3904	Issue: 1	Date of Issue:	12/04/2005
Certified Equipment:	Ŷ	f cable glands is suitable for inse	U	

The HAW range of cable glands is suitable for inserting circular steel wire armoured cables into flameproof (Ex d) enclosures having threaded entries and increased safety (Ex e) or dust ignition protection (DIP) equipment having either plain or threaded entries. Each gland may be used as either a compression gland, utilizing the supplied inner seals, or a barrier gland, utilizing the supplied insert filled with Epoxy Putty #E14M06 manufactured by Polymeric Systems Inc. The glands consist of a body, cone, ring, sleeve, inner seal (A or B), outer seal, nut and insert. Attachment of the glands to an enclosure is facilitated by means of the male threaded portion on the body. A locknut and flat washer is required for securing glands to equipment having plain entries.

When the glands are used as compression glands, the cable inner sheath is passed through the appropriate sized inner seal and sealing of the cable is achieved by compressing the inner seal between the body and cone. In this case, the insert is not required. When the glands are used as barrier glands, the cable cores are passed through the insert and sealing of the cable is achieved by filling the insert with setting compound. In this case, the inner seal is not required. The cable wire armour is clamped between the male tapered portion on the cone and the female tapered portion on the ring. An 'O' ring is used to seal the joint between the body and sleeve to prevent dust and moisture ingress to the wire armour clamping facility. The outer seal forms a seal on the outer sheath of the cable. The outer seal also clamps the cable to prevent pulling or twisting forces from being transmitted to the conductor connections.

The HAW range is manufactured from brass alloy to Japanese Standard JIS C3604 B, which is nickel plated, and has ISO (1.5 mm pitch) mounting threads. All metallic components of the glands are manufactured from the same material. The inner and outer seals and 'O' rings for all gland ranges are made from 'NBR 1052 Rubber' manufactured by Li Ming Industrial Co., Taiwan. An entry thread seal made of red fibre is provided for DIP and IP66/IP68 applications to maintain ingress protection of the equipment on which the glands are mounted. Each gland is marked with the certification information by means of laser etching. The glands may also be used with intrinsically safe circuits, in which case the glands will have specific parts painted light blue.

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. 7221100AS

Certification of

AUSEx Scheme

Addendum to Certificate No. AUS Ex 03.3904-1

Certified Equipment continued:

Gland Code Number	Mounting Thread	Tightening Torque	SV Dian		Cable Diameter (mm)					
	Dia x					Over B	edding		Over	Cable
	Length		(m	m)	Inner	Seal B	Inner	Seal A	Sea	ıl A
	(mm)	(Nm)	Min	Max	Min	Max	Min	Max	Min	Max
ALCHAW20	M20 x 20	26	0.8	1.25	6.5	8.0	8.0	10.0	11.5	16.0
ALCHAW25A	M25 x 20	41	0.8	1.25	10.0	12.0	12.0	14.0	16.0	20.0
ALCHAW25B	M25 x 20	41	1.25	1.6	14.0	16.0	16.0	18.0	20.0	24.0
ALCHAW32A	M32 x 20	68	1.25	1.6	18.0	19.5	19.5	21.5	24.0	28.0
ALCHAW32B	M32 x 20	68	1.6	2.0	21.5	23.0	23.0	25.0	28.0	32.0
ALCHAW40A	M40 x 20	106	1.6	2.0	25.0	27.0	27.0	29.0	32.0	37.0
ALCHAW40B	M40 x 20	106	2.0	2.5	28.5	31.0	31.0	33.5	37.0	42.0
ALCHAW50A	M50 x 20	166	2.0	2.5	33.0	35.0	35.0	37.5	41.0	46.0
ALCHAW50B	M50 x 20	166	2.0	2.5	36.5	39.0	39.0	42.0	45.0	51.0
ALCHAW63A	M63 x 25	260	2.5	3.15	42.0	44.5	44.5	47.0	51.0	57.0
ALCHAW63B	M63 x 25	260	2.5	3.15	47.0	50.0	50.0	53.0	57.0	63.0
ALCHAW75A	M75 x 25	375	2.5	3.15	52.5	55.5	55.5	58.5	62.0	69.0
ALCHAW75B	M75 x 25	375	2.5	3.15	58.0	61.0	61.0	64.0	66.0	75.0
ALCHAW90A	M90 x 25	540	2.5	3.15	63.0	66.0	66.0	69.0	73.0	82.0
ALCHAW90B	M90 x 25	540	2.5	3.15	68.0	71.5	71.5	75.0	81.0	90.0

Alco HAW Range of Cable Glands (Compression Configuration)

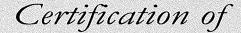
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AUSEx Scheme

Addendum to Certificate No. AUS Ex 03.3904-1

Certified Equipment continued:

Alco HAW Range of Cable Glands (Barrier Configuration)										
Gland Code Number	Mounting Thread Dia x Length	Tightening Torque	Max Dia Over Cable Cores	Max No. of Cores in Compound /	SWA Diameter (mm)					
	(mm)	(Nm)	(mm)	Core CSA (mm ²)	Min	Max				
ALCHAW20	M20 x 20	26	7.8	7 / 0.5	0.8	1.25				
ALCHAW25A	M25 x 20	41	11.8	16/0.5	0.8	1.25				
ALCHAW25B	M25 x 20	41	15.8	21 / 0.5	1.25	1.6				
ALCHAW32A	M32 x 20	68	19.1	37 / 0.5	1.25	1.6				
ALCHAW32B	M32 x 20	68	22.6	51 / 0.5	1.6	2.0				
ALCHAW40A	M40 x 20	106	26.6	51/1.5	1.6	2.0				
ALCHAW40B	M40 x 20	106	31.1	51 / 2.5	2.0	2.5				
ALCHAW50A	M50 x 20	166	34.5	51 / 4.0	2.0	2.5				
ALCHAW50B	M50 x 20	166	39.0	4 / >16.0*	2.0	2.5				
ALCHAW63A	M63 x 25	260	44.0	4 />16.0*	2.5	3.15				
ALCHAW63B	M63 x 25	260	50.0	4 />16.0*	2.5	3.15				
ALCHAW75A	M75 x 25	375	55.0	4 />16.0*	2.5	3.15				
ALCHAW75B	M75 x 25	375	60.5	4 />16.0*	2.5	3.15				
ALCHAW90A	M90 x 25	540	64.4	4 />16.0*	2.5	3.15				
ALCHAW90B	M90 x 25	540	70.4	4 / >16.0*	2.5	3.15				

Alco HAW Range of Cable Glands (Barrier Configuration)

* For conductors greater than 16 mm² the largest number of cores permitted is four plus any required earth core(s).

Conditions of Certification:

1. The manufacturer shall provide the mounting instructions with the cable glands.

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AUSEx Scheme

Addendum to Certificate No. AUS Ex 03.3904-1

Drawing Schedule							
Drawing No	Drawing Title	Issue	Date				
487-42	HAW20	Original	15/09/03				
487-42A	Alco HAW Glands Marking	Original	30/09/03				
487-42B	Alco HAW Glands Marking	Original	30/09/03				
487-42C	Alco HAW Glands Marking	Original	30/09/03				
487-43	HAW25A	Original	15/09/03				
487-44	HAW25B	Original	15/09/03				
487-45	HAW32A	Original	15/09/03				
487-46	HAW32B	Original	15/09/03				
487-47	HAW40A	Original	15/09/03				
487-48	HAW40B	Original	15/09/03				
487-49	HAW50A	Original	15/09/03				
487-50	HAW50B	Original	15/09/03				
487-51	HAW63A	Original	15/09/03				
487-52	HAW63B	Original	15/09/03				
487-53	HAW75A	Original	15/09/03				
487-54	HAW75B	Original	15/09/03				
487-55	HAW90A	Original	15/09/03				
487-56	HAW90B	Original	15/09/03				
ALCHAWGEN	Hagemeyer Australia Alco Glands HAW Range	1.1	30/09/03				
ALCHAWINST	Hagemeyer Australia Alco Glands	1.0	18/11/03				
Pages 1 & 2	HAW Series Glands – Fitting Instructions						
ALCHAWFLMPTH	Hagemeyer Australia Alco Glands	1.0	09/09/03				
	HAW Range Flameproof Joint Data						
ALCHAWSPEC	Hagemeyer Australia Alco Glands	1.0	17/09/03				
	HAW Range Specification						
ALCHAWBARLIM	Alco - HAW Range – Barrier Glands	1/0	17/09/03				
ALCHAWSCHDRG	Alco Glands – Schedule of Drawings	1.0	30/09/03				
	HAW Range – Hazardous Area, Armoured Weatherproof						

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Certification of

AUSEx Scheme

Addendum to Certificate No. AUS Ex 03.3904-1

Schedule of Variations

Variations permitted by issue 1

- a) Addition of an HAW20SB cable gland to the HAW Range.
- b) A change of epoxy sealing compound used for the barrier glands from Epoxy Putty #E14M06 manufactured by Polymeric Systems Inc to "Kneadaseal" epoxy putty manufactured by Polymeric Systems Inc.
- c) A change in the permissible operating temperature range for the HAW Range of barrier glands from -20 °C to +75 °C to -20 °C to +100 °C, as specified in the HAW Series Glands Fitting Instructions.
- d) Modification of the gland sleeve on the HAW20 cable gland to allow easier fitment on the cable.

Alco HAW20SB Cable Gland (Compression Configuration)

Gland Code Number	Mounting Thread	Tightening Torque	SWA Diameter			Ca	ble Dian	neter (m	m)	
	Dia x	•				Over B	Bedding		Over	Cable
	Length		(mm)		Inner	Seal B	Inner	Seal A	Se	al A
	(mm)	(Nm)	Min	Max	Min	Max	Min	Max	Min	Max
ALCHAW20SB	M20 x 16	26	0.8	1.25	-	-	9.1	12.3	14.0	18.0

Alco HAW20SB Cable Gland (Barrier Configuration)

Gland Code Number	Mounting Thread Dia x	Tightening Torque	Max Dia Over Cable	Max No. of Cores in Compound	SV Dian	VA neter
	Length		Cores	1	(mm)	
	(mm)	(Nm)	(mm)	Core CSA* (mm ²)	Min	Max
ALCHAW20SB	M20 x 16	26	10.0	10 / 0.5	0.8	1.25

*For conductors greater than 16 mm² the largest number of cores permitted is four plus any required earth core(s).

Conditions relating to issue 1

All previous conditions still apply.



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EXPLOSION PROTECTED ELECTRICAL EQUIPMENT

AUSEx Scheme

Addendum to Certificate No. AUS Ex 03.3904-1

Drawing No	Drawing Title	Issue	Date
487-42	HAW20	Original	15/09/03
487-110	HAW20SB	Original	17/03/04
487-110-11	HAW20SB - Markings	Original	02/06/04
ALCHAWGEN	Elmako Pty Ltd Alco Glands HAW Range	1.3	01/12/04
ALCHAWINST	Elmako Pty Ltd - Alco Glands	1.5	16/03/05
Pages 1 & 2	HAW Series Glands – Fitting Instructions		
ALCHAWSPEC	Elmako Pty Ltd Alco Glands	1.1	01/12/04
	HAW Range Specifications		
ALCHAWBARLIM	Alco - HAW Range – Barrier Glands	1.1	19/03/04
ALCHAWSCHDRG	Alco Glands – Schedule of Drawings	1.2	02/06/04
	HAW Range – Hazardous Area, Armoured Weatherproof		
ALCHAWFLMPTH	Elmako Pty Ltd Alco Glands	1.1	19/03/04
	HAW Range Flameproof Joint Data		

Drawings relating to issue 1

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Certificate of Conformity

Certificate No:	AUS Ex 1108U	Issue 0: Issue 2:	14 January 1991 19/12/2001 (Revali	dation)
Date of Expiry:	19/12/2011			
Certificate Holder:	Cooper Electrical (Australia) 207-209 Woodpark Road SMITHFIELD NSW 2164	Pty Ltd		
Electrical Equipment:	Threaded Conduit Fittings an	d Accessories	3	
Type of Protection:	Ex d I/IIC (IIB for unions UI DIP A	NYA and UNI	FA) IP67	Zone 1 Zone 21
Marking Code:	Ex d I/IIC (IIB for unions U) DIP A21 IP67 AUS Ex 1108U	NYA and UNI	FA) IP67	
Manufactured By:	Cooper Electrical (Australia) 207-209 Woodpark Road SMITHFIELD NSW 2164	Pty Ltd		

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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 2380.2-1991	Electrical equipment for explosive atmospheres - Explosion-protection techniques - Flameproof enclosure
	'd'(incorporating Amendment 1)
AS/NZS 6124.1.1: 1999	Electrical apparatus for use in the presence of combustible dust - Part 1.1: Electrical apparatus protected
	by enclosures and surface temperature limitation – Specification for apparatus.
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 Standard(s) listed above.

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

Test Report No: TestSafe 21999

File Reference: TestSafe 2001/008545 0001

Signed for and on behalf of issuing authority Director TestSafe Australia

Position

19/12/2001

Date of issue

Ex 1108U-2

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

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Schedule

Certificate No: AUS Ex 1108U **Issue:** 2

Date of Issue: 19/12/2001

Certified Equipment:

The range of equipment includes plugs, reducers, nipples, adaptors, couplers, unions, elbows and tee pieces.

All are available in metric, imperial conduit, NPT and BSP thread forms.

Materials of manufacture are 385 alloy brass, 304/316 stainless steel, mild steel 1020 zinc plated or passivated and 2011 T3 aluminium (Group II only). The elbows and tee pieces may be cast from manganese bronze 865C alloy or aluminium AP601 (Group II only).

The equipment is marked either by engraving or a rollmark process.

Table 1 lists the range of fittings.

Equipment	Cat No	Thread Type	Thread Size/Range	Ex d	DIP
Plugs	PLM	ISO Metric	16mm to 75mm		
	PLN	NPT	¹ / ₂ " to 2 ¹ / ₂ "		
	PLB	BSP	¹ / ₂ " to 2 ¹ / ₂ "	I/IIC	\checkmark
	PLI	Imperial Conduit	5/8" to 2 1⁄2"		
Headed					
Plugs	PLHM	ISO Metric	16mm to 75mm		
	PLHN	NPT	¹ / ₂ " to 2 ¹ / ₂ "		
	PLHB	BSP	¹ / ₂ " to 2 ¹ / ₂ "	I/IIC	\checkmark
	PLHI	Imperial Conduit	5/8" to 2 ½"		
Reducers	REM	ISO Metric	16mm to 75mm		
	REN	NPT	¹ / ₂ " to 2 ¹ / ₂ "		
	REB	BSP	¹ / ₂ " to 2 ¹ / ₂ "	I/IIC	\checkmark
	REI	Imperial Conduit	5/8" to 2 1⁄2"		

TABLE 1

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STANDARDS AUSTRALIA

		TABLE 1 (continue)	ied) Addendum to (Certificate No	Ex 110
Equipment	Cat No	Thread Type	Thread Size/Range	Ex d	DIP
Straight	······································		· · · · · · · · · · · · · · · · · · ·		
Nipples	NSM	ISO Metric	16mm to 75mm		
	NSN	NPT	¹ / ₂ " to 2 ¹ / ₂ "		
	NSB	BSP	¹ / ₂ " to 2 ¹ / ₂ "	I/IIC	\checkmark
	NSI	Imperial Conduit	5/8" to 2 1⁄2"		
Hexagonal					
Nipples	NHM	ISO Metric	16mm to 75mm		
	NHM	NPT	¹ / ₂ " to 2 ¹ / ₂ "		
	NHB	BSP	¹ / ₂ " to 2 ¹ / ₂ "	I/IIC	\checkmark
	NHI	Imperial Conduit	5/8" to 2 1⁄2"		
Hexagonal					
Couplers	CHM	ISO Metric	16mm to 75mm		
-	CHN	NPT	¹ / ₂ " to 2 ¹ / ₂ "		
	CHB	BSP	¹ / ₂ " to 2 ¹ / ₂ "	I/IIC	\checkmark
	CHI	Imperial Conduit	5/8" to 2 1⁄2"		
Adaptors	AMN	Any variant of	Any variant of		
-	AMB	thread type	Thread size		
	AMI	••			
	ANM	ISO Metric	16mm to 75mm		
	ANB	NPT	¹ / ₂ " to 2 ¹ / ₂ "		
	ANI	BSP	¹ / ₂ " to 2 ¹ / ₂ "	I/IIC	\checkmark
	ABM	Imperial Conduit	5/8" to 2 1⁄2"		
	ABN	•			
	ABI				
	AIM				
	AIN				
Unions	UNFA/UNYA-M	ISO Metric	16mm to 75mm		
	UNFA/UNYA-B	BSP	¹ / ₂ " to 2 ¹ / ₂ "	I/IIB	\checkmark
	UNFA/UNYA-I	Imperial Conduit	5/8" to 2 1⁄2"		

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

Ex 1108U-2

Certification of

Addendum to Certificate No. Ex.1108U-2.

Page 5 6

A nun	nerical	suffix is used	d to show thre	ad size:		
		ISO	NPT	BSP	IMP. Cond.	
16	=	16mm	-	-	5/8"	
1	=	20mm	1/2"	1/2"	3/4"	
2	=	25mm	3/4"	3/4"	1"	
3	=	32mm	1"	1"	11/4"	
4	=	40mm	11/4"	11/4"	11/2"	
5	=	50mm	11/2"	11/2"	2"	
6	=	63mm	2"	2"	21/2"	
7	=	75mm	2 ¹ / ₂ "	21/2"		

TABLE 1 (continued)

Conditions of Certification:

- It is a condition of safe use that a suitable thread sealant be used to maintain an IP rating of IP67. 1.
- It is a condition of safe use that for Group I applications fittings and accessories manufactured from 2. aluminium alloys must not be used.

Drawing No	Drawing Title	Issue	Date
20-148-GA001 Sht 1 of 2	Plugs	6	6/12/01
20-148-GA001 Sht 2 of 2	Plugs – Headed	2	6/12/01
20-148-GA002	Reducers (Hand Marked)	4	6/12/01
20-148-GA2/RM	Reducers (Roll Marked)	5	6/12/01
20-148-GA003	Straight Nipples	2	6/12/01
20-148-GA004	Hexagonal Nipples	2	6/12/01
20-148-GA005	Adaptors (Hand Marked)	6	6/12/01
20-148-GA5/RM	Adaptors (Hand Marked)	5	6/12/01
20-148-GA006	Hexagonal Couplers (Sockets)	2	6/12/01
28-148-GA001	Unya Union Straight Nipple	2	6/12/01
33-148-GA001	General Arrangement FE Elbows and FT Tees	1	6/12/01

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STANDARDS AUSTRALIA

Addendum to Certificate No......Ex 1108U-2

Schedule of Variations

Variations Permitted by Issue 2:

- 1. Re-validation of certificate.
- 2. Change in name and address of certificate holder.
- 3. The inclusion of Group I.
- 4. The inclusion of thread code size 7 to each range of equipment.



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

CERTIFICATE FOR EXPLOSION PROTECTED ELECTRICAL EQUIPMENT

No.Ex 319 (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(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
"Crouse-Hinds" Enclosures	Class I Zone 1
Refer Schedule 1	Type of Protection Refer Schedule 1
	Certificate Holder
	Crouse-Hinds Aust Pty Ltd 31 Moxon Road PUNCHBOWL NSW 2196
Drawing No(s)	Manufacturer Crouse-Hinds Aust Pty Ltd 31 Moxon Road
Refer Schedule 1	PUNCHBOWL NSW 2196
Certification Conditions	Test Report No(s) Londonderry Centre TR No. LFP 698 Australian Standard(s)
	AS 2480-1981 and
	AS 1939-1981
	SAA File Reference
Remarks	P/3: 81194/M101
	Effective Date
	1982.05.05
	Date of Issue 1982.06.01

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

CERTIFICATE FOR EXPLOSION PROTECTED ELECTRICAL EQUIPMENT

Continuation of Certificate No: Ex 319 (Sheet 2 of 2)

SCHEDULE 1 Description of Equipment (Continued)

"Crouse-Hinds" Enclosures

Cat. Nos.	Entries
GUALA; GUACA; GUATA; GUAXA; GUAMA: GUAWA; GUABA and	(i) 20mm-34" ET-1/2" N.P.T1/2" BSP
GUADA.	(ii) 25mm-1" ET-¾" N.P.T¾" BSP
EABLA; EABCA; EABTA; EABXA; EABMA; EABWA; EABBA and	(i) 20mm-¾" ET-½" N.P.T½" BSP
EABDA.	(ii) 25mm-1" ET-"/4 N.P.T¾" BSP

Drawing No(s)

21-148-4 Issue 5 D/- 18.2.82; 21-148-5 Issue 6 D/- 18.2.82; 21-148-7 Sheet 1 Issue 4 D/- 18.2.82; 21-148-7 Sheet 2 Issue 3 D/- 18.2.82; 21-148-7 Sheet 3 Issue 4 D/- 18.2.82; CH-3 Issue 6 D/- 18.2.82; 21-148-2 Sheet 1 Issue 3 D/- 18.2.82; 21-148-2 Sheet 2 Issue 3 D/- 18.2.82; 21-148-GA3 Sheet 1 Issue 3 D/- 18.2.82; 21-148-GA3 Sheet 2 Issue 3 D/- 18.2.82; 21-148-GA3 Sheet 3 Issue 3 D/- 18.2.82; 21-148-GA3 Sheet 3 Issue 3 D/- 18.2.82; 21-148-GA3 Sheet 3 Issue 3 D/- 18.2.82; 21-148-GA3 Sheet 3 Issue 3 D/- 18.2.82; 21-148-GA3 Sheet 3 Issue 3 D/- 18.2.82; 21-148-GA3 Sheet 3 Issue 3 D/- 18.2.82; 21-148-GA3 Sheet 3 Issue 3 D/- 18.2.82; 21-148-GA3 Sheet 3 Issue 3 D/- 18.2.82; 21-148-GA3 Sheet 3 D/- 18.2.82; 21-148-GA3 Sheet 3 D/- 18.2.82; 21-148-GA3 Sheet 3 D/- 18.2.82; 21-148-GA3 Sheet 3 D/- 18.2.82; 21-148-GA3 Sheet 3 D/- 18.2.82; 21-148-GA3 Sheet 3 D/- 18.2.82; 21-148-GA3 Sheet 3 D/- 18.2.82; 21-148-GA3 She

Type of Protection

 For enclosures, Cat. Nos: GUALA; GUACA; GUATA; GUAXA; GUAMA; GUAWA; GUABA and GUADA. Ex d IIB T6 IP65
 For enclosures, Cat. Nos: EABLA; EABCA; EABTA; EABXA; EABMA; EABWA; EABBA; and EABDA.

Ex d IIC T6 IP65

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CERTIFICATE FOR EXPLOSION PROTECTED ELECTRICAL EQUIPMENT

No.Ex 319 (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(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
"Crouse-Hinds" Enclosures	Class I Zone 1
Refer Schedule 1	Type of Protection Refer Schedule 1
	Certificate Holder
	Crouse-Hinds Aust Pty Ltd 31 Moxon Road PUNCHBOWL NSW 2196
Drawing No(s) Refer Schedule 1	Manufacturer Crouse-Hinds Aust Pty Ltd 31 Moxon Road PUNCHBOWL NSW 2196
Refer Schedule (
Certification Conditions	Test Report No(s) Londonderry Centre TR No. LFP 698
	Australian Standard(s) AS 2480-1981 and AS 1939-1981
	SAA File Reference
Remarks	P/3: 81194/M101
	Effective Date
	1982.05.05
	Date of Issue 1982.06.01

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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 319 (Sheet 2 of 2)

SCHEDULE 1 Description of Equipment (Continued)

"Crouse-Hinds" Enclosures

Cat. Nos.	Entries
GUALA; GUACA; GUATA; GUAXA; GUAMA: GUAWA; GUABA and	(i) 20mm-4" ET-1/2" N.P.T1/2" BSP
GUADA.	(ii) 25mm-1" ET-4" N.P.T4" BSP
EABLA; EABCA; EABTA; EABXA; EABMA; EABWA; EABBA and	(i) 20mm-¾" ET-½" N.P.T½" BSP
EABDA.	(ii) 25mm-1" ET-"/4 N.P.T%" BSP

Drawing No(s)

21-148-4 Issue 5 D/- 18.2.82; 21-148-5 Issue 6 D/- 18.2.82; 21-148-7 Sheet 1 Issue 4 D/- 18.2.82; 21-148-7 Sheet 2 Issue 3 D/- 18.2.82; 21-148-7 Sheet 3 Issue 4 D/- 18.2.82; CH-3 Issue 6 D/- 18.2.82; 21-148-2 Sheet 1 Issue 3 D/- 18.2.82; 21-148-2 Sheet 2 Issue 3 D/- 18.2.82; 21-148-GA3 Sheet 1 Issue 3 D/- 18.2.82; 21-148-GA3 Sheet 2 Issue 3 D/- 18.2.82; 21-148-GA3 Sheet 3 D/- 18.2.82; 21-148-

Type of Protection

1. For enclosures, Cat. Nos: GUALA; GUACA; GUATA; GUAXA; GUAMA; GUAWA; GUABA and GUADA.

Ex d IIB T6 IP65

2. For enclosures, Cat. Nos: EABLA; EABCA; EABTA; EABXA; EABMA; EABWA; EABBA; and EABDA.

Ex d IIC T6 IP65

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Director-Administration & Approvals Standards Association of Australia

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

SUPPLEMENTARY CERTIFICATE FOR EXPLOSION PROTECTED ELECTRICAL EQUIPMENT

No. Ex 319-1

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 or conditions under which this certificate was issued.

considered suitable for installation in the hazardous location stated, or if th or conditions under which this certificate was issued.	sed to a degree that the equipment is no longer the certificate holder has breached any of the terms
Description of Modification	Hazardous Location
'Crouse-Hinds' Enclosures, Cat Nos GUA Series	Class I Zone 1
and Variants ELS and ELFS Series	Type of Protection
This supplementary certificate relates to the following items:	Ex d IIB T6 IP 65
	Certificate Holder
(a) Modification of existing marking to improve its legibility.	Crouse-Hinds Australia Pty Ltd
(b) Modification of the cover design to include the optional centre boss as a label screw attachment.	31 Moxon Road PUNCHBOWL NSW 2196 Manufacturer
 (c) Extension of the range of equipment already certified under SAA Certificate No. Ex 319 to include Limit Switch Cat. No. ELS-10 and Foot Pedal Switch Cat. No. ELFS-10 Series. 	Crouse-Hinds Australia Pty Ltd 31 Moxon Road PUNCHBOWL NSW 2196
	Test Report No(s)
	Londonderry Centre
Drawing No(s)	TR NO: 1701
3-148-GA1 Issue 2; 3-148-GA2 Issue 4; 3-148-GA3 Original; 3-148-3 Issue 3 and 21-148-18 Issue 3	Australian Standard(s) AS 2480-1981 AS 1939-1981
	SAA File Reference
	P/3:83161/M118
	Effective Dete
	Effective Date
	Date of Issue
· · · · · · · · · · · · · · · · · · ·	1984-08-16

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J.J.M. Director—Administration & Approvals Standards Association of Australia

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

SUPPLEMENTARY CERTIFICATE FOR EXPLOSION PROTECTED ELECTRICAL EQUIPMENT

No. EX 319-2

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 Modification

'Crouse Hinds' Junction Box

Model GUACA 16M

This supplementary certificate relates to the addition of a mild steel adaptor to facilitate connection of this junction box to an air conditioner compressor unit. The junction box was previously certified under SAA Certificate No. Ex 319 & 319-1.

Drawing 21-148-GAll Issue 2

<u>Certification</u> condition

The manufacturer must carry out on all enclosures a routine pressure test to Clause 3.3.3, i.e. 1,005kPa (1.5 times the reference pressure of 670 kPa). Hazardous Location Class I Zone 1

Type of Protection Ex d IIB T6 IP65

Certificate Holder Crouse Hinds (Aust.) Pty. Ltd., 31 Moxon Road

PUNCHBOWL. N.S.W. 2196

Manufacturer Crouse Hinds (Aust.) Pty. Ltd.,

31 Moxon Road

PUNCHBOWL N.S.W. 2196

Test Report No(s)

SCC TR No. 61271

Australian Standard(s) AS 2480-1981 with Amendment No.1

SAA File Reference P/3: 85 137/M128

Effective Date 1986.02.18

Date of Issue 1986.03.06

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

SUPPLEMENTARY CERTIFICATE FOR EXPLOSION PROTECTED ELECTRICAL EQUIPMENT

No. Ex 319-3

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 Modification

Drawing No(s)

21-148-2

21-148-4

21-148-5

21-148-7

21-148-7 Sheet 2

21-148-7 Sheet 3

21-148-16 Issue 2 21-148-18 Issue 4

21-148-GA3 Sheet 1

"Crouse-Hinds" GUA and EAB Series Junction Boxes

This Supplementary Certificate relates to the addition of grade 316 stainless steel as a material option for equipment previously certified under SAA Certificates Ex 319, Ex319-1, & Ex319-2

Sheets 1 and 2, Issue 4

Issue 4

Issue 5

Issue 4

Sheet 1 Issue 5

Issue 6

Issue 7

21-148-GA2 Sheet 1 Issue 3

Hazardous Location Class I Zone 1

Type of Protection Ex d IIB T6 IP65-GUA Series

Ex d IIC T6 IP65-EAB Series

Certificate Holder

Crouse-Hinds (Aust) Pty. Ltd., 31 Moxon Road PUNCHBOWL. N.S.W. 2196

Manufacturer

Crouse-Hinds (Aust) Pty. Ltd. 31 Moxon Road PUNCHBOWL. N.S.W. 2196

Test Report No(s)

N/A

Australian Standard(s)

AS 2480-1981 AS 1939-1981 SAA File Reference

P/3: 86026/M128

Effective Date

1986-02-18

Date of Issue 1986.03.24

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Director—Administration & Approvals Standards Association of Australia

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

EXPLOSION PROTECTED ELECTRICAL EQUIPMENT

Continuation of Certificate No: Ex 319-4

This is to certify that SAA Certificate Nos Ex 319, Ex 319-1, Ex 319-2 and Ex 319-3 issued to:

Crouse Hinds (Aust) Pty Ltd 31 Moxon Road PUNCHBOWL NSW

for 'Crouse Hinds' Junction Box Model GUA are hereby modified as detailed in the following Schedule.

Schedule

Description of Modification

The GUA series air conditioner junction box has had a cast iron adaptor added and the range has been extended to cover 32 mm entries and Group 1 compliance.

Drawings

21-148-GA20 Issue 3 21-148-GA22 Issue 2

Type of Protection: Ex d IIB T6 IP65 for GUALA16 series air conditioner junction box Ex d I/IIB T6 IP65 for GUA series junction boxes Cat No GUA Ex d IIC T6 IP65 for GUA series junction boxes Cat No EAB

Test Report: LOSC 2892 to AS 2480-1986 and AS 1939-1986

File: P/3: 87031/M137

Remarks: This supersedes SAA Certificate No Ex 319-3 dated 21 July 1987 which contained typographical errors.

Date of Issue: 29 July 1987

Page 1 of 1

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ELECTRICAL EQUIPMENT SUPPLEMENTARY Certificate No

Ex 319-5

Certificate of Compliance

This is to certify that Standards Australia Certificate No Ex 319, Ex 319-1, Ex 319-2, Ex 319-3 and Ex 319-4 issued to:

Crouse Hinds (Australia) Pty Ltd

for the <u>"Crouse Hinds Junction Box Model GUA</u> are hereby extended to include changes as detailed in the following schedule.

SCHEDULE

Description of changes:

1. Change of address of certificate holder to:

391 Park Road Regents Park NSW 2143

Delete EAB series from the certificate

- 3. Change apparatus group of GUA series from IIB to IIC
- 4. Change apparatus group of GUA series Air Conditioner Junction Boxes from IIB to IIC

5. Increase degree of protection from IP65 to IP66/IP67

<u>Drawings</u>: 21-148-GA11 Issue 6 18 November 1991 21-148-GA20 Issue 6 18 November 1991 21-148-GA22 Issue 5 18 November 1991

<u>TYPE OF PROTECTION</u>: Ex d IIC T6 IP66/IP67 for GUA series air conditioner junction box Ex d I/IIC T6 IP66/IP67 for GUA series junction boxes

Test Report No: LOSC 6953 to AS 2480-1986 and AS 1939-1990

File: P/3: 91137.M164

Date of Issue: 23 December 1991

Date of Expiry of Validity: 29 July 1997

Page 1 of 1 Signed for and on behalf of Standards Australia

General Manager Quality Assurance Services

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Standards Australia Quality Assurance 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:

AUS Ex 319

Issue 0: Issue 6: Original Issue1/6/1982 29/9/1998

Date of Expiry:

29/9/2008

Certificate Holder:

Crouse-Hinds (Australia) Pty Ltd 391 Park Road REGENTS PARK NSW 2143

Electrical Equipment: Series GUA16 Junction Box and ELS10 Limit Switch

Type of Protection: GUA16: ELS10: Ex d 1/IIC T6 IP66/IP67 Class I Zone 1 Ex d IIB T6 IP65 Class I Zone 1

Marking Code:

GUA16: Ex d I/IIC T6 IP66/IP67 ELS10: Ex d IIB T6 IP65 AUS Ex 319

Manufactured By:

Crouse-Hinds (Australia) Pty Ltd 391 Park Road REGENTS PARK NSW 2143

Issued by:



Londonderry Occupational Safety Centre

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



STANDARDS AUSTRALIA

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

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

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

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

est Report No:	LOSC 17734
File Reference:	LOSC 97/8300

on behalf of issuing authority

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Issued by:



Londonderry Occupational Safety Centre

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



STANDARDS AUSTRALIA

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

Ex 319-6

EXPLOSION PROTECTED ELECTRICAL EQUIPMENT

Administered by: Standards Australia Quality Assurance Services

Schedule

319 Certificate No: AUS Ex

Issue:

Date of Issue:

29/9/1998

Certified Equipment:

The GUA16 Series Junction Boxes consist of a base and screwed access cover, both manufactured from aluminium, cast iron, stainless steel or high tensile brass. The aluminium version of the equipment is suitable only for group II applications. Electrical connections to the equipment is provided by up to 4 threaded entries in the base.

The ELS10 Series Limit Switch is similar in design and construction to junction box except that the base has provision a single threaded entry and an opening fitted with an operator that actuates a switch block mounted in the base. Table 1 includes a summary of the limit switch variants covered by the certificate.

Table 1: Summary of Limit Switch Variants

Cat No	Description	Operator
ELS10/FL	Float Switch	ZCK D59
ELS10/P	Plunger Operated Limit Switch	ZCK D10
ELS10/RL	Roller Arm Limit Switch	ZCK D21
ELS10	Foot Pedal Switch	ZCK D21

Drawing Schedule

Drawing No	Drawing Title	Issue	Date
21-148-GA029	General Arrangement of ELS10 Type Limit Switches	2	13/7/98
21-148-GA22	General Arrangement	7	14/7/98

Schedule of Variations

Variations Permitted by Issue 6: Re-validation of the Certificate of Conformity.

Issued by:



Londonderry Occupational Safety Centre

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STANDARDS AUSTRALIA

3

EXPLOSION PROTFETED ELECTRICAL EQUIPMENT

Administered by Standards Australia Quality Assurance Services

Canificate of Conformity

Certificate No:	AUS Ex 03.3844X	Issue 0:	10/7/2003	
Date of Expiry:	10/7/2013			
Certificate Holder:	CCG Cable Terminations (33-37 Forge Road Spartan Industrial Area 16 SOUTH AFRICA			
Electrical Equipment:	EIEX, DIEX, A2EX and I	Ex Corrosion C	uard ranges of cable glar	di
Type of Protection:	Ex d BC Zone l Ex e II Zone l DIP Zone A21			
Marking Code:	Ex d IIC Ex e II DIP A21 IP66/IP68 (2 m) AUS Ex 03,3844X			
Manufactured By:	CCG Cable Terminations 33-37 Forge Road Sparton Industrial Area 16 SOUTH AFRICA	and states		
Test Safe	919 Londonderry R Phone: (02) 4724 ·		uderry NSW 2753 x: (02) 4724 4999	Accreditation by the Joint Accreditation System of Australia and Now Zeilland Acc No. 722211003S

EXPLOSION PROTECTED FLECTRICAL EQUIPMENT

Administered by Standard's Australia Quality Assumance Services

This certificate is granted subject to the conditions as set out in Standards Australia Miscellaneous Publication MP 59 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:

Electrical apparatus for explosive gas atmospheres Part 0: General requirements (incorporating AS/NZS 60079.0:2000 Amendment I) Electrical apparatus for explosive gas atmospheres Part 1: Flameproof enclosures 'd' fincorporating AS/NZS 60079.1:2002 Corrigendum 1) Electrical apparatus for explosive gas atmospheres Part 1: Increased safety 'e' AS/NZS 60079.7:2001 Electrical apparatus for use in the presence of combustible dust Part 1.1: Electrical apparatus protected AZ/NZS 61241.1.1:1999 by enclosures and surface temperature limitation - Specification for apparatus Degrees of protection provided by enclosures for electrical equipment (IP Code)

AS 1939-1990

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 23260

Ella Referance: TestSale 2001/016928

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

Position 10/7/2003

Date of issue

Ex 03.3844X

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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. 7222110048

EXPLOSION PROTECTED ELECTRICAL EQUIPMENT

Administered by Standards Australia Quality Assurance Services

Statistic

Certificate No: AUS Ex 03:3844X Issue: Certified Equipment: The BIEX, DIEX, A2EX an

9

Date of Issue:

ae: 10/7/2003

The BIEX, DIEX, A2EX and Ex corrosion guard ranges of cable glands are suitable for inserting circular cables into enclosures having threaded entries, as appropriate for the type of protection.

The ranges of glands are as follows:

The 'EIEX' range of cable glands for armoured cables each comprising of a brass, stainless steel or bronze body, a front seal, an armour cone, an armour compression clement, a rear seal and a seal compression nut. An optional moulded oversleeve may be interposed between the armour element and rear compression nut. The glands are available with Metric (M16 to M75) or NPT (½' to 3'') entry threads.

The 'D1EX' range of cable glands for armoured cables each comprising of a brass, stainless steel or bronze body, seal, an armour cone with spring retaining ring, an armour compression element, a rear seal and a seal compression nut. An optional moulded oversleeve may be interposed between the armour element and rear compression nut. The glands are available with Metrie (M16 to M75) or NPT (½" to 3") entry threads.

The 'A2EX' range of cable glands for un-armoured cables each comprising of a brass, stainless steel or bronze body, a inner seal, a spacer / cone element with spring retaining ring and a compression nut and ring. The glands are available with Metric (M16 to M75) or NPT $U/2^{\circ}$ to 3'') entry threads.

The 'Ex corresion guard' range of cable glands for armoured cables each comprising of a brass body, a front scal, an armour cone, an armour compression element, a rear scal and a scal compression nut. They have a moulded oversleeve guard, which is interposed between the armour element and rear compression nut. The glands are available with Metric (M16 to M75) entry threads.

The glands are marked with the certification information by means of stamping. The full ranges of cable glands are shown in the following schedule.

Issued by:



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



System of Australia and New Zeahard, Aze No. 2222110/AS

Explosion Protected Electrical Equipment

Administered by Standards Australia Quality Assurance Services

Certified Equipment continued:

land Size Ref	Entry Thread		Entry Thread Inner sheath Olameter (mm)		Diar	Sheath ueter 110)	Armoneing Wire Diameter (jum)		
944. 1944 1973 - 1975	Diameter	Length (nm)	Min	Max	Min	Max	Min	Max	
00-16ss	M16 x 1.5	17.0	3.0	8.0	8,0	13.5	0.2	1,25	
00-20as	M20 x 1.5	17.0	3.0	8.0	8.0	13.5	0,2	1.25	
0-20s	M20 x 1.5	17.0	8,0	12.9	11.5	16.0	0.2	1,25	
1-20	M20x1.5	17.0	11.0	15.5	14.5	21.0	0.2	1,25	
2-25	M25 x 1.5	17.5	15.0	20.5	20.5	27.0	0.2	1,6	
3-32	M32-x 1 5	17.0	20.0	26.5	26.5	33.5	0.2	2.0	
4-40	M40 x 1.5	21.5	26.0	34.5	33.0	43.0	0,3	2.0	
5-50	MS0 x 1.5	22,0	34.0	44.5	42.5	52.5	0,4	2.5	
6-63	M63 x 1.5	22.0	44.0	57.0	52,5	65,5	0.4	2.5	
7-75	M75 x 1.5	22.0	56.0	68.Ŏ	65.5	78.0	0.4	3.0	

EIEX NPT Range (Ex de IIC / DIP)

Gland Size Ref				Luner dian (m	neter	Outer S Diam (m	eier	and the second se	ng Wire ieter m)
	Diameter	smeter	Length (mm)	Min	Max	Min	Max	Mhr	Max
00-20ss	1/2	:14 TPI	20	3.0	8.0	8.0	13.5	0.2	1.25
0-208	1/2	:14 719	20	8.0	12.0	11,5	16.0	0.2	1.25
1-20	1/213/4	:14 TPI	20/21	11.0	15.5	14,5	21.0	0.2	1.25
2.25	3411	:14/11.5 MM	21/25	15.0	20.5	-20.\$	27.0	0.2	1.6
332	1/11/4	:115 TPI	25/26	20.0	26.5	26.5	33.5	0.2	2.0
4.40	1 1/4/1	an Sana	26/26	26.0	34,5	33.0	43.0	0.3	20
3 50	1 1/472	:11.5 TPI	26/27	34.0	44.5	42.5	52.5	0,4	2.5
6-63	2/21/2	:11.578 TPI	27/40	44,0	\$7.0	52.0	65.5	0.4	2.5
7.75	2 1/2 / 3	8 TPI	40/42	56.0	68.0	65.0	78.0	Q.4	3.0

Issued by:

919 Londonderry Road Londonderry NSW 2753



Ex 03.3844X

Addendum to Certificate No.....

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

Explosion Protected Electrical Equipmer

Administered by Standards Australia Quality Assurance Services

on Guard Range (Fx de HC/ DIP)

Certified Equipment continued:

Addendum to Certificate N

Ex 03.3844X

Gland Size Ref	and the second second second second second second second second second second second second second second secon	EA CUTTOSHIL CHIE		Inner sheath diameter (mm)		Onter Sheath Digmeter (mm)		ing Wire neter m)
	Diameter	Length (mm)	Min	Max	Min	Max	Min	Max
00-16ss	M16 x 1.5	15	3.0	8.0	8.0	13,5	0.2	1,25
00-2055	M20x15	15	3.0	8,0	8.0	13,5	0.2	1.25
<u>(† 208</u>	M20 x 1.5	13	8:0	12.0	ti.5	16.0	0,2	1.25
1.20	M20 x 1,5	15	11.0	15,5	14.5	21.0	0.2	1,25
225	M25 8 1.5	-15	15,0	20.5	20.5	27.0	0,2	1.6
3.32	M32 x 1.5	15	20.0	26.5	26.5	3.3,5	0.2	2.0
4.40	M40 x 1.5	20.0	26.0	32.5	33.0	43.0	0.4	2.5
\$-50	M50 x 1.5	20.0	32.0	44.5	42.5	52.5	Q.4	2.5
6.63	M63 x 1.5	20.0	44.0	57.0	52.5	65.5	0,4	2.5
7-75	M75 x 1.5	20.0	56.0	68.0	65.5	78,0	0,4	3.0

X Metric Range (Ex de IIC / DIP)

Gland Size Ref	Euicy Invend		diameter diameter (mm) inter		Outer Sheath Diameter (nm)	Armouring Wir Diameter (mm)	
	Diameter	Length (mm)	Min	Max	Mæ	1.000 (M)	ar I
d9 16.8	MI6x15	17.0	. 3.0	8.0	13.5	0.2	1.25
00-2858	M20x15	17.0	3.0	8.0	135	0.2	1.25
0-205	M20 x 1.5	17.0	8.0	12.0	16.9	0.2	1.25
120	M20x15	170	11.0	15.5	21.0	0.2	1.25
2.25	M25 x 1.5	17.5	15.0	20.5	27,0	0.2	1.6
3.32	M92 x 1.5	17.0	20.0	26.5	2335	0.2	2.0
4.40	M40 x 1.5	21.5	26.0	34.5	43,0	0.3	2.0
5-50	MS0 x 1.5	22.0	34.0	44.5	52.5	0.4	2.5
6-63	M63 x 1.5	22.0	44.0	57.0	655	0.4	2.5
7-15	M25 x 1.5	22.0	56.0	68.0	78.0	0.4	3.0

919 Londonderry Road Londonderry NSW 2753

Safe

Issued by:

Phone: (02) 4724 4900 Fax: (02) 4724 4999 Accreditation by the John Ac System of Australia and New Zeilland, Acc No. 22221100AS

Explosion Protected Electrical Equipment

Administered by Standards Adstralia Quality Asstrance Services

Certified Equipment continued:

DIEX NPT Range (Ex de IIC / DIP) Inner sheath Armouring Wire Entry Thread Gland Size Diameter diameter Ref (mm) (mm) Length Min Diameter Max Min (mm) 1.25 :14 TPI 20 8,0 0.2 3.0 00-20ss 1/2 14 TPI 20 8.0 12.0 0.2 1.25 1/2 0-20s1.25 11.0 15.5 0.2 1/2/3/4 314 TPI 20/21 1-20 21/25 20.5 0.21.6 :14711.5 TPI 15.0 2-25 3/4/1 0.220 :11.5 TPI 25/26 20.026.5 3-32 1/144 26/26 :11,5 TPI 4-40 14/1 2.0 26.0 34.5 0.3 1/2 26/27 0.4 2.5 :11.5 TPI 34,0 44.5 1 1/2/2 5-50 :11.5 / 8 TPI 27/40 57.0 0.4 2.5 44.0 21242 6-63 40/42 3.0 68.0 0.4 :8 TPI 56.0 7-75 21/2/3

A2EX Metric Range (Ex de IIC/DIP)

Clanul Size Ref	Entry	Bread	Inner sheath diameter (mm)		
	Dinmeter	Length (mm)	Min	Max	
00-16ss	MI6 x 1.5	17.0	3.0	80	
00-20%	M20 x 1.5	17.9	30	8.0	
0-20s	M30 x 1.5	17.0	8.0	12,0	
12	M20 x 1.5	I 70	11.0	15.5	
2-25	M25 x 1,5	17.5	15.0	20.5	
3.32	M32x1.5	17,0	20.0	26.5	
440	M40 x 1.5	21.5	26.0	345	
5-50	M50 x 1.5	22.0	34.0	41,5	
6-63	M63x1.5	22.0	-44.0	57.0	
7-75	M75 x 1.5	22,0	56.0	68.0	

919 Londonderry Road Londonderry NSW 2753 Phone: (02) 4724 4900 Fax: (02) 4724 4999 Accreditation by the form Accreditation System of Australia and New Zeatand, Acc No. 722221100A5

Ex 03-3844X Addendum to Certificate No.....

STANDARDS ALISTRALIA

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Explosion Protected Electrical Equipment Administered by Standards Australia Quidity Assurance Services

Certified Equipment continued:

Ex 03 3844X Addendum to Certificate No

Gland Size Ref		Eary Thread		limer sheath diameter (mar)		
	D	lameter	Length (mni)	Min	Max	
00-20ss	14	514 TPI	20	-3:0	8.0	
0-20s	1 Và	:14 TPI	20	8:0	12.0	
1-20	1/2/ 3/4	147791	20/2.1	11.0	15.5	
2:25	3411	:14/115 TPL	21/25	15.0	20.5	
3-32	1/14	als Tel	25/26	20:0	26.5	
4:40	1 4/1 1/2	41.5372	26.0	26:0	34 <i>5</i>	
5-50	115/2	31.5 TPI	26/27	34.0	44.3	
6-63	2123	\$11.578 TPI	27/40	44,0	57.0	
7-75	21/13	B TPI	40/42	56 ,0	68.0	

IPT Bange (Fe de HC / DIP)

Conditions of Certification:

Issued by

It is a condition of safe use that the cable glaud sizes 00, 0, 1, 2, 3, 4, 5 and 6 are not permitted for installation with ł, Ex d HC apparatus that have a volume in excess of 2000 cm³.

It is a condition of safe use that the cable glands are not pennitted to be installed outside of the temperature range -20°C to 80 °C



Phone: (02) 4724 4900



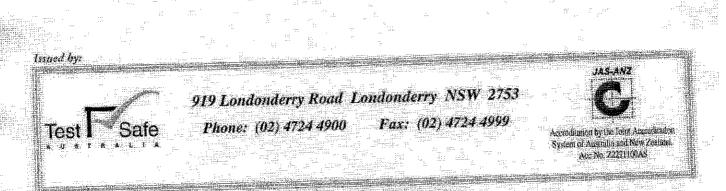
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EXPLOSION PROTECTED ELECTRICAL EQUIPMENT

Administered by Standards Australia Qualicy Assocance Services

Addendum to Certificate No.

507 1008	Drawing Schedule	ti ili ili ili ili ili ili ili ili ili i		
Drawing No	and the second second second second second second second second second second second second second second second	Issue	Date	
054700-SG	NO 0 EXCG SEALING GASKET		Nov 2002	
054701-56	NO 1 EXCG SEALING GASKET		Nov 2002 Nov 2002	
1054702-SG	NO 2 EXCG SEALING GASKET	7 M	Nov 2002 Nov 2002	
054703-SO	NO 3 EXCG SEALING GASKET	ė. 🔸	Nov 2002 Nov 2002	
054704-86	NO 4 ENCG SEALING GASKET		Nov 2002	a tanii B
054705-8G	NO 5 EXCG SEALING GASKET		Nov 2002	
654706-SC	NO 6 EXCG SEALING GASKET	- (k)) (Nov 2002	
1054707-SG	NO 7 EXCO SEALING GASKET		May 2002	
E.00.00.48.000/B	EX CORROSION CUARD Exde	6	Apr 2003	
LE00.0048.000/A	EXCO Exde Cable Cland	9. 3.	Jun 2003	
E.00.00.48.000/Body-Ass	EXCG BODY COMPONENTS	1 N H		
E.00.00.48.000-08	EXCG OUTER SEAL	Original	Feb 2003	
054707-SR	7 EXCG SKID RING		Feb 2003	
054706-SR	6 EXCO SKID RING		Feb 2003	
1054705 SR	5 EXCO SKID RING		Feb 2003	
054702-SR	4 EXCG SKID RING		Feb 2003	
054703-SR	3 EXCG SKID RING		Feb 2003	
054702-SR	2 EXCG SKID RING		Feb 2003	
054701-SR	1 EXCG SKID RING		Feb 2003	
0547-0-SR	0 EXCO SKID RING		Apr 2003	
E.00.00.26.000/A	EIEX Exde CABLE GLAND		Jun 2003	
E.00.00.26.090/B	EIEX Exde CABLE GLAND	l š	May 2003	
E.00.00.26.000/C	EIEX Exde CABLE GLAND - NPT		Jun 2003	
E.00.00.26.000./D	EIEX PExde CABLE GLAND - NPT	5	Jun 2003	
052300-05	00 EIEX OUTER SEAL		han 2003	
0523-0-05	0 BIEX OUTER SEAL		Jun 2003	
052301-05	1 EIEX OUTER SEAL		Jun 2003	
052302-05	2 EIEX OUTER SEAL		fun 2003	
052303-05	3 EIEX OUTER SEAL		Jun 2003	
052304-05	4 HIEX OUTER SEAL	<u> </u>		



Explosion Protected Electrical Equipment

Administered by: Standards Australia Quality Assurance Services

Ex 03.3844X Addendum to Cettificare No.....

022305-05 5 EIEX OUTER SEAL 1 Jun 2 052305-05 6 EIEX OUTER SEAL 1 Jun 2 052307-05 7 EIEX OUTER SEAL 1 Jun 2 052306-05 6 EIEX OUTER SEAL 1 Jun 2 052306-116 EIEX INNER NO 00 2 Original Jun 2 052306-116 EIEX INNER NO 00 2 Original Jun 2 052306-116 EIEX INNER NO 00 3 Jun 2 052306-11 EIEX INNER NO 00 3 Jun 2 052300-142 INNER NO 00 3 Jun 2 052300-142 EIEX INNER NO 00 3 Jun 2 052300-142 EIEX INNER NO 00 3 Jun 2 052300-142 INNER NO 00 3 Jun 2 0523-0-1 EIEX INNER NO 00 3 Jun 2 052301-1 EIEX INNER NO 00 1 Jun 2 052301-1 EIEX INNER NO 1 4 Jun 2 052301-1 EIEX INNER NO 1 1 Jun 2 052301-1 <t< th=""><th>Drawing No</th><th>Drawing Schedule continued Drawing Fille</th><th>Issue</th><th>Date</th></t<>	Drawing No	Drawing Schedule continued Drawing Fille	Issue	Date
052306-OS 052306-OS 052300-1-16 6 EIEX OUTER SEAL EIEX INNER NO 00 AZEX INNER NO 00 DIEX INNER NO 00 EXCG INNER NO 00 DIEX INNER NO 1 DIEX INNER NO 1		Contraction of the second second second second second second second second second second second second second s		Jun 2003
052307-OS 052300-1-157 EIEX OUTER SEAL EIEX INNER NO 00 AZEX INNER NO 00 DIEX INNER NO 00 DIEX INNER NO 00 AZEX INNER NO 00 DIEX INNER NO 00 DIEX INNER NO 00 DIEX INNER NO 00 DIEX INNER NO 00 AZEX INNER NO 00 DIEX INNER NO 00 DIEX INNER NO 00 DIEX INNER NO 00 DIEX INNER NO 00 AZEX INNER NO 00 DIEX INNER NO 01 DIEX INNER NO 1 DIEX INNER NO 2 DIEX INNE	Construction of the second second second second second second second second second second second second second		2	Jun 2003
OS2300-1-16 EHEX INNER NO 00 Original Job 2 A2EX INNER NO 00 DIEX INNER NO 00 BIEX INNER NO 01 BIEX INNER NO 01 BIEX INNER NO 1 B				Jun 2003
A2EX INNER NO 00 DIEX INNER NO 00 EXCG INNER NO 00 EXCG INNER NO 00 DIEX INNER NO 1 DIEX I			Original	Jun 2003
D1EX INNER NO 00 EXCG INNER NO 00 A2EX INNER NO 00 D1EX INNER NO 1 D1EX INNER				
bit bit bit bit bit bit bit bit bit bit				i Al
052300-1 ETEX INNER NO 00 A2EX INNER NO 00 DIEX INNER NO 00 EXCG INNER NO 00 EXCG INNER NO 00 DIEX INNER NO 00 DIEX INNER NO 00 DIEX INNER NO 00 DIEX INNER NO 00 DIEX INNER NO 00 DIEX INNER NO 00 DIEX INNER NO 00 DIEX INNER NO 00 DIEX INNER NO 00 DIEX INNER NO 00 DIEX INNER NO 00 DIEX INNER NO 1 A2EX INNER NO 1 DIEX DIEX DIEX DIEX DIEX DIEX DIEX DIEX				
A2EX INNER NO 00 DIEX INNER NO 00 DIEX INNER NO 00 EXCG INNER NO 00 052300-1-½" NPTX1.81 EIEX INNER NO 00 DIEX INNER NO 00 DIEX INNER NO 00 DIEX INNER NO 00 DIEX INNER NO 00 0523-0-1 EIEX INNER NO 00 0523-0-1 EIEX INNER NO 00 DIEX INNER NO 00 3 0523-0-1 EIEX INNER NO 00 0523-0-4-½" NPTx1.81 EIEX INNER NO 1 052301-1 EIEX INNER NO 1 052301-1-1 EIEX INNER NO 1 <	กรวมการ		- 3	Jun 2003
D1EX INNER NO 00 1 Jun 2 052300-1-42" NPTx1.81 E1EX INNER NO 00 1 Jun 2 0523-0-1 E1EX INNER NO 00 3 Jun 2 0523-0-1 E1EX INNER NO 00 1 Jun 2 0523-0-1 E1EX INNER NO 00 1 Jun 2 0523-0-1 E1EX INNER NO 00 1 Jun 2 0523-0-1-92" NPTx1.81 E1EX INNER NO 00 1 Jun 2 052301-1 E1EX INNER NO 00 1 Jun 2 052301-1 E1EX INNER NO 1 4 Jun 2 052301-1 E1EX INNER NO 1 1 Jun 2 052301-1 D1EX INER NO 1 1 Jun 2 <t< td=""><td></td><td></td><td></td><td></td></t<>				
052300-L42" NPTx1.81 ETEX INNER NO 00 A2EX INNER NO 00 DTEX INNER NO 1 DTEX				
052300-I-W" NPTx1.81 ETEX INNER NO 00 A2EX INNER NO 00 DIEX INNER NO 1 A2EX INNER NO 1 DIEX I		EXCG INNER NO 00		Le same
A2EX INNER NO 00 3 Jun 2 0523-0-1 ETEX INNER NO 00 3 Jun 2 0523-0-1 ETEX INNER NO 00 3 Jun 2 0523-0-1-1/2" NPTx 1.81 ETEX INNER NO 00 1 Jun 2 0523-0-1-1/2" NPTx 1.81 ETEX INNER NO 00 1 Jun 2 0523-0-1-1/2" NPTx 1.81 ETEX INNER NO 00 1 Jun 2 0523-0-1-1/2" NPTx 1.81 ETEX INNER NO 00 1 Jun 2 0523-0-1-1/2" NPTx 1.81 ETEX INNER NO 00 1 Jun 2 052301-1 ETEX INNER NO 1 2 4 Jun 2 052301-1 ETEX INNER NO 1 1 Jun 2 052301-1 ETEX INNER NO 1 1 Jun 2 052301-1-1 <	052300-L4/" NPTx1.81	ETEX INNER NO 00		Jun 2003
0523-0-1ELEX INNER NO 003Jut.A2EX INNER NO 00DIEX INNER NO 00DIEX INNER NO 001Jut.0523-0-1-42° NPTx 1.81ELEX INNER NO 001Jut.0523-0-1-42° NPTx 1.81ELEX INNER NO 001Jut.052301-1ELEX INNER NO 00DIEX INNER NO 004Jut.052301-1ELEX INNER NO 1A2EX INNER NO 14Jut.052301-1ELEX INNER NO 1DIEX INNER NO 11Jut.052301-1.44* NPTx 1.81ELEX INNER NO 11Jut.052301-1.44* NPTx 1.81ELEX INNER NO 11Jut.052301-1.44* NPTx 1.81ELEX INNER NO 11Jut.052302-1DIEX INNER NO 11Jut.052302-1ELEX INNER NO 15Jut.				
0523-0-1 ETEX INNER NO 00 0523-0-1-42" NPTx1.81 ETEX INNER NO 00 0523-0-1-42" NPTx1.81 ETEX INNER NO 00 0523-0-1-42" NPTx1.81 ETEX INNER NO 00 052301-1 ETEX INNER NO 00 052301-1 ETEX INNER NO 1 052301-1.4/2" NPTx1.81 ETEX INNER NO 1 052302-1 ETEX INNER NO 1 052302-1 ETEX INNER NO 2				1
A2EX INNER NO 60 D1EX INNER NO 60 D1EX INNER NO 60 EXCG INNER NO 60 0523-0-1-32" NPTx 1.81 HEX INNER NO 60 052301-1 EIEX INNER NO 60 052301-1 EIEX INNER NO 1 052301-1-1 EIEX INNER NO 1 052302-1 EIEX INNER NO 1 052302-1 EIEX INNER NO 2	0523-0-1	EIEX INNER NO 00	3	1.00 2005
0523-0-1-14" NPTx 1.81EXCG INNER NO 00 E1EX INNER NO 00 DIEX INNER NO 00 DIEX INNER NO 00 EIEX INNER NO 01 EIEX INNER NO 1 EIEX INNER NO 1 DIEX INNER NO 1 EXCG INNER NO 1 EXCG INNER NO 1 EXCG INNER NO 1 EXCG INNER NO 1 EXCG INNER NO 1 EXCG INNER NO 1 EXCG INNER NO 1 EXCG INNER NO 1 EXEX INNER NO 1 DIEX INNER NO 1 EXEX INNER NO 1 DIEX INNER NO 1 EXEX INNER NO 1 DIEX INNER NO 2 DIEX INNER NO 21		A2EX INNER NO 00		
0523-0-4-42" NPTx1.81EIEX INNER NO 00 A2EX INNER NO 00 DIEX INNER NO 00 EIEX INNER NO 1 A2EX INNER NO 1 DIEX INNER NO 1 DIEX INNER NO 1 DIEX INNER NO 1 EXCG INNER NO 1 EXCG INNER NO 1 EIEX INNER NO 1 EIEX INNER NO 1 DIEX INNER NO 2 DIEX INNER NO 21		DIEX INNER NO 00		
0523-0-F92* NPTx1.81FHEA INNER NO 00 A2EX INNER NO 00 DIEX INNER NO 00 EIEX INNER NO 1 DIEX INNER NO 1 EXCG INNER NO 1 EXCG INNER NO 1 EIEX INNER NO 1 EIEX INNER NO 1 DIEX INNER NO 1 EIEX INNER NO 1 DIEX INNER NO 2 DIEX INNER NO 2 <br< td=""><td>i de la de Reserva de la dela dela dela dela dela dela de</td><td>EXCG INNER NO 00</td><td></td><td>Jun 2003</td></br<>	i de la de Reserva de la dela dela dela dela dela dela de	EXCG INNER NO 00		Jun 2003
A2EX INNER NO 00 D1EX INNER NO 00 E1EX INNER NO 1 A2EX INNER NO 1 E1EX INNER NO 1 D1EX INNER NO 1 D1EX INNER NO 1 EXCG INNER NO 1 E1EX INNER NO 1 D1EX INNER NO 2 A2EX INNER NO 2	0523-0-F-6" NPTx1.81	EIEX INNER NO 00		Jun aros
052301-1EIEX INNER NO 1 A2EX INNER NO 1 DIEX INNER NO 1 EXCG INNER NO 1 EXCG INNER NO 1 EXCG INNER NO 1 EXCG INNER NO 1 DIEX INNER NO 24300 H H H H H DIEX INNER NO 1 DIEX INNER NO 1 DIEX INNER NO 1 DIEX INNER NO 25				
052301-I EIEX INNER NO I A2EX INNER NO I DIEX INNER NO I DIEX INNER NO I EXCG INNER NO I 052301-L44**NPTx1.81 EIEX INNER NO I 052301-L44**NPTx1.81 EIEX INNER NO I 052301-L44**NPTx1.81 EIEX INNER NO I 052301-L44**NPTx1.81 EIEX INNER NO I 052301-L44**NPTx1.81 EIEX INNER NO I 052302-4 EIEX INNER NO I 052302-4 EIEX INNER NO 2		DIEX INNER NO 00		Jun 2003
A2EX INNER NO 1 DIEX INNER NO 1 EXCG INNER NO 1 EXCG INNER NO 1 BLEX INNER NO 1 A2EX INNER NO 1 DIEX INNER NO 1 DIEX INNER NO 1 A2EX INNER NO 1 DIEX INNER NO 1 A2EX INNER NO 2 A2EX INNER NO 2	052301-1	EIEX INNER NO L	-4	Jun 2495
052301-L44" NPTx1.81EXCG INNER NO 1 ETEX INNER NO 1 A2EX INNER NO 1 DTEX INNER NO 1 ETEX INNER NO 1 A2EX INNER NO 1 DTEX INNER NO 1 ETEX INNER NO 1 DTEX INNER NO 1 ETEX INNER NO 1 DTEX INNER NO 1 ETEX INNER NO 21Jun		AZEX INNER NO I		
052301-1-94" NPTx1.81EXECG INNER NO 1 ELEX INNER NO 1 DIEX INNER NO 1 ELEX INNER NO 1 DIEX INNER NO 1 A2EX INNER NO 1 DIEX INNER NO 21Jun		DIEX INNER NO I		
052301-L44* NPTx1.81 EIEX INNER NO 1 052301-L44* NPTx1.81 A2EX INNER NO 1 052301-L44* NPTx1.81 EIEX INNER NO 1 052301-L44* NPTx1.81 EIEX INNER NO 1 052302-4 EIEX INNER NO 2		EXCG INNER NO I		Jun 2003
A2EX INNER NO 1 DIEX INNER NO 1 EIEX INNER NO 1 A2EX INNER NO 1 DIEX INNER NO 2 5 Jun	052301-4-45" NPTx1.84			3mr 2000
052301-I-34*INPT&L&I A2EX INNER NO 1 DIEX INNER NO 1 ELEX INNER NO 1 ELEX INNER NO 1 ELEX INNER NO 2 A2EX INNER NO 2				
052301-1-34 INPERL81 A2EX INNER NO 1 DIEX INNER NO 1 BIEX INNER NO 2 A2EX INNER NO 2			1 4	Jun 2003
A2EX INNER NO 1 DIEX INNER NO 1 ELEX INNER NO 2 A2EX INNER NO 2	052301-I-34"NPTx1.81		.	Jun 2002
052302-1 DIEX INNER NO 1 EIEX INNER NO 2 A2EX INNER NO 2				
052302-1 BIEA INNER NO 2 A2EX INNER NO 2				Jun 2003
A2EX INNER NO2	0523024		2	
DIEX INNER NO 2		DIEX INNER NO 2		in the second second second second second second second second second second second second second second second

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919 Londonderry Road Londonderry NSW 2753 Phone: (02) 4724 4909 Fax: (02) 4724 4999

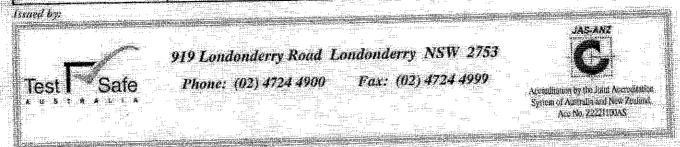


EXPLOSION PROTECTED ELECTRICAL EQUIPMENT

Administered by Spandard's Australia Quality Assurance Services

Rx 03.3844X Addendum to Certificate No.....

Drawing No	Drawing Fitle	Issue	Date
152302-1-4NPT	EIEX INNER NO 2		Jun 2003
	A2EX INNER NO 2		
	DIEX INNER NO 2		ter Maria Maria
052302-I-1" NPT	EIEX INNER NO 2		Jun 2003
	AZEX INNER NO 2		
4	DIEX INNER NO 2		1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1
052303-1	EIEX INNER NO 3	3	Jun 2003
	A2EX INNER NO 3		
	DIEX INNER NO 3		
	EXCG INNER NO 3		
052303-I-1" NPT	EIEX INNER NO 3		Jun 2003
	A2EX INNER NO3		
, <u>1</u> .	DIEX INNER NO3		
052303-1-14" NPT	ELEX INNER NO 3		Jun 2003
	A2EX INNER NO 3		
	DIEX INNER NO 3		-
052304-I	EIEX INNER NO4	1	Jun 2003
	A2EX INNER NO4		· · · · · · · · · · · · · · · · · · ·
·	DIEX INNER NO4		п.,
	EXCG INNER NO 4		Juni 2003
052304-1-144" NPT	EIEX INNER NO 4		 Designed to the second of the s
	A2EX INNER NO 4		
	DIEX INNER NO4	· · · · · · · · · · · · · · · · · · ·	Jun 2003
052304-I-144" NPT	EIEX INNER NO 4		30022003
	A2EX INNER NO 4		
	DIEX INNER NO 4		Jun 2003
052305-1	BIEX INNER NO 5	*	31111 20473
	A2EX INNER NO 5		
	DIEX INNER NO5		
	EXCG INNER NO 5		Jun 2003
052305-1-11/2NPT	ELEX INNER NO5		ATTE SHARE
	A2EX INNER NO 5		
	DIEX INNER NO 5		Jun 2003
052305-1-2" NPT	EIEX INNER NO S		ABRIT TADATA
	AZEX INNER NO 5		
	DIEX INNER NO 5		4



Explosion Protected Electrical Equipment

Administered by Standards Australia Quality Assurance Services

Addendum r	o Certificate	No	Access 64.05

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	ii	Drawing Schedule continued:	series and the second se		
Ţ	DrawingNo	Drawing Title	Issue	Date	
ł	052306-1	ELEXINNER NO.6	3	Jun 2003	
1		A2EX INNER NO 6			
		DIEX INNER NO 6			
		EXCGINNER NO 6			
	052306-I-2" NPT	EIEX INNER NO6	1	Jun 2003	
	n see en aler an anna an an anna an an an an an an an	A2EX INNER NO 6			
		DIEX INNER NO 6		Carl Constants	
	052306-1-295" NPT	EIEX INNER NO 6	1	June 2003	
		A2EX INNER NO 6			
		DIEX INNER NO 6			
	052307-1	EIEX INNER NO7	3	Jun 2003	
, 1		AZEX INNER NO 7			
		DIEX INNER NO 7			
		EXCG INNER NO7			
	052307-I-256" NPT	EIEX INNER NO.7		Jun 2003	
		A2EX INNER NO 7			
	Regard to the second second second second second second second second second second second second second second	DIEX INNER NO7		Jun 2003	
	052307-F3" NPT	EIEX INNER NO7	1	Jun 2003	
		A2EX INNER NO7			
	and the second sec	DIEX INNER NO 7	1946) 1946)		
	052300-B	OV FIEX BODY	2	Jun 2003	
		00 EXCG BODY	4 .	Jun 2003	
	0523-0-B	O EIEX BODY	2 -	Jun 2003	
		0 EXCG BODY	3	Jun 2003	
	052301-B	I EIEX BODY	j j	Jun 2003	
		LEXCGBODY	2	Jun 2003	
	052302-B	2 BIEX BODY		THUE SOUD	
1		2 EXCOBODY	3	Jun-2003	
	052303-8	3 ELEX BODY	2011 - 2012 - 20	Jun 2005	
		3 EXCG BODY	2	Jun 2003	
	052304-8	4 EIEX BODY		 	
		4 EXCG BODY	3	Jun 2003	4
:	052305-B	5 EIEX BODY		1 min zunco	
, b		<u>3 EXCG BODY</u>	, L		



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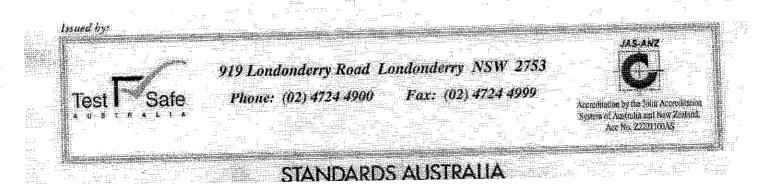
919 Londonderry Road Londonderry NSW 2753 Phone: (02) 4724 4900 Fax: (02) 4724 4999



EXPLOSION PROTECTED ELECTRICAL EQUIPMENT

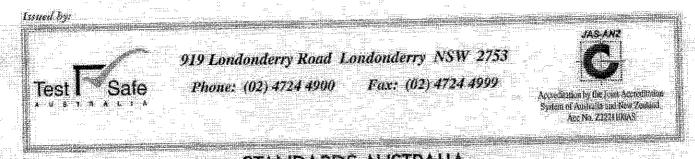
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ii.	Drawing Schedule continued:	Issue	Date	ri Na Ari
Drawing No	The second second second second second second second second second second second second second second second s	<u>assue</u> 3	Jun 2003	
052306-B	6 ELEX BODY	2	348.4 5.92	
	6 EXCG BODY	3	Jun 2003	
052307-B	7 EIEX BODY	1 <i>2</i>	Sources and	H H
	7 EXCG BODY		Feb 2003	
052300-CR	OD EIEX CONE RING	22.	at other at the second of	
	00 DIEX CONE RING			
	00 EXCG CONE RING	2	May 2003	
0523-0-CR	0 EIEX CONE RING		1977 - 1979 - 1979 1977 - 1979 - 1979 - 1979 - 1979 - 1979 - 1979 - 1979 - 1979 - 1979 - 1979 - 1979 - 1979 - 1979 - 1979 - 1979 -	
	0 DIEX CONE RING		Ele El II	
	0 EXCC CONE RING	1	Feb 2003	
052301-CR	1 EIEX CONE RING 1 DIEX CONE RING	34	a set a manufacture and a set a	
	1 EXCG CONE RING		::	
	2 EIEX CONE RING		Feb 2003	
052302-CR	2 DIEX CONERING			
	2 EXCG CONE RING			
052303-CR	3 EIEX CONE RING	1*	Feb 2003	
10222002768S	3 DIEX CONE RING		n	
	3 EXCG CONE RING		1995. Na managana da na managana da sa	
052304-CR	4 EIEX CONE RING		Feb 2003	
	4 DIEX CONE RING			
	4 EXCG COME RING			
052305-CR	S EIEX CONE RING	2	Feb 2003	
	5 DIEX CONE RING	- F		
	5 EXCG CONE RING	1	Feb 2003	
052306-CR	6 ELEX CONE RING	L .,	FEO 2003	
	6 DIEX CONE RING			
	6 EXCG CONE RING	1	Feb 2003	
052307-CR	7 EIEX CONERING	الله.	1.00 0003	1
	7 DIEX CONE RING			
	7 EXCG CONE RING		Feb 2003	
0.52300-C	ON ELEX CONE			
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EXPLOSION PROTECTED ELECTRICAL EQUIPMEN Administrate by Standards Australia Quality Associatice Services

	Drawing Schedule continued: Drawing Title	Issue	Date
Drawing No 052301-C	1 EIEX CONE	1	Feb 2003
DZOURC	I DIEX CONE		
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052302-C	2 EIEX CONE	3	Feb 2003
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	2 EXCG CONE		in and a second s
052303-C	3 EIEX CONE	2	Feb 2003
	3 DIEX CONE		
	3 EXCG CONE		
052304-C	4 EIEX CONE	1	Feb 2003
	4 DIEX CONE		
	4 EXCG CONE		Feb 2003
052305-C	5 ELEX CONE		100.2003
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052300-0	00 EIEX OUTER NUT	- 4	Jun 2003
0523-0-0	OEIEX OUTER NUT	1	Jun 2003
052301-0	I EIEX OUTER NUT	1	Jun 2003
052302-0	2 EIEX OUTER NUT		Jun 2003
052303-0	3 EIEX OUTER NUT		Jun 2003
052304-0	4 ELEX OUTER NUT		Jun 2003
052305-0	5 EIEX OUTER NUT		Jun 2003
052306-0	6 BIEX OUTER NUT	2	Jun 2003 Jun 2003
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Issued by:

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EXPLOSION PROTECTED FIRECTRICAL EQUIPMENT Administrated by: Standard's Australia Quality Assurance Services

Addendum to Certificate No.....

Drawing No.	Drawing Schedule continued: Drawing Title	Issue	Date	
0523-0-18	0 A2EX INNER SEAL	2 2 1	Peb 2003	
	0 EIEX INNER SEAL			
	0 DIEX INNER SEAL			
	0 EXCO INNER SEAL			
052301-18	1 A2EX INNER SEAL	3	Feb 2003	
	1 ETEX INNER SEAL			-
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052302-IS	2 A2EX INNER SEAL	. 🕱 .	Feb 2003	iri Qəhiliri
	2 EIEX INNER SEAL			
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052303-15	3 A2EX INNER SEAL	2	Apr 2003	
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052304-IS	4 A2EX INNER SEAL	2	Feb 2003	
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	4 DIEX INNER SEAL			
	4 EXCG INNER SEAL		Feb 2003	
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	5 DIEX INNER SEAL			
	5 EXCG INNER SEAL	1 2	Feb 2003	
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	6 BIEX INNER SEAL			1
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NU NU LLA	6 EXCOINNER SEAL		Jan 2003	
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	7 DIEX INNER SEAL			1
an and a second standard and a second standard and second standards and second standards and second standards a	7 EXCGINNER SEAL		Apr 2003	
05230-0-SR	00 HIEX SKID RING		Apr 2003	
05230-SR	0 EIEX SKID RING	1 1	Apr 2003	1
052501-58	I EIEX SKID RING		Apr 2003	1
052302-SR	2 EIEX SKID RING			

919 Londonderry Road Londonderry NSW 2753

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

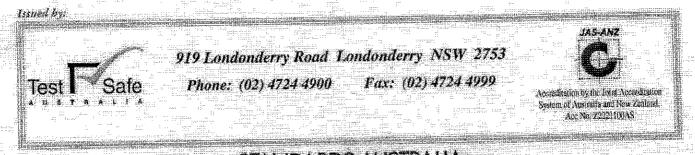
Accreditation by the Joint Accreditation System of Australia and New Zealand, Act No, 7222100045

Explosion Protected Electrical Equipment

Addendum to Certificate No.

Administered by Standards Australia Quality Assurance Services

Drawing Schedule continued:					
ģ	Drawing No	Drawing Title	Issue	Date	- A - A
	052303-SR	SEIEX SKID RING	ŧ.	Apr 2003	
	052304-SR	4 EIEX SKID RING	1	Apr 2003	
	052305-SR	5 EIEX SKID RING	<u>ji</u>	Apr 2003	
	052306-SR	6 EIEX SKID RING	i i i	Apr 2003	2
	052307-SR	7 EIEX SKID RING		Apr 2003	L. 397
	E.00.00.27.000/A	DIEX Exde CABLE GLAND	1 5 5	Apr 2003	
	E.00.00.27.000/B	DIEX Exde CABLE GLAND		Jun 2003	1
	E.00.00.27.000/C	DIEX Exde CABLE GLAND - NPT	4 5	7/10/2002	
Milad	E.00.00.27.000/D	DIEX EExde CABLE GLAND - NPT	\$	Jun 2003	
	051900-0	00 DIEX OUTER		Jun 2003	
	0519-0-0	0 DIEX OUTER	1	Jun 2003	
	051901-0	1 DIEX OUTER		Jun 2003	
	051902-0	2 DIEX OUTER	2	Jun 2003	
	051903-0	3 DIEX OUTER	2 2 1	Jun 2003	
	051904-0	4 DIEX OUTER	1	Jul 2002	
	051905-0	5 DIEX OUTER	2	Jun 2003	
	051906-0	6 DIEX OUTER	2	Jun 2003	
	051907-O	7 DIEX OUTER	2	Jan 2003	
	E.00:00.25.000/A	A2EX Exde CABLE GLAND	2	Apr 2003	
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	053700-SR	00 A2EX SKID RING	Original	Jun 2003	
	053700-SR	0 AZEX SKID RING	Original Original	In the second s second second seco	
	053701-SR	A2EX SKID RING	Original	Jun 2003	
	053702-SR	2 AJEX SKID RING	Original		
	053703-SR	3 A2EX SKID RING	Original		
	053704-SR	4 A2EX SKID RING	Original	A Dir transmission in the state of the	
	053705-SR	5 A2EX SKID RING	Original	and the second	2
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	053707-SR	7 AZEX SKID RING	Original	📲 e a constante de la constante	
	053600-C	00 A2EX CONE		Jun 2003	
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	05361-C	NO 1 A2EX CONE		Jun 2003	
	05362-C	NO 2 A2EX CONE	L	1 4 (1) (1 (1) (1) (1)	



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EXPLOSION PROTECTED ELECTRICAL EQUIPMENT

Auramistered by Standards Australia Quality Assurance Services

Addendum to Certificate No.....

Drawing Schedule continued:				
Drawing No	Drawing Title	Issue	Date	
05363-C	NOS ACEX CONF		Jun 2003	
05364 C	N64 A2EX CONF	Original	Jun 2003	
05365-C	NO-SA2EX CONE	Original	Jun 2003	
05366-C	NO 6 A2EX CONE	Original	Jun 2003	
15367.C	NO 7 A2EX CONE	Original	Jun 2003	
053700-0-OS	00 A2EX GRIPPER SEAL	Original	Jun 2003	
053700-08	0 ASEX GRIPPER SEAL	Original	Jun 2003	
053701-05	LEADEX GRIPPER SEAL	Original	Jun 2003	
053702-GS	2 A2EX ORIPPER SEAL	Original	Jun 2003	
053703-GS	3 A2EX GRIPPER SEAL	Original	Jun 2003	
053704-05	4 A2EX GRIPPER SEAL	Original	Jun 2003	
053705-68	5 A2EX GRIPPER SEAL	Original	Jun 2003	
053706-68	6 A2EX GRIPPER SEAL	Original	Jun 2003	
053707-05	7 A2PX GRIPPER SEAL	Original	Jun 2003	
053700-O	OP A2EX OUTER		Jan 2003	
053700-Q	0 A2FX OUTER		Jun 2003	
053701-0	LAZEX OUTER	1	Jun 2003	
053702-0	2 A2EX OUTER		Jun 2003	
053703-0	3 A2FX OUTER	L L	Jun 2003	
053704-0	4 A2EX OUTER		Jun 2003	
053705-0	5 A2EX OUTER		Jun 2003	
053706-0	6 AZEX OUTER		Jun 2003	
053707-0	7 A2DX OUTER	n na in the being being	Jun 2003	
051900-03W	AZEX WASHER 00-07		Jun 2003	
	DIEX WASHER 00 07			
	LIEX WASHER 60-07			
100302	Gland Marking	2.1	Apr 2003	

Issued by:

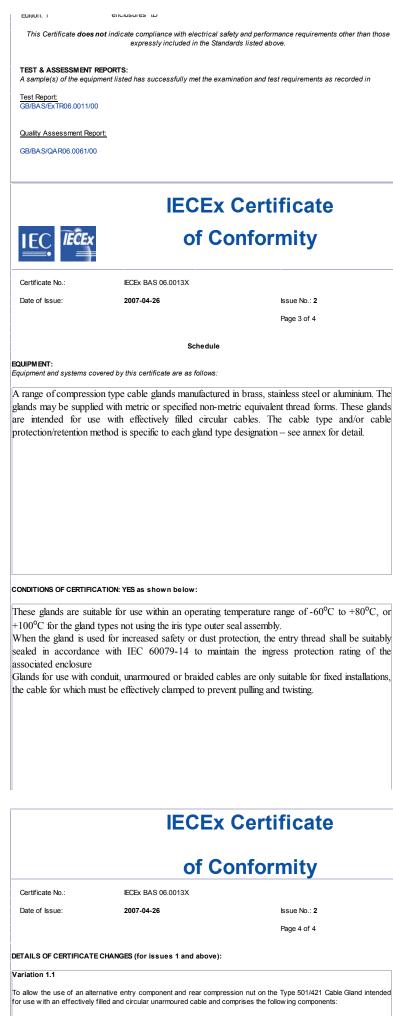


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	ix IE	IECEx Certificate			
INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification Scheme for Explosive Atmospheres					
	for rules and details of	the IECEx Scheme visit w w w .iecex.c	:om		
Certificate No .:	IECEx BAS 06.0013X	issue No.:2	Certificate history:		
Status:	Current		Issue No. 5 (2011-6-21) Issue No. 4 (2009-9-17) Issue No. 3 (2008-10-1)		
Date of Issue:	2007-04-26	Page 1 of 4	Issue No. 2 (2007-4-26)		
Applicant:	Hawke International A Division of Hubbell Ltd. A member of the Hubbell G Oxford Street West, Ashto Lancashire, OL7 ONA United Kingdom				
Electrical Apparatus: Optional accessory:	A Range of Compression	on Type Cable Glands,			
Type of Protection:	Ex d, Ex e, Ex tD				
Marking:	Ex d IIC Ex e II Ex tD A21 (- 60°C ≤ ta ≤ + 80°C [or +	IP66 ⊦100°C see Special Conditions])			
Approved for issue on Certification Body:	behalf of the IECEx	R S Sinclair			
Position:		Managing Director			
Signature: (for printed version)					
Date:					
	t transferable and remains the lenticity of this certificate may l Baseefa (2001) Ltd. Rockhead Business Park Staden Lane Buxton Derbyshire SK17 9RZ United Kingdom	be verified by visiting the Official IECE	x Website.		
	IECEx IECEx Certificate of Conformity				
Certificate No .:	IECEx BAS 06.001	3X			
Date of Issue:	2007-04-26		e No.: 2 e 2 of 4		
Manufacturer:	Hawke Intern A Division of Hu A member of th Oxford Street V Ashton-under-1 Lancashire OL7 0NA United Kingdo	lational ubbell Ltd. le Hubbell Group of Companies Vest -yne	2 0 1 4		
Manufacturing locatio	n(s):				
This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEX Quality system requirements. This certificate is granted subject to the conditions as set out in IECEX Scheme Rules, IECEX 02 and Operational Documents as amended.					
	tus and any acceptable variation and to comply with the following	ons to it specified in the schedule of th standards:	his certificate and the identified		
IEC 60079-0 : 2004	Eectrical apparatus fo	or explosive gas atmospheres - Part 0	: General requirements		
Edition: 4.0 IEC 60079-1 : 2003 Edition: 5	Bectrical apparatus fo	or explosive gas atmospheres - Part 1	: Flameproof enclosure 'd'		
IEC 60079-7 : 2001	Eectrical apparatus fo	or explosive gas atmospheres - Part 7	: Increased safety 'e'		



. An alternative entry component, in the size range Os to F (M16 to M75)

The alternative rear compression nut can be readily interchanged with the existing certified components.

Variation 1.2

To allow the use of an alternative entry component, body nut and rear compression nut on the Type 501/423 Cable Gland intended for use with an effectively filled and circular unarmoured cable and comprises the following components:-

- An alternative entry component, in the size range Os to F (M16 to M75) a.
- Tw o compressible sealing rings Tw o compression spigots
- b. c. d. e. f. An alternative body nut in size range Os to F An alternative rear compression nut in size range Os to F
- An optional earth continuity device for use with metallic sheathed cables

The alternative body nut and rear compression nut can be readily interchanged with the existing certified components.

Variation 1.3

To allow the use of an alternative entry component, and alternative compression spigot (body) and integral rear compression nut on the Type 501/414 Conduit Stopping Gland intended for use with an effectively filled and circular unarmoured cable enclosed within a conduit and comprises the following components:

An alternative entry component, in the size range O to F (M16 to M75) A compressible sealing ring

b. c. An alternative compression assernation and integral alternative rear compression nut. An alternative compression assembly comprising a compression spigot with a female thread at the rear (body)

The alternative compression spigot and integral rear compression nut can be readily interchanged with the existing certified components

Variation 1.4

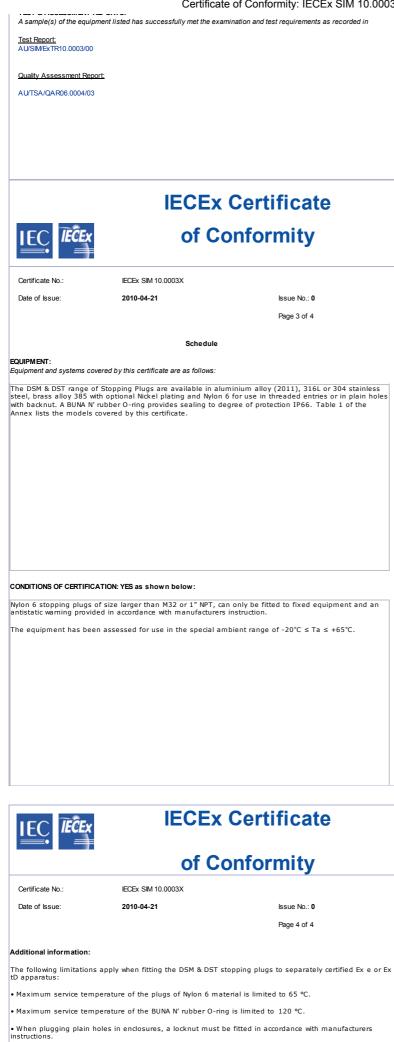
To allow the use of an alternative entry component, an alternative compression spigot and integral rear compression nut on the Type SB474 Conduit Stopping Gland intended for use with a number of circular conductors enclosed within a conduit and comprises the follow ing components:

- An alternative entry component, in the size range A to C (M20 to M32) A compressible seal, punched to accept a number of individual conductors
- a. b. c.
 - An alternative compression assembly comprising a compression spigot with a female thread at the rear (body) Annexe: IECEx BAS 06.0013x.pdf

Certificate of Conformity: IECEx SIM 10 0003X

			IECEx Certificate of Conformity	
INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification Scheme for Explosive Atmospheres for rules and details of the IECEx Scheme visit w ww.iecex.com				
Certificate No.:	IECEx SIM 10.0003X	issue No.:0	Certificate history:	
status:	Current]	Issue No. 1 (2010-7-16) Issue No. 0 (2010-4-21)	
Date of Issue:	2010-04-21	Page 1 of 4		
opplicant:	Govan Industries Pty 131-149 Link Drive CAMPBELLFIELD VIC 306 Australia			
Dectrical Apparatus: Dptional accessory:	DSM & DST Range of S	topping Plugs		
ype of Protection:	e, tD			
farking:	Ex e II T6 IP66 Ex tD A21 IP66 -20 °C ≤ Ta ≤ +65 °C			
Approved for issue or Certification Body:	behalf of the IECEx	Ashraf Chow dhury		
Position:		Principal Engineer		
Signature: 'for printed version)				
Date:				
The Status and aut		s the property of the issuing body. may be verified by visiting the Official IE ation (Simtars)	CEx Website.	
 The Status and auti ertificate issued by: 	henticity of this certificate r esting and Research St 2 Smith Street REDBANK QLD 4301	may be verified by visiting the Official IE	Simtars	
B. The Status and autherities and autheriti	henticity of this certificate r esting and Research St 2 Smith Street REDBANK QLD 4301	IECEx Certif	Simtars Queensland Government	
8. The Status and aut	henticity of this certificate r esting and Research St 2 Smith Street REDBANK QLD 4301	IECEx Certification (Simtars)	Simtars Queensland Government	
8. The Status and aut ertificate issued by: Safety in Mines T	esting and Research St 2 Smith Street REDBANK QLD 4301 Australia	nay be verified by visiting the Official IE (ation (Simtars) IECEX Certifon of Conform	Simtars Queensland Government	
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The Status and auti artificate issued by: Safety in Mines T Safety in Mines T Certificate issue Certificate No.: Date of Issue: Manufacturer: M	IECEX SM 10 ESTING AND ASSISTED ESTING AND ASSISTED ESTING	ration (Simtars)	Simtars Queensland Government Ficate http://www.commonsciences.com	

Certificate of Conformity: IECEx SIM 10.0003X



• Clearance hole diameter of a plain hole must not be greater than 1 mm of the plug diameter.

Certificate of Conformity: IECEx SIM 10.0003X

 In order to avoid potential ignition due to electrostatic discharge, the Nylon 6 stopping plugs of size larger than M32 or 1" NPT, can only be wiped with a damp cloth. 		

Annexe: IECEx SIM 10.0003X-0 Annex.pdf



EXPLOSION PROTECTED ELECTRICAL EQUIPMENT

Certificate of Compliance

This certificate is issued for the electrical equipment:

Range of Cable Glands

Submitted for certification by: Crouse-Hinds Australia Pty Ltd 391 Park Road REGENTS PARK NSW 2143

and manufactured by: Crouse-Hinds Australia Pty Ltd

This electrical equipment and any acceptable variation thereto is specified in the Schedule or Schedules attached hereto and in the documents referred to therein.

This certifies that the equipment described has been found to comply with AS 2380.1-1989, AS 2380.2-1991 including amendment 1, AS 1939-1990 and AS 1828-1984 including amendment 1.

TYPE OF PROTECTION: Ex d IIC IP66/IP67 Class I Zone 1

This certificate is granted subject to the conditions as set out in Standards Australia Miscellaneous Publication MP42 and any additional conditions as may be prescribed by Standards Australia.

Test Report No: Redbank NE92/0133

File: P/3: 92027.M170

Date of Issue: 24 May 1993

Date of Expiry of Validity: 24 May 2003

Page 1 of 4

Signed for and on behalf of Standards Australia

General Manager Quality 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 renewed



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



Certificate of Compliance

SCHEDULE

Description of Equipment:

The Range of Cable Glands covered by this certificate is shown in Schedule 1.

Drawings:

101-GA001 Sheet 1	Revision 3	19 March 1993
101-GA001 Sheet 2	Revision 2	19 March 1993
101-GA002 Sheet 1	Revision 2	19 March 1993
101-GA002 Sheet 2	Revision 1	19 March 1993
101-GA003 Sheet 1	Revision 1	19 March 1993
101-GA003 Sheet 2	Revision 2	19 March 1993
102-GA001 Sheets 1,2	Revision 2	19 March 1993
102-GA002 Sheets 1	Revision 1	19 March 1993
102-GA002 Sheets 2	Revision 2	19 March 1993

Page 2 of 4

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General Manager Quality Assurance Services

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



Certificate of Compliance

SCHEDULE 1

	"TERMINATOR" GLANDS			
ENTRY				
TYPE	SWA Barrier Cable Gland with	SWA Flameproof Cable Glands		
	Neoprene Outer Seal and Epoxy	with Neoprene Inner Seal		
	Compound Inner Seal	and Outer Seal		
METRIC (ISO)-NPT-BSP	TWAB1-16			
OR PG ENTRY TYPES	TWAB1-20			
	TWAB1 20			
(Add M-N-B-P to the space	TWAB3-34			
in the Cat. No. description	TWAB4-40			
as necessary)	TWAB5-53			
	TWAB6-66			
Drawing Number 101-GA003	TWAB7-78			
Sheet 1 of 2 Refers				
NPT ENTRY TYPES	TWAB1N16	TWAX1N13		
Drawing Number 101-GA002	TWABIN20	TWAXIN16		
Sheet 1 of 2 Refers	TWAB2N27	TWAX1N20		
for TWAB Glands	TWAB3N34	TWAX2N24		
	TWAB4N40	TWAX2N27		
	TWAB5N53	TWAX3N30		
	TWAB5N66	TWAX3N33		
Drawing Number 102-GA002	TWAB7N78	TWAX4N38		
Sheet 1 of 2 Refers		TWAX5N43		
for TWAX Glands		TWAX5N48		
		TWAX6N52		
		TWAX6N60		
		TWAX7N65		
		TWAX7N71		
		TWAX8N78		

Page 3 of 4

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General Manager

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Certificate of Compliance

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SCHEDULE 1 - (Cont'd)

RICAL

ECT

XPLOSION PROTECTED

EQUI

	"TERMINATOR" GLANDS				
ENTRY Type	SWA Barrier Cable Gland with Neoprene Outer Seal and Epoxy Compound Inner Seal	SWA Flameproof Cable Glands with Neoprene Inner Seal and Outer Seal			
METRIC (ISO)	TWAB1M16	TWAX16M13			
Drawing Number 101-GA001	TWAB1M20	TWAX1M13			
Sheet 1 of 2 Refers	TWAB2M27	TWAX1M16			
for TWAB Glands	TWAB3M34	TWAX1M20			
	TWAB4M40	TWAX1M24			
	TWAB5M53	TWAX1M27			
	TWAB6M66	TWAX3M30			
Drawing Number 102-GA001	TWAB7M78	TWAX3M33			
Sheet 1 of 2 Refers	TWAB8M88	TWAX4M38			
for TWAX Glands		TWAX5M43			
		TWAX5M48			
		TWAX5M52			
		TWAX6M60			
		TWAX6M65			
		TWAX7M71			
		TWAX7M78			

Page 4 of 4

Signed for and on behalf of Standards Australia

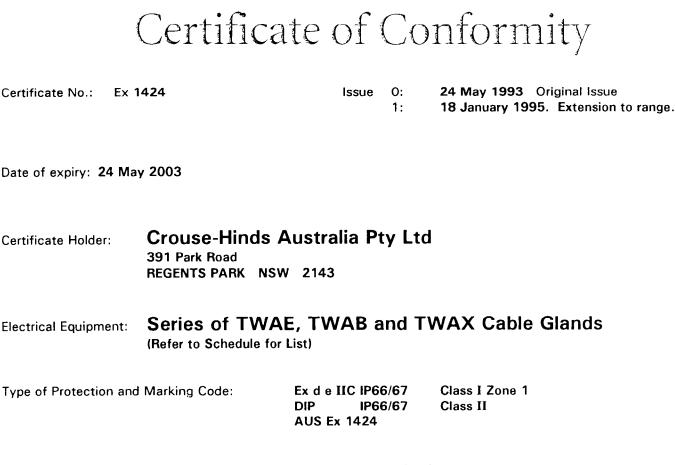
General Manager Quality Assurance Services

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EXPLOSION PROTECTED ELECTRICAL EQUIPMENT

Administered by: Standards Australia Quality Assurance Services



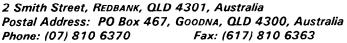
Manufactured by:

Crouse-Hinds Australia Pty Ltd

Issued by:











Quality System Certified to AS3902/ISO9002 Registration No 6039

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 2380.6 - 1988	Electrical equipment for explosive atmospheres - Explosion-protection techniques Part 6: Increased safety
AS 2236 - 1994	Electrical equipment for explosive atmospheres - Dust-excluding ignition-proof (DIP) enclosure
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: NE94/0053, NE94/0057 30/001/0172 (P80044) File Reference:

Signed for and on behalf of issuing authority

Certificate No.: Ex 1424

Manager - Redbank Testing and Certification Centre Position

18 January 1995

Date of issue

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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.

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Issue: 1

Quality System Certified to AS3902/ISO9002 Registration No 6039

EXPLOSION PROTECTED ELECTRICAL EQUIPMENT

Administered by: Standards Australia Quality Assurance Services

Schedule

Equipment:

This certificate covers the full range of cable glands including the flameproof glands previously certified under original Certificate Aus Ex 1424X and are listed in Table 1 of this Schedule.

TERMINATOR	ENTRY TYPE						
GLANDS	METRIC	NPT	BSP	PG	IMP		
SWA BARRIER GLANDS OUTER SEAL AND E POXY COMPOUND. INNER SEAL. O-RING SEAL IN GLAND BODY OPTION	TWAB1M-16 TWAB1M-20 TWAB2M-27 TWAB3M-34 TWAB3M-34 TWAB4M-40 TWAB5M-53 TWAB6M-66 TWAB6M-66	TWAB1N-16 TWAB1N-20 TWAB2N-27 TWAB3N-34 TWAB4N-40 TWAB5N-53 TWAB6N-66 TWAB7N-78	TWAB1B-16 TWAB1B-20 TWAB2B-27 TWAB3B-34 TWAB4B-40 TWAB5B-53 TWAB6B-66 TWAB7B-78	TWAB13.5P-16 TWAB13.5P-20 TWAB21P-27 TWAB29P-34 TWAB36P-40 TWAB42P-53	TWAB2I-16 TWAB2I-20 TWAB2I-27 TWAB3I-34 TWAB4I-40 TWAB5I-53 TWAB6I-66 TWAB7I-78		
SWA FLAMEPROOF CABLE GLAND WITH INNER AND OUTER SEAL	TWAX16M13 TWAX1M13 TWAX1M16 TWAX1M20 TWAX2M24 TWAX2M27 TAWX3M30 TAWX3M33 TWAX4M38 TWAX5M43 TWAX5M43 TWAX5M43 TWAX5M48 TWAX5M52 TWAX6M60 TWAX6M65 TWAX7M71 TWAX7M78	TWAX1N13 TWAX1N16 TWAX1N20 TWAX2N24 TWAX2N27 TWAX3N30 TWAX3N33 TWAX4N38 TWAX5N43 TWAX5N43 TWAX5N43 TWAX5N48 TWAX5N48 TWAX5N48 TWAX6N52 TWAX6N52 TWAX7N65 TWAX7N71 TWAX8N78	TWAX1B13 TWAX1B16 TWAX1B20 TWAX2B24 TWAX2B27 TWAX3B30 TWAX3B33 TWAX4B38 TWAX4B38 TWAX5B43 TWAX5B43 TWAX5B43 TWAX5B48 TWAX5B48 TWAX6B52 TWAX6B52 TWAX7B65 TWAX7B71 TWAX8B78	TWAX13.5P13 TWAX13.5P16 RWAX16P16 TWAX21P24 TWAX21P27 TWAX21P30 TWAX29P33 TWAX36P38 TWAX42P43 TWAX42P43 TWAX42P48 TWAX42P52 	TWAX1113 TWAX1116 TWAX2120 TWAX2127 TWAX3130 TWAX3133 TWAX4138 TWAX5143 TWAX5143 TWAX5148 TWAX6152 TWAX6152 TWAX6160 TWAX7165 TWAX7171 TWAX8178		

TABLE 1

Issued by:

Certificate No.: Ex 1424 Issue: 1 Date of Issue: 18 January 1995



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Quality System Certified to AS3902/ISO9002 Registration No 6039

EXPLOSION PROTECTED ELECTRICAL EQUIPMENT

Administered by: Standards Australia Quality Assurance Services

Addendum to Certificate No......: Ex. 1424 Issue: 1 Date of Issue: 18 January 1995

TERMINATOR							
GLANDS	METRIC	NPT	BSP	PG	IMP		
SWA EX e DIP	TWAE 1M16	TWAE 1N16	TWAE 1B16	TWAE 13.5 P16	TWAE 1116		
CABLE GLANDS	TWAE 1M20	TWAE 1N20	TWAE 1B20	TWAE 13.5 P20	TWAE 1120		
WITH OUTER	TWAE 2M27	TWAE 2N27	TWAE 2B27	TWAE 21 P27	TWAE 2127		
SEALS.	TWAE 3M34	TWAE 3N34	TWAE 3B34	TWAE 29 P34	TWAE 3134		
RETAINED 1.5m	TWAE 4M40	TWAE 4N40	TWAE 4B40	TWAE 36 P40	TWAE 4140		
NYLON SEALING	TWAE 5M53	TWAE 5N53	TWAE 5B53	TWAE 42 P53	TWAE 5153		
WASHER FOR	TWAE 6M66	TWAE 6N66	TWAE 6B66		TWAE 6166		
METRIC ENTRIES.	TWAE 7M78	TWAE 7N78	TWAE 7B78		TWAE 7178		
OPTION O-RING							
SEAL IN GLAND					1		
BODY.							

TABLE 1 (Continued)

The following drawings are included in the documentation for this Certificate of Conformity:

Drawing No.	Drawing Title	Revision No.	Drawn/ Revision Date
	CERTIFICATION DWG 'TERMINATOR' SWA EX e DIP CABLE GLANDS		
103-GA003	SHEET 1 OF 1	3	2-11-93
103-001	WEATHERPROOF GLAND BODY (METRIC) SHEET 1 OF 1	10	23.9.94
103-002	WEATHER PROOF N.P.T. GLAND BODY SHEET 1 OF 1	8	23.9.94

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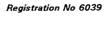
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Addendum to Certificate No: Ex .1424 1

Issue:

Date of Issue:

18 January 1995

Drawing No.	Drawing Title	Revision No.	Drawn/ Revision Date
101-GA003	CERT. DWG "TERMINATOR" SWA BARRIER C/GLANDS WITH 'O' RING SEAL SHEET 1 OF 2	2	16-02-94
101-GA003	CERTIFICATION DWG "TERMINATOR" SWA BARRIER C/GLANDS FOR METRIC (I.S.O.) ENTRIES WITH 'O' RING SEAL SHEET 2 OF 2	4	25-05-94
102-GA001	CERTIFICATION DWG "TERMINATOR" SWA FLAMEPROOF C/GLANDS FOR METRIC (I.S.O.) ENTRIES WITH INNER AND OUTER SEAL SHEET 1 OF 2	3	16-02-94
102-GA001	CERTIFICATION DWG "TERMINATOR" SWA FLAMEPROOF C/GLANDS FOR METRIC (I.S.O.) ENTRIES WITH INNER SEAL AND OUTER SEAL SHEET 2 OF 2	4	25-05-94
102-GA002	CERTIFICATION DWG "TERMINATOR" SWA FLAMEPROOF C/GLANDS FOR N.P.T. ENTRIES WITH INNER SEAL AND OUTER SEAL SHEET 1 OF 2	2	16-02-94
102-GA002	CERTIFICATION DWG "TERMINATOR" SWA FLAMEPROOF C/GLANDS FOR N.P.T. ENTRIES WITH INNER SEAL AND OUTER SEAL SHEET 2 OF 2	4	25-05-94

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6 Equipment 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) $L/R = 56 \ \mu H/\Omega$.

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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

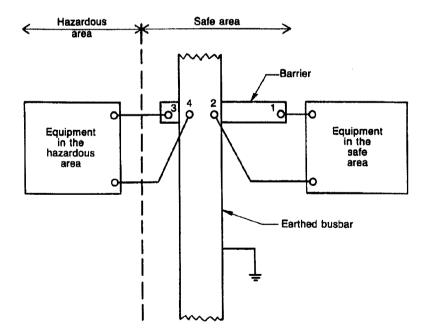
EXTERNAL PARAMETERS MAXIMUM VALUES FOR GROUP IIC (HYDROGEN)*

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
Ι 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

,

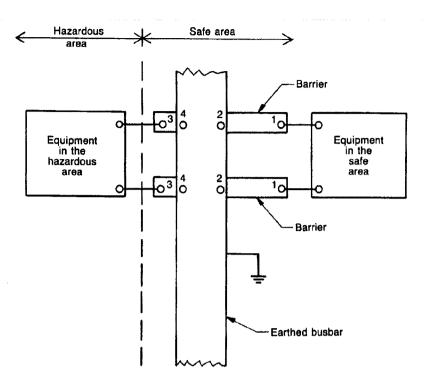


FIGURE A2 INSTALLATION CONFIGURATION 2-WIRE SYSTEM WITH TWO BARRIERS OF LIKE POLARITY

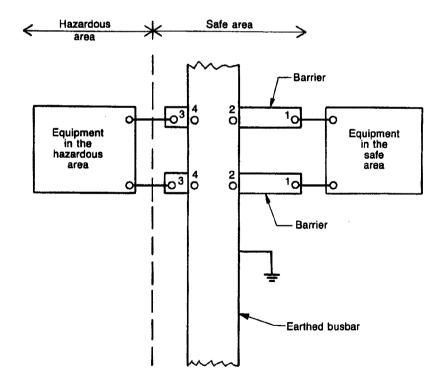


FIGURE A3 INSTALLATION CONFIGURATION 2-WIRE SYSTEM WITH TWO BARRIERS OF OPPOSITE POLARITY

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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

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APPENDIX C

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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

I = 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.

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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

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Ex e component			Cable	Total	
Туре	Qty	Load or rating mm ² A		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, Operation 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 Partne ENVIRONMEN	IT	MAINTEN REGIST	ER							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
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ING	REMARKS

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DATE	DESCRIPTION	ASSOCIATED TAGS	P&ID	DATASHEET	HA EQUIPMENT REGISTER	CERTIFICATE OF CONFORMITY	INSTALLATION CHECK LIST	REPAIR & EXAMINATION REPORT	HA CLASSIFICATION	HA DRAWIN
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ING	REMARKS

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							DOSSIER	UPDATE AS REQU	JIRED (YES / NO / I	NA)
DATE	DESCRIPTION	ASSOCIATED TAGS	P&ID	DATASHEET	HA EQUIPMENT REGISTER	CERTIFICATE OF CONFORMITY			HA CLASSIFICATION	
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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 10 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\fyf1 fyfe pty Itd hazardous areas reporting award 28.07.11\fyf3 fyfe northern end pipline\reports\darwin city gate\electrical equipment for hazardous area summary report - darwin city gate 22.09.11.docx

22 September 2011

FYFE PTY LTD Level 3, 80 Flinders St Adelaide SA 5000

Attention: Tony Bird

Dear Tony,

RE: AMADEUS PIPELINE – DARWIN CITY GATE 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 9th 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 Winnellie NT 0821 tel: +61 8 8922 4000 fax: +61 8 8922 4044 email: admin@sitzler.com.au www.sitzler.com.au



A compilation of the inspection findings/actions across the installation is provided as follows:

- 1. Re- tightening of loose cable glands.
- 2. Terminate exposed cabling appropriately and earth or completely remove where located within and/or passing through hazardous classified areas.
- Sealing of conduit surrounding instrument cabling to prevent transmission of flammable gases.
- 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.
- 5. Application of blue cable sheathing and/or labelling to clearly identify intrinsically safe installations.
- 6. Provide additional cable support and cover to prevent further mechanical and ultraviolet damage and where cabling rests on process piping.
- 7. Replace/remediate cabling where long term ultraviolet damage has occurred.
- 8. Replacement of uncertified hazardous area installed equipment and insufficiently ingress protected/damaged components with certified equipment.
- 9. Verification of flameproof versus I.S. installation & design techniques with respect to mixed certified adaptors and uncertified equipment.
- 10. Provide approved rated labels to poorly legible explosion proof equipment.
- 11. Replacement of equipment impending failure due to corrosion, age and poor condition.
- Verification of installed explosion proof equipment, however not certified to Australian standards, by performing conformity and/or fitness for purpose assessments to Australian standards.

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,

N. Curen

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: 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, ex-i, ex-n, ex-p and other ex devices.doc

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Specifications

G	en	era	al
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Device ID or tag: (TE-I()	Asset: STATION INLET
Circuit ID:	Physical location: DARMIN CITY GONE
Area classification :	Environment: (hot?)

.

Data from Label

Apparatus type: (light, JB, Motor)	Type of protection: (d,e, i, n, etc)	
Manufacturer:	Gas group: (IIA/B/C)	-
Full model number.	Temp class: (T1-T6)	-
Serial number:	Certificate number:	1
IP Class	Test authority: (BAS, PTB; SAA etc)	-

Number of cables:

For each cable entry	gland 1		gland 2	others	
Gland manufacturer:	ALCO		-		
Model:	WELDS	,			
Gland type of protection: (d.e)					

A Equipment	Applicable to .		External	
Equipment (incl group and temp class) is appropriate for area classification	all	X	X	
Equipment ID or circuit ID is correct	all	X	00	- CCT
Enclosure, sealing gaskets or compounds are satisfactory	all	X	Ø	-EQ
There are no damage or evidence of unauthorised modifications	. all	X	~	1
Bolts, cable entries and blanking elements are correct and tight	all	X	8	1
Flange facings are clean and undamaged	d	X		
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		1
Motor fans have sufficient clearance	motors only	X		
Installation clearly labelled	ì	X	8	SUCAT
Safety barriers/isolators installed as per certification and securely earthed where required	ì	×	\bigotimes]
Entity calculation/documentation is available	i	X	X	1

B Installation

					4
1	Type of cable is appropriate, cables are undamaged	all	Х	8	U
	Sealing of ducts and/or conduits is satisfactory	all	Х	Ø]
	Stopper boxes or barrier glands are properly filled	d	X		1
	Integrity of conduit system and interface with mixed system is maintained	alí	Х		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	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		1
	Cables/spare cores are terminated satisfactorily	all	Х		1
	No obstructions adjacent to flameproof flanged joint	d	Х	X	1
	Ducts, pipes and enclosures are in good condition	р	Х	Х	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		1
	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		

Amadeus Pipeline Electrical Inspections



18	Cables are installed and screens are earthed in accordance with the documentatio0n	i	х	
1 9	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	

C Environment

	C Environment			
1	Apparatus adequately protected from corrosion, weather, vibration, other	all	Х	\otimes
2	No undue accumulation of dust or dirt	all	X	X
3	Electrical insulation is clean and dry	all	Х	

-

Date:

Faults found? (circle as appropriate)

No:

Date:

Yes:	List action required		-
Contra	ctor (write): Inspector N. GREEN	Supervisor	Client (write): Inspector

Device ID or tag

9/9/11

Device ID			
Action re	quired to make device compliant:		
-	Equipment + call	le I.D. required	
-	Blue sheath to	cable reymied	
-	UV damage to co	able requies remediation.	

Reviewed by: N. CREEP Date: 21(9)11 Priority:

Comments:				
	_			
All action items now completed:				
Job closed:				
Device new fully compliant, any address	wasiatan haa	heen undefed		
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



Specifications

General

Device ID or tag: PT-13	Asset: STAFUDY INLET
Circuit ID: JOO8	Physical location: DAR WIN CITY GATE
Area classification :	Environment: (hot?)

Data from Label

Apparatus type: (light, JB; PRESSURE TRANSMITTER	Type of protection: (d,e, i_n, p 。 etc)
Manufacturer: BOSEMOUNT	Gas group: (IIA/B/C)
Full model number: 3051764A2B21BB417MST	Temp class: (T1-T6)
Serial number: RSOBO 3742	Certificate number: AVS Ex. J249X
IP Class	Test authority: (BAS, PTB, SAA etc)

Number of cables:

For each cable entry	gland 1	gland 2	Lothers PLUG
Gland manufacturer:	AG		REDAPT
Model:	W6203	- A:	a the second second second
Gland type of protection: (d,e)			DEx d, HC
		See Server make	

Inspection -

	75	3	Applicable to		ļ	
	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	Х	8	
3	Enclosure, sealing gaskets or compounds are satisfactory		a#	Х		
4	There are no damage or evidence of unauthorised modifications		all	Х	\bigotimes	
5	Bolts, cable entries and blanking elements are correct and tight		all	X		
6	Flange facings are clean and undamaged		d	Х		
7	Lamp rating, type and position correct		all	Х		
8	Electrical connections are tight		all	Х		
9	Hermetically sealed devices are undamaged		กํ *	Ϋ́		
10	Restricted breathing enclosure is satisfactory to enclosure and/or covers		n	Χ.,		
11	Motor fans have sufficient clearance		motors only	Χ,		CHARGE A COMMON
12	Installation clearly labelled		i	Х	Ø	Sheaty
13	Safety barriers/isolators installed as per certification and securely earthed when	e	i	х	8	
	required				~	
14	Entity calculation/documentation is available		Ì	Х	X	

B Installation

	Bilistanation			
1	Type of cable is appropriate, cables are undamaged	all	Х	(3)
2	Sealing of ducts and/or conduits is satisfactory	all	Х	Ø
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	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	ali	Х	
10	Cables/spare cores are terminated satisfactorily	all	Х	
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	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	p	х	

Amadeus Pipeline Electrical inspections

[0], X

Circle as checked

VV



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		~	

C Environment

	C Environment				
1	Apparatus adequately protected from corrosion, weather, vibration, other	all	X	8	CORROSION
2	No undue accumulation of dust or dirt	all	X	1X	
3	Electrical insulation is clean and dry	all	X	5	

Faults found? (circle as appropriate)

 No:

 Yes:
 List action required

 Contractor (write): Inspector
 Supervisor

 Date:
 9(9)11

 Date:
 Date:

Device I	D or	tag
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	quired to make device compliant:
-	Blue sheath to cable.
-	Remediate UV damaged cable steath.
-	Corrolian to davice, suggest internal inspection.
- 3	

Reviewed by:	N. GAEEN	
Date: 21(9) 11 Priority:		
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



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, exi,ex-n,ex-p and other ex devices.doc

Specifications

General

Device ID or tag: PY-17	Asset: DARWING UTY GATE,	
Circuit ID: -	Physical location: STATION SOPALATOR FS-2 INLET	+CV-17
Area classification :	Environment: (hot?)	

Data from Label

Apparatus type: (light, JB, Motor)	Type of protection: (d,e, i, n, p etc)	-
Manufacturer: FISWER	Gas group: (IIA/B/C)	-
Full model number: DVC SOID	Temp class: (T1-T6)	-
Serial number: 13184549	Certificate number:	-
IP Class	Test authority: (BAS, PTB, SAA etc)	-

Number of cables:

For each cable entry	gland 1	gland 2	others BUNG/PLUG
Gland manufacturer:	CLIPSAL	ALCO ALCO	-
Model:	FAIINM	W 6202	*
Gland type of protection: (d,e)	d		1

Inspection

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17

Inspe	ection		Circle a	is checked	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	8	- CCT
3	Enclosure, sealing gaskets or compounds are satisfactory	all	X	8	-EQ
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	8	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	<u>م</u>	X		
11	Motor fans have sufficient clearance	motors only	X		ame ,
12	Installation clearly labelled	i	X	Ø	SHEATH .
13	Safety barriers/isolators installed as per certification and securely earthed where required	i	x	\bigotimes	NON 2. J: 2
14	Entity calculation/documentation is available	i	Х	X	۲.
	B Installation				
1	Type of cable is appropriate, cables are undamaged	all	X	8	· UV
2	Sealing of ducts and/or conduits is satisfactory	all	X	8	-UV -support
3	Stopper boxes or barrier glands are properly filled	d	X		a place
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	Ø	
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 correctly and operate within	all	~		1
	permitted limits		X		
9	Special certification conditions U,X or B have been complied with	all	X		1
10	Cables/spare cores are terminated satisfactority	all	X		1
11	No obstructions adjacent to flameproof flanged joint	d	X	X]
					-

Protective gas flow/pressure is adequate

Pre-energising purge period is adequate

Pressure and/or flow indicators, alarms and interlocks function correctly

Condition of spark/particle barriers of ducts exhausting the gas into hazardous area are satisfactory		Х	
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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	í	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	¢.
2	No undue accumulation of dust or dirt	all	Х	×
3	Electrical insulation is clean and dry	all	Х	

Faults found? (circle as appropriate)

 Ves:
 List action required

 Contractor (write): Inspector
 Supervisor

 Date:
 9/9/11

Device ID or tag

No:

Action required to make device compliant; - Equipment + calle I.D. required - Remodiate UV damaged sheath - Cable appears to have the sheath however device Ex rating not available and I.S. barier not confirmed infhim worked hat. Item (bucsoid) does contain dual Ex d/Exi certification. Further involdigation required. - uncertified bland loding it Excle method at protection. - Catle support required.

Reviewed by: N.C.REEN Date: 21/9/11 Priority:

Comments:		
ooniniento.		
All action items now completed		
All action items now completed:		
Job closed:		
Device now fully compliant, spreads	heet register 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



Circle as checked

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Ref: I:\data\sitzter\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	nerał
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Generat	
Device ID or tag: 2SC -17	Asset: TCV-17
Circuit ID:	Physical location: DARWIN CETY GATE
Area classification :	Environment: (hot?)

Data	from	Label	

Apparatus type: (light, JB, Motor) VALVE LEMIT SWITCH	Type of protection: (d,e, i, n, p etc) Class 1 (ENCL4
Manufacturer: FISHER	Gas group: (11A/B/C) GBOUP C&D
Full model number: 304	Temp class: (T1-T6)
Serial number: 9644633	Certificate number: AUS Ex 736 ?
IP Class	Test authority: (BAS, PIB, SAA etc)

Number of cables:

		ADAPTOR	
For each cable entry	gland 1	gland 2	others
Gland manufacturer:	2	2	
Model:	2	3	a second and a second
Gland type of protection: (d,e)	?	~	

Inspection -

1 2 3 4 5 6 7	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	Applicable to protection type: all all all all d d all	Internal X X X X X X X X	External X X X X X X X X X X X X X X X X X X X	- 69 - 667
8 9	Electrical connections are tight Hermetically sealed devices are undamaged	all	X		
10 11	Restricted breathing enclosure is satisfactory to enclosure and/or covers Motor fans have sufficient clearance	n motors only			SWEATH
12 13	Installation clearly labelled Safety barriers/isolators installed as per certification and securely earthed where required	i	X X	8	
14	Entity calculation/documentation is available	i	X	X	

B Installation

1	Type of cable is appropriate, cables are undamaged	all	X	
2	Sealing of ducts and/or conduits is satisfactory	all	Х	0
3	Stopper boxes or barrier glands are properly filled	đ	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	\otimes
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 permitted limits	alí	Х	
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	ď	Х	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	Х	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	p	Х	
17	Condition of spark/particle barriers of ducts exhausting the gas into hazardous area are satisfactory	P	Х	

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	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	i	×	

C Environment

1	Apparatus adequately protected from corrosion, weather, vibration, other	all	X	0
2	No undue accumulation of dust or dirt	all	Х	ex
3	Electrical insulation is clean and dry	ail	×	

Faults found? (circle as appropriate)

No:

Yes:)

. .

List action required

 Contractor (write): Inspector
 Supervisor
 Client (write): Inspector

 Date:
 9/9/11
 Date:

Action rea	quired to ma	ke device co	npliant:					
-	Paulo	sheath	cable	5.0. regime be replaced,	remediate	UV	damiy ed	

Reviewed by: N. CREEN Date: 21 9/11 Priority:	
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All action items now completed:	Comments:		
All action items now completed:			
All action items now completed:			
All action items now completed:			
All action items now completed:			
All action items now completed:			
All action items now completed:			
All action items now completed:			
Job closed:	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. 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: PY- 15	Asset: TCV-15 FS-1 INLET
Circuit ID:	Physical location: DARNIN CITY GATE
Area classification :	Environment: (hot?)

Data from Label

Apparatus type: (light, JB, Motor) J/A TRANSOUCCR	Type of protection: (d,e, i, n, p etc)	Eria
Manufacturer: FISMEL	Gas group: (IIA/B/C)	le
Full model number: DVC5010	Temp class: (T1-T6)	74(80) 75 (70) 76/00
Serial number: 6016049199	Certificate number:	ADS EX 3155X
IP Class	Test authority: (BAS, PTB, SAA etc)	confirm.

Number of cables:

For each cable entry	-gland-1 ADAP DAL	gland 2	others and
Gland manufacturer:	CUPPAL	ALCO	
Model:	FALINM	VFG202_	
Gland type of protection: (d,e)	Exd		1

nspe	nspection		Circle as 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	8	⇒ êQ
3	Enclosure, sealing gaskets or compounds are satisfactory	all	X _	\otimes	- (1)
1	There are no damage or evidence of unauthorised modifications	all	X		
5	Bolts, cable entries and blanking elements are correct and tight	all	X		
5	Flange facings are clean and undamaged	d	X		
7	Lamp rating, type and position correct	all	X		
3	Electrical connections are tight	all	X		
)	Hermetically sealed devices are undamaged	n	X		
10	Restricted breathing enclosure is satisfactory to enclosure and/or covers	n	X		
[1	Motor fans have sufficient clearance	motors only_	X /		1
12	Installation clearly labelled	i	X	Ø	s wear
13	Safety barriers/isolators installed as per certification and securely earthed where required	i	×	8	?
14	Entity calculation/documentation is available	í	X	Х	1

1	Type of cable is appropriate, cables are undamaged	all	X	X	-UV
2	Sealing of ducts and/or conduits is satisfactory	all	X	Ø	- 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	×	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	ali	Х		-
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)	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		<u></u>
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	х		

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	

C Environment

	C Environment			
1	Apparatus adequately protected from corrosion, weather, vibration, other	all	X	\otimes
2	No undue accumulation of dust or dirt	aíl	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

 N. GREEN

 Date:

 Q/Q/IL

Device ID or tag

Action required to make device compliant: - Equipment + cable I.O. required. - Remediate UV damaged Sheath. - Refer Excl/Ex: notes for PY-17. regarding barrier. - cuble support required.

Reviewed by: D. LREEN Date: U/9/11 Priority:

Comments:					
Comments.					
	J				
All action items now completed:					
Job closed:					
Device now fully compliant, spreadsheet register has been updated					
bevice now ruly compliant, spreadsheet register 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\sitzencompany operations\darwin\\enders\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: 25C-15	Asset: TCV-IS
Circuit ID: JOOS	Physical location: DARWIN CITY SATE
Area classification :	Environment: (hot?)

Data from Label

Apparatus type: (light, JB, Motor) VALVE LTMIT SWITCH	Type of protection: (d,e, i, n, p etc) CLASS 1 (ENCL4)
Manufacturer: FISHER	Gas group: (IIA/B/C) SBOUP C& D
Full model number: 304	Temp class: (T1-T6)
Serial number: 9644629	Certificate number: AUSEx 736
IP Class	Test authority: (BAS, PTB, SAA etc)

Number of cables:

1

For each cable entry	gland 1	gland 2	others
Gland manufacturer:	- NOT ACLESSIRVE		
Model:	And a start of	147 C 41 C 1 C 1	Ware of
Gland type of protection: (d,e)	the second second		
1 × . A	a way told into a	10 DX 11	1

Inspection -

spection ————		Circle a	s checked	1
and the second second second second second second second second second second second second second second second	Applicable to	.s.\	- ↓	
A Equipment	protection type:	Internal	External	_
Equipment (incl group and temp class) is appropriate for area classificati	on all	X .	X	
Equipment ID or circuit ID is correct	all	X	0	-EQ
Enclosure, sealing gaskets or compounds are satisfactory	all	X		
There are no damage or evidence of unauthorised modifications	all	X	8	
Bolts, cable entries and blanking elements are correct and light	all	X	Ø	
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-, Ф. А	· X		
Restricted breathing enclosure is satisfactory to enclosure and/or covers	n	X –	il	
Motor fans have sufficient clearance	motors only	X		
Installation clearly labelled	ì	X	\otimes	SWEAR
Safety barriers/isolators installed as per certification and securely earther required	d where i	x	x	
Entity calculation/documentation is available	i	X	X	1

1	Type of cable is appropriate, cables are undamaged	all	X	8	- UV .
2	Sealing of ducts and/or conduits is satisfactory	all	X	(X)	- 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	ail	x	8]
6	Fault loop impedance is satisfactory	power outlets	X		7
7	Insulation resistance is satisfactory (check only during initial inspection)	alí	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		7
11	No obstructions adjacent to flameproof flanged joint	d	Х	Х	7
12	Ducts, pipes and enclosures are in good condition	p	X	Х	7
13	Protective gas is substantially free from contaminants (water, oil, dirt)	р	X	Х	7
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		1
17	Condition of spark/particle barriers of ducts exhausting the gas into hazardous area are satisfactory	P	х]

Amadeus Pipeline Electrical Inspections



				of the second second second second second second second second second second second second second second second
18	Cables are installed and screens are earlhed in accordance with the documentatio0n	i	х	
19	The circuit is isolated from earth or earthed at one point only	1	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 the documentation	i	Х	

1	Apparatus adequately protected from corrosion, weather, vibration, other	all	Х	8
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: List action required Contractor (write): Inspector Supervisor Date: 94/11 Date:

De	evice	Ъ	or ta	g	
					Î

Action required to make device compliant:	
-Equipment + Cable I.D. required.	
- Renediate cable seath with or a	lanege.
- Provide the sheath to cable.	
- Cable support required.	

Reviewed by: N. 402N Date: 9/9/11 Priority:

) i j

Comments:			
142			
All action items now completed: Job closed:	H		

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\sitz!eAcompany 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

Gen	eral							
Dev	ice ID or tag: 🛹		Asset:	FS1				
Circ	uít ID:		Physical location:	DARN	VIN U	TY G	ATISS	
Area	a classification :		Environment: (hot?)					
	from Label							1
App Mot	aratus type: (light, JB,	JB (Appeares)	Type of protection: (etc)	d,e, i, n, p	_			
	ufacturer: SATZ		Gas group: (IIA/B/C)		_			
	model number:		Temp class: (T1-T6)	_				
Seri	al number:		Certificate number:		`			
IP C	lass -		Test authority: (BAS SAA etc)	, РТВ, 🗕	-			
			0/1/2/0/					
Num	ber of cables:]	$(h_{n})^{(h)}$				
For	anch apple ontry	aland 1	gland 2	CATUR!	others	BUNG	c	
	each cable entry nd manufacturer:	gland 1	gianu z		enters	.00.00		
Mod	el:							
Glar	nd type of protection: (d,e)	NO CERT	NO CE			1 CER	1	I
	41		NO LABLE	-		Circles		
insp	ection —						s checked	
				Applicable	to	↓ I	Ļ	
	A Equipment	-		protection	type:	Internal	External	
1		d temp class) is appropriate for area	a classification	all		<u>X</u>		- CIRCUIT
2	Equipment ID or circuit ID			all		X	Ø	- EQUIP
3		ts or compounds are satisfactory		all		<u> </u>	X	
4 5		evidence of unauthorised modificati lanking elements are correct and tig		all all		X	X	
5 6	Flange facings are clean a		gn.	d		X		
7	Lamp rating, type and pos			all		X	<u> </u>	
8	Electrical connections are			all	_	X		
9	Hermetically sealed devic			<u>ດ</u>		X		
10		osure is satisfactory to enclosure ar	nd/or covers	n .		X		
11	Motor fans have sufficient			motors	only	X		
12	Installation clearly labelled			i		Х	X	
13		nstalled as per certification and sec	urely earthed where	i			X	
	required	-				^	^	
14	Entity calculation/docume	ntation is available		i		Х	X	
	Divetelletion							
1	B Installation	ate, cables are undamaged		all		X	Ø	111
2	Sealing of ducts and/or co			all		X	X	•
3	Stopper boxes or barrier of			d		X		
4		n and interface with mixed system is	s maintained	all		X		1
5		nnections are tight, in good condition		all			~	
	cross section					Х	X	
6	Fault loop impedance is s			power o	utlets	Х		
7		atisfactory (check only during initial		all		Х		
8		ctive devices are set correctly and	operate within	all		х		
_	permitted limits							1
9		itions U,X or B have been complied	with	all		X	 	1
10	Cables/spare cores are te			all		X		
11 10	Ducts, pipes and enclosur	to flameproof flanged joint		d		<u>x</u>	X	
12		res are in good condition tially free from contaminants (water	oil dirt)	p			X	
13 14	Protective gas is substant Protective gas flow/pressu		, on, and	р		X	$\vdash \uparrow \dashv$	
14		cators, alarms and interlocks function	on correctly	p p		X	┝───┥	
16	Pre-energising purge perio			p p		X	├───┤	
17		e barriers of ducts exhausting the g	as into hazardous	q p			┝───┥	I
	area are satisfactory			p		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	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

	CEnvironment					1 ma DOCION
1	Apparatus adequately protected from corrosion, weather, vibration	, other	all	Х	\otimes	CORDISION
2	No undue accumulation of dust or dirt		all	Х	Х	
3	Electrical insulation is clean and dry		all	Х		

Faults found? (circle as appropriate)

No:			~	
Yes.	List action required			
Contra	ctor (write): Inspector	Supervisor	Client (write): Inspector	
Date:	9/9/11		Date:	

Device ID or tag -

Action	required to make device com	pliant:			
-	Unused cable	+ 28		- C- + :das:C.	
-	Remove from	installation	or make	sale & intentity	
	cable, JB etc				

Reviewed by: N, GREEN Date: 21/9/11 Priority:

Comments:				
All action items now completed:				
Job closed:	H			
JOD CIOSEU.				
			_	
Device now fully compliant, spreadshee	et 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 SITZLER other Ex devices

Based on AS/NZS 60079 part 17



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Specifications

Gen	eral						
	ice ID or tag:- (LSHHH	16)	Asset: $F \leq I$				
	uit ID:		Physical location: DARWIN CITY GATE				
Δεο	a classification :		Environment: (hot?)		•	-	1
]
	a from Label	SOULCH	4				
Арр	aratus type: (light, JB, H [GH HIGH LEVEL,	Type of protection: (d,e, í, n, p	ia Exd]
MOL	or)		etc)	EX	Log		-
Man	ufacturer:	ELECTRIC FRANK MURAN	Gas group: (IIA/B/C)	$\rightarrow ++e$ E	-xa 115		
Full	model number: Juli		Temp class: (T1-T6)		•		1
Seri	al number:		Certificate number:	AND SAR	APPROVE	Avra	Fx 600
IP C	lass		Test authority: (BAS	, PTB,			1,,
			SAA etc)				
Num	ber of cables:	1					
			JB				0
	each cable entry	gland 1	gland 2	0	thers ZX/	9 DADO	KS BUNG
Glar	nd manufacturer:	W6702	VILa	2			-
	ad type of protection: (d,e)	NO CERT	NALE	RT.	NOT. C	BRT	AND WENT
		· · · · · · · · · · · ·					
Inspe	ection ———		· _ · · _ ·	1	-> Circle a	s checked	1
		۰, ۱		A = = ((= = f(t = t) = t) =	l		
	A Equipment	ş.,	м 1 в 61	Applicable to protection type	v	External	
1		temp class) is appropriate for area	a classification	all	X	X	
2	Equipment ID or circuit ID			all	X	\otimes	CIRUCIT
3	Enclosure, sealing gasket	s or compounds are satisfactory		all	X X	X	-Equip
4		evidence of unauthorised modificati				X	
5		lanking elements are correct and tig			X	Х	
6	Flange facings are clean a			d	X		
7	Lamp rating, type and pos			ali	X		
8 9	Electrical connections are Hermetically sealed device			all ກ	X X		
5 10		s are unualinaged soure is satisfactory to enclosure ar		11 n	× ×		
11	Motor fans have sufficient			motors onl			
12	Installation clearly labelled			i		8	BLUE
13		stalled as per certification and second	urely earthed where	1			
	required		•		X	8	
14	Entity calculation/docume	ntation is available		i	X	X	
	8 Installation						
1	Type of cable is appropria	te, cables are undamaged		all	X	Ø	UV
2	Sealing of ducts and/or co	onduits is satisfactory		all	X	X	
3	Stopper boxes or barrier g			d	X]
4		and interface with mixed system is		ali	X		
5	Earthing and bonding con cross section	nections are tight, in good condition	n and of sufficient	all	x	х	
6	Fault loop impedance is sa	atisfactory		power outie	ts X		
7	Insulation resistance is sa	tisfactory (check only during initial i		ali	X		
8	Automatic electrical protect	operate within	all	x			
 permitted limits Special certification conditions U,X or B have been complied 			with	all	X		
10	Cables/spare cores are te		ail	X			
11	No obstructions adjacent t	to flameproof flanged joint		d	X	X	
12	Ducts, pipes and enclosur		р	X	X		
13	<u> </u>	ially free from contaminants (water.	oil, dirt)	р	X	X	
14	Protective gas flow/pressu			р	X		
15		ators, alarms and interlocks function	n correctly	р	X		
16	Pre-energising purge perio			р	<u> </u>		
17	Condition of spark/particle area are satisfactory	e barriers of ducts exhausting the ga	as into hazardous	р	X		

SITZLER

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all

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				A CONTRACTOR OF A CONTRACTOR OF A CONTRACTOR OF A CONTRACTOR OF A CONTRACTOR OF A CONTRACTOR OF A CONTRACTOR OF
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	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	\boxtimes
2	No undue accumulation of dust or dirt	all	X	X

No undue accumulation of dust or dirt 2

Electrical insulation is clean and dry 3

Faults found? (circle as appropriate)

No: Yes:) List action required Contractor (write): Inspector Supervisor Client (write): Inspector a 11 Date: Date:

Device ID or tag

Action required to make device compliant:	
- Equipment + cable I.D. required - Remediate UV damaged sheath - provide blue sheath. to cable.	

Reviewed by: Date: 20 9 11 N. GREEN Priority:

Comments:		
	condition of second resident and the others	
	Landa bart a manager	
All action items now completed:		
Job closed:		

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

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Specifications

General	LSH	H-16				(1	l				
Device ID or	tag:	2,	16	51-	16 00	-1654	H #6	sset:		51		
Circuit ID:		-	C		/		1	Physical Id	ocation:	DARNA	1 UTY	GARAS
Area classific	ation :						1	Environme	ent: (hot?	')	/	

Data from Label

Apparatus type: (light, JB, Motor)	Type of protection: (d,e, i, n, p / etc))
Manufacturer: FRANK W MUR	Gas group: (IIA/B/C)	(mel
Full model number: L1200	Temp class: (T1-T6)	2005
Serial number: ~	Certificate number: Avs Ex 609	PAIN
IP Class	Test authority: (BAS, PTB, SAA etc)	J
Number of cables:		
For each cable entry gland		
Gland manufacturer:	VILOS	
Mode):		

Gland type of protection: (d,e)	NP CRERT	NE LERT	NO COPT,	
	· · · · ·			
Inspection ————			Circle as chep	ked
			1 1	

		Applicable to	↓	↓ I	
	A Equipment	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	- CIRMOT
3	Enclosure, sealing gaskets or compounds are satisfactory	all	X	X	- TERVIP
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	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	QUE
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	1

B Installation

	B Installation			•	
1	Type of cable is appropriate, cables are undamaged	all	X	18 -	- 0
2	Sealing of ducts and/or conduits is satisfactory	all	X	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	
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	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	X	X	
14	Protective gas flow/pressure is adequate	p	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	p	Х		

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	Х	
20	Separation is maintained with non-IS circuits	j j	X	
21	As applicable, short circuit protection of the power supply is in accordance with the documentation	í	X	

1	Apparatus adequately protected from corrosion, weather, vibration, other	all	X	\mathcal{O} .	CORROSSON
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
DWILLANS		
Date: 9 9 11		Date:
		Date.

Device ID or tag

Action required to make device compliant:
-Equipment + cuble I.D required.
- Remediate UV damaged sheath .
- Provide blue sheath to calle.
- Poor condition + age suggesting replacement.
- corrolian visible.

Reviewed by: N. CREEN Date: 2. 1/4/11 Priority:

Comments:		
All action items now completed: Job closed:		

Hazardous area device inspection sheet for Ex-d, Ex-e, Ex-i, Ex-n, Ex-p and other Ex devices



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Circle as checked

Based on AS/NZS 60079 part 17

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Specifications

General (LSI	44-161	+)		r)				
Device ID or tag:	?	LSL-16A	OR	LSIAP	1/ase	F	51		
Circuit ID:	1			(Physi	cal location:	NARW	TH UT	Y GATES.
Area classification :					Envir	onment: (hot?	?)	/	

Data from Label

Apparatus type: (light, JB, LEVEL EWITCH)	Type of protection: (d,e, i, n, p	7
Manufacturer: FRANE W MURPHY	Gas group: (IIA/B/C) 113	
Full model number: LI200	Temp class: (T1-T6) 76	DUE T
Serial number:	Certificate number: AVS Ex 609	PAN
IP Class	Test authority: (BAS, PTB, SAA etc)	

Number of cables:			
For each cable entry	JB -gland	gland 2	others Bunk
Gland manufacturer:	AM WILCO	~	
Model:		-	
Gland type of protection: (d,e)	NO CERT -	No cart.	NOTCAL.

Inspection -

16

17

	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	Х	\otimes	- CIRUNT -EANP.
3	Enclosure, sealing gaskets or compounds are satisfactory	all	Х	X	-Eavre.
4	There are no damage or evidence of unauthorised modifications	all	Х	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	alf	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	X		
12	Installation clearly labelled	i	X	8	RUE
13	Safety barriers/isolators installed as per certification and securely earthed where required	i	×	8	
14	Entity calculation/documentation is available	i	X	X	1
	B Installation				- - <i>UV</i>
1	Type of cable is appropriate, cables are undamaged	all	X	Ø	
2	Sealing of ducts and/or conduits is satisfactory	all	X	<u> </u>	4
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	ali	x	x	
6	Fault loop impedance is satisfactory	power outlets	× _		1
7	Insulation resistance is satisfactory (check only during initial inspection)	ail	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		1
10	Cables/spare cores are terminated satisfactorily	all	X		1
11	No obstructions adjacent to flameproof flanged joint	d	X	Х	7

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 correct

l	Pressure and/or flow indicators, alarms and interlocks function correctly
	Pre-energising purge period is adequate
ĺ	Condition of spark/particle barriers of ducts exhausting the gas into hazardous
	area are satisfactory

Amadeus Pipeline Electrical Inspections

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Х

X

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Х

Х

Х

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	×	
	C Environment			~

	o Elitit olimete			~	
1	Apparatus adequately protected from corrosion, weather, vibration, other	all	X	\bigotimes	CORROSION
2	No undue accumulation of dust or dirt	all	X	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): Inspector

 Date:
 9
 1

Date:

Device ID or tag

Action required to make device compliant: - Equipment + calle I.O. required. - remediate UV damaged theath. - frowide blue sheath to calle. - poor condition + age suggetting replacement. visible Lonofio-

Reviewed by: N. LRED Date: 21/9/11 Priority:

Comments:			
	_		
All action items now completed:			
Job closed:		 	

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\lenders\sbsj11\\y11 - 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: L5H - 16	Asset:
Circuit ID:	Physical location: DADWIIN CITY SATE
Area classification :	Environment: (hot?)

Data from Label	ILEGIBLE.
Apparatus type: (light, JB, HIGH LEVEL SIN/ITCH Motor)	Type of protection: (d,e, i, n, p
Manufacturer: (UNITED ELECTRIC)	Gas group: (IIA/B/C)
Full model number: (3400-553)	Temp class: (T1-T6)
Serial number:	Certificate number: Not SAA APPROVED
IP Class	Test authority: (BAS, PTĚ, SAA etc)
IP Class	

Number of cables:

For each cable entry	gland 1	gland 2	others
Gland manufacturer:			
Model:			• •
Gland type of protection: (d,e)			

Insp	ection	>	Circle a	s checked	Ł
		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	Ø	- CARCINO 7
3	Enclosure, sealing gaskets or compounds are satisfactory	all	X	X	1-
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 –	0	COOSE GUAND.
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	Χ.		
11	Motor fans have sufficient clearance	motors only	X		
12	Installation clearly tabelled	ì	X	\otimes	SHEATM
13	Safety barriers/isolators installed as per certification and securely earthed where required	ì	x	0	2
14	Entity calculation/documentation is available	i	Х	X]

B Installation

	Binstallation			
1	Type of cable is appropriate, cables are undamaged	all	X	\otimes
2	Sealing of ducts and/or conduits is satisfactory	all	X	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	lie	x	X
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	alt	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)	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	
17	Condition of spark/particle barriers of ducts exhausting the gas into hazardous area are satisfactory	p	x	

Amadeus Pipeline Electrical Inspections

*GLAND USIES LOCKNUT WITHOUT SEALING

WASHER BRAND



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 Environment				12.6
1	Apparatus adequately protected from corrosion, weather, vibration, other	all	X	X	OV
2	No undue accumulation of dust or dirt	all	Х	×	
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: 9 9 11		Date:	

Device	ID or tag	
Action	required	to

- Tighten loose gland - Remediate UV damaged sheath - Atomi Replace blue cable sheath	-	cuble	labels	requi.	red	
- Remediate UV damaged sheath - Replace blue cable sheath	-	Tighter	loose	gland	L	
- Aroning Replace blue cable Sheath	-	Remed:	ate uv	Nam	aged	sheath
	-	Provi 1	replace	blue	cable	Sheath .

Reviewed by: Date: 21/9/11 Priority:	N.	GREEN	
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Comments:		
All action items now completed:		
Job closed:		

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\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-p and other ex devices.doc

Specifications

Gen	eral	/						
Devi	ice ID or tag: LSH - 16	h	Asset:	51				
	uit ID:		Physical location: DARWIN CITY GATE					
Area	a classification :		Environment: (hot?)		<u> </u>			
Data	from Label		44	EGIRLI	B		_	I
Арр	aratus type: (light, JB, Hug	TH LEVEL SWITCH	Type of protection: (la		•	
NIOL	or)	ELECTRIC)	etc)	<u></u>				
			Gas group: (IIA/B/C)		/			
		-553 ILLEG. PLE	Temp class: (T1-T6)		<u> </u>			
Seri	al number:		Certificate number:		AA A	PPROVE	<u> </u>	
IP C	lass		Test authority: (BAS SAA etc)	, PTB,				
ht.			1					
Num	iber of cables:							
	each cable entry	gland 1	gland 2		others			
	ad manufacturer:							
Glar	ei. id type of protection: (d,e)			•	· -			
<u> </u>								I
Inspe	ection		<u> </u>	,	→ ^^	Ċircle a	s checked	
			6	1 A Ka - h I - 1		ſ		
	A Equipment			Applicable protection t		Internal	External	
1		d temp class) is appropriate for are	a classification	all	<u>ypc.</u>	X	X .	
2	Equipment ID or circuit ID			all		X	(X)	CIRCUTT
3		s or compounds are satisfactory		all		X	X	
4		evidence of unauthorised modificat	ions	all		Х	Х	
5		lanking elements are correct and ti		all		X	/ X	
6	Flange facings are clean a			d		Х	1	
7	Lamp rating, type and pos	sition correct		all		X		
8	Electrical connections are			all		Х		
9	Hermetically sealed devic	es are undamaged		n		Х		
10	Restricted breathing enclo	osure is satisfactory to enclosure a	nd/or covers	n		Υ Υ		
11	Motor fans have sufficient	clearance		motors	only	X		
12	Installation clearly labelled	d		j		X	\otimes	Shearn
13	Safety barriers/isolators in required	nstalled as per certification and sec	curely earthed where	i		x	8	
14	Entity calculation/docume	ntation is available		i		Х	<u>x</u>	
	B Installation							
1		ate, cables are undamaged		all		X		UV
2	Sealing of ducts and/or co			all		X	X	
3	Stopper boxes or barrier g	glands are properly filled		d		X		
4	Integrity of conduit system	n and interface with mixed system i	is maintained	all		X		
5	Earthing and bonding con cross section	nections are tight, in good conditio	n and of sufficient	all		х	х	
6	Fault loop impedance is s	atisfactory		power or	utlets	Х		
7	Insulation resistance is sa	tisfactory (check only during initial	inspection)	all		X		
8	Automatic electrical protection	ctive devices are set correctly and		all		X		
9	permitted limits Special certification condit	tions U,X or B have been complied	l with	ali		х		
10	Cables/spare cores are te	erminated satisfactorily		ali		Х		
11		to flameproof flanged joint		d		Х	Х	
12	Ducts, pipes and enclosur			р		Х	X	
13		tially free from contaminants (water	r, oíl, dirt)	р		X	X	
14	Protective gas flow/pressu			р		Х		
15		cators, alarms and interlocks function	on correctly	p		X		
16	Pre-energising purge perio			р		X		
17		e barriers of ducts exhausting the g	jas into hazardous	p		х		
	area are satisfactory							

WASHER BEHIND.

Amadeus Pipeline Electrical Inspections

SITZLER

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	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		~	
		_		

C Environment

	O Environment			~	
1	Apparatus adequately protected from corrosion, weather, vibration, other	all	Х	(α)	
2	No undue accumulation of dust or dirt	all	Х	X	1
3	Electrical insulation is clean and dry	all	X		1

Faults found? (circle as appropriate)

No:

Yes: List action required

Contractor (write): Inspector	Supervisor	Client (write): Inspector	
Divicians	•		
Date: 9/9/1/		Date:	

Device ID or tag

		uired to ma						
-	- 1	Remedio	te or	1 dam	nged call	e sheath.		
	- 1	Replace	due	coble	sheath.			

Reviewed by: N. GREEN Date: u/a/n Priority:

Comments:			
	_		
All action items now completed: Job closed:			
Job closed:			

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/tenders/sbsj11/tyf1 - 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		1		
Device ID or tag:	1	(DPT	16	Asset: FS
Circuit ID:	-		~	Physical location: DARNIN CITY GATE.
Area classification	:			Environment: (hot?)

_

App	a from Label aratus type: (light, JB, DIFF PRESSURE - or)	Type of protection: (d,e, i, n, p			7
Mot				VISIOLO		-
L	nufacturer: Rosemount	Gas group: (IIA/B/C				_
Full	model number: 3051003A22A1AMSB4I	764-71 Temp class: (T1-T6))	-		-
Seri	al number: RS0347136	Certificate number:				
IP C	Class	Test authority: (BAS SAA etc)	, PTB,		_	
Nurr	nber of cables:	~				
For	each cable entry gland 1	ADAPTO		s BUN	·Pr	
	nd manufacturer:				<u>u</u>	٦
Mod	lel:	_				
Glar	nd type of protection: (d,e)	NO CIER	7	NO CER	1	
Inspe	ection		Applicable to	Circle a	s checked	ł
	A Equipment		protection type:	Internal	External	_
1	Equipment (incl group and temp class) is appropriate	for area classification	all	X	ð	e 10077
2	Equipment ID or circuit ID is correct		all	X		- EQUNA:
3	Enclosure, sealing gaskets or compounds are satisfa		all	<u> </u>	X	-540".
4	There are no damage or evidence of unauthorised m		all	X	X	-
5	Bolts, cable entries and blanking elements are correct		all	X	X	-
6 7	Flange facings are clean and undamaged		d			-
8	Lamp rating, type and position correct Electrical connections are tight					-
9	Hermetically sealed devices are undamaged		all n	X		{
10	Restricted breathing enclosure is satisfactory to enclo	osure and/or covers	n	T X		-
11	Motor fans have sufficient clearance		motors onlyi	X		-
12	Installation clearly labelled			X	8	BWG JUNH
13	Safety barriers/isolators installed as per certification a required	and securely earthed where	i	x	8	
14	Entity calculation/documentation is available		i	X	X	
	B Installation	-				
1	Type of cable is appropriate, cables are undamaged		all	X	Ø	UV
2	Sealing of ducts and/or conduits is satisfactory		all	X	X	
3	Stopper boxes or barrier glands are properly filled		d	X		1
4	Integrity of conduit system and interface with mixed s	system is maintained	all	X		1
5	Earthing and bonding connections are tight, in good or cross section	condition and of sufficient	all	x	х	
6	Fault loop impedance is satisfactory		power outlets	X		
7	Insulation resistance is satisfactory (check only during	g initial inspection)	all	X		
8	Automatic electrical protective devices are set correct permitted limits	tly and operate within	all	x		
9	Special certification conditions U,X or B have been co	omplied with	all	X		1
10	Cables/spare cores are terminated satisfactorily		all	Х]
11	No obstructions adjacent to flameproof flanged joint		d	X	Х	1
12	Ducts, pipes and enclosures are in good condition		р	X	Х	1
13	Protective gas is substantially free from contaminants	s (water, oil, dirt)	P	X	X	4
14	Protective gas flow/pressure is adequate		р	X		1
15	Pressure and/or flow indicators, alarms and interlocks	s function correctly	р	X		4
16	Pre-energising purge period is adequate		p	X		4
17	Condition of spark/particle barriers of ducts exhaustinarea are satisfactory	ng the gas into hazardous	p	х		



18	Cables are installed and screens are earthed in accordance with the	í		
	documentatio0n			
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	i	V	
	the documentation			
	C Environment			•

	C Environment			•	. 60 A
1	Apparatus adequately protected from corrosion, weather, vibration, other	all	Х	Ø	-00
2	No undue accumulation of dust or dirt	all	Х	Х	
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
DWIGHAMS		
Date: 9/9/()		Date:
Date: 9/9/11		Date:

Device ID or tag

Action required to make device compliant: - Equipment + circuit I.D. required. - Remediate UV damayed sheath. - Provide Blue showth. - Provide Blue showth. - Ex certification label not visible, provide new label and verify certification as I.S.

Reviewed by: Date: 21911	N. GREEN
Date: 21/0/14	
Priority:	

Comments:			
	_		
All action items now completed:			
Job closed:			
Device now fully compliant, spreadshee	et register has bee	en updated	
Supervisor (write):	9		
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



Circle as checked

Based on AS/NZS 60079 part 17

Ref. I:\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-p and other ex devices.doc

Specifications

General

Device ID or tag:	ISJB-1	Asset:	FSI	
Circuit ID:		Physical location:	DARWIN	LITY GATES
Area classification :		Environment: (hot?)	/

Data from Label

Apparatus type: (light, JB, IS JK	Type of protection: (d,e, i, n, p ? etc)
Manufacturer: ?	Gas group: (IIA/B/C)
Full model number: ?	Temp class: (T1-T6)
Serial number: 1	Certificate number: ?
IP Class 7	Test authority: (BAS, PTB, SAA etc)
Number of cables: 6	

For each cable entry	gland 1	gland 2	others
Gland manufacturer:	-		
Model:			
Gland type of protection: (d,e)			

Inspection

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17

Fault loop impedance is satisfactory

Cables/spare cores are terminated satisfactorily

Protective gas flow/pressure is adequate

Pre-energising purge period is adequate

No obstructions adjacent to flameproof flanged joint

Ducts, pipes and enclosures are in good condition

permitted limits

area are satisfactory

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

Automatic electrical protective devices are set correctly and operate within

	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	alí	X		CIRQUIT
3	Enclosure, sealing gaskets or compounds are satisfactory	all	X	X	
4	There are no damage or evidence of unauthorised modifications	all	Х	X	
5	Bolts, cable entries and blanking elements are correct and tight	all	Х	X	
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		Í
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 _	(X)	.2.I
13	Safety barriers/isolators installed as per certification and securely earthed where required	i	×	x	
14	Entity calculation/documentation is available	i	Х	X	
1 2	B Installation Type of cable is appropriate, cables are undamaged Sealing of ducts and/or conduits is satisfactory Change there are undare there are the state of the destination of the	all	X X X	Z X	UV
3	Stopper boxes or barrier glands are properly filled	d all			4
4	Integrity of conduit system and interface with mixed system is maintained		X		4
5	Earthing and bonding connections are tight, in good condition and of sufficient cross section	all	×	×	

Amadeus Pipeline Electrical Inspections

X

X

Х

Х

Х

Х

Х

Х

Х

Х

Х

Х

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Х

Х

power outlets

all

all

all

all

d

р

р

р

p

р

p



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			\sim	
1	Apparatus adequately protected from corrosion, weather, vibration, other	all	X	\mathbb{Q}	Connosia
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: 9/9/11	Date:

Device ID or tag	
Action required to make device compliant: = I.S. labelling required to	identify intrinsically safe
- severe corrolion within JB prior to circuit failure.	which required replacement
- Replace due cable sheadling	

Reviewed by: N-GREEN Date: 21/9/11 Priority:

			_	
Comments:				
				ĺ
				ĺ
	_			
All action items now completed:				
Job closed:				
Device now fully compliant, spreadsheet i	register has been up	odated		

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\sitzler\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

Gen	eral						
	ice ID or tag:		Asset:	FS 2			
<u> </u>	uit ID:		Physical location:	narwin	UTY	GATRS	
	200-2					Uning	
Area	a classification :		Environment: (hot?)				
Data	from Label						
	aratus type: (light, JB,	JB	Type of protection: (d,e, i, n, p cuts	5 1+11	0101-2	
Moto			etc)	<u> </u>	•		
Man	ufacturer: SAE	<u> </u>	Gas group: (IIA/B/C)	110	_		
Full	model number: FN	J1 20mm	Temp class: (T1-T6)	T6.			
Seria	al number:		Certificate number:	SAA CERT NI	, FLP	693	
IP C	lass		Test authority: (BAS SAA etc)	, PTB, SAA	· ,		
Nurr	ber of cables:		7				
11011							
For	each cable entry	gland 1	gland 2		rs		
	id manufacturer:	1	ALLE	•,			
Mod			UFPTB				
Glar	nd type of protection: (d,e)		has the	AND AGE			
	<i>(</i> 1		Unoce	CUT OFF			
Inspe	ection —				Circle	as checked	
					1		
				Applicable to		+	
	A Equipment			protection type:	Internal	External	
1	Equipment (incl group and	temp class) is appropriate for are	ea classification	all	X	X	
2	Equipment ID or circuit ID			all	X		-CIK
3		s or compounds are satisfactory		all	X		-Fac
			tions				
4		vidence of unauthorised modifica		all	<u> </u>	X	
5		anking elements are correct and t	ight	all	X	X	
6	Flange facings are clean a	and undamaged		d	X		
7	Lamp rating, type and pos			all	X		
8	Electrical connections are			all	X		
9	Hermetically sealed device			n	<u> </u>	+	
10		sure is satisfactory to enclosure a	and/or covers	n	X		
11	Motor fans have sufficient	clearance		motors only	X		
12	Installation clearly labelled			i	X	X	
13		stalled as per certification and see	curely earthed where	i	X	X	
14	required	ntation is available		i	- x		
14	Entity calculation/docume				^	^	
	B Installation	_					1 . 1
1	Type of cable is appropria			alt	X		UV
2	Sealing of ducts and/or co			all	X	X	
3	Stopper boxes or barrier g			d	X	+	
		and interface with mixed system	is maintained	all	X	+	
4	Finitegrity of conduit system	anu interrace with mixed system			^		
5		nections are tight, in good condition	on and of sufficient	all	X	X	
6	cross section Fault loop impedance is s	atisfactory		power outlets	X		
6 7	Fault loop impedance is s	atisfactory tisfactory (check only during initia	Linenaction)			+	
7				all	X		
8		ctive devices are set correctly and	operate within	all	X X		
-	permitted limits		1 14			_ _	
9		tions U,X or B have been complied	d with	all	Х		
10	Cables/spare cores are te			all	X		
11	No obstructions adjacent			d	X	X	
12	Ducts, pipes and enclosur			P P	X	X	
	Diotostivo gon in evicatori	ially free from contaminante (unte	r oil dirt)		X	- Â	
13		ially free from contaminants (wate		Р		- ^	
14	Protective gas flow/pressu			р	X		
15	Pressure and/or flow indic	ators, alarms and interlocks function	ion correctly	р	X		
16	Pre-energising purge perio			p	X		
17	Condition of spark/particle	barriers of ducts exhausting the	as into hazardous	p p		+	
				- P	1 V		

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	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	

	CEnvironment				
1	Apparatus adequately protected from corrosion, weather, vibration, other	all	X	\otimes	CO RROZON
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:
 List action required

 Contractor (write): Inspector
 Supervisor

 Date:
 1

Date:

Device ID (or tag						
Action req	uired to make o	levice complia	int:	11		111	
-	Unused	cable	+ 5 1	with e	rpoled	cabling	•
-	Romave ident: fy	from	in Stallad				

Reviewed by: N. GREEN Date: ulalu Priority:

Comments:			
	_		
All action items now completed: Job closed:	H		
			 -
Device now fully compliant, spreadshe	et register has bee	n undated	
Supervisor (write):	er register nas bee	in upualeu	
Date:			

Amadeus Pipeline Electrical Inspections

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\sitzlencompany operations\darwin\tenders\sbsj11\yf1 - 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	
---------	--

Ocheral	
Device ID or tag: (5 HHH 18) -	Asset: FSZ
Circuit ID:	Physical location: DARW/IN CITY GATE
Area classification :	Environment: (hot?)

Data from Label

App	aratus type: (light, JB,	SH LEVEL SWITCH	Type of protection: (etc)	CX CC	a Exd		
	ufacturer: UNTED	ELECTRICFWM	Conference (IIA/B/C)) +}	e 11B		
<u> </u>		2-553- 4200	Temp class: (T1-T6)]
Seria	al number:		Certificate number:	NOT SHA A	PPBOVE	- Ans E	50 609
IP C	lass		Test authority: (BAS SAA etc)				'
Num	ber of cables;]				-
			J.S.	-	ADAPT	or xz	BUNG
	each cable entry	gland 1	Whee	- others	5]
Mod			,	• • •	.		
Glar	nd type of protection: (d,e)		Nθ		NO UP	p75	NOCERT
		-	. •				
Inspe	ection ———				Circle a	s checked	
				•		·	
				Applicable to	+	_ ♥ .	
	A Equipment	, ,		protection type:	Internal		
1		temp class) is appropriate for area	a classification	all	X	· Ž	URCONT
2	Equipment ID or circuit ID			all	<u>X</u> .		-CIRCUNT -Equip
3		s or compounds are satisfactory		all	X	X	- RHOIP
4		evidence of unauthorised modificati		all	X	X	
5		lanking elements are correct and tig	ght	all	X	X	
6	Flange facings are clean a	and undamaged		d	X		
7	Lamp rating, type and pos			all	X		
8	Electrical connections are			all	X		
9	Hermetically sealed devic	es are undamaged		n	×		
10	Restricted breathing enclo	osure is satisfactory to enclosure ar	nd/or covers	n	X :		
11	Motor fans have sufficient	clearance		motors only	X	_	
12	Installation clearly labelled	1		i	X	8	JLUE
13	Safety barriers/isolators in	stalled as per certification and sec	urely earthed where	i	X	60	
	required						
14	Entity calculation/docume	ntation is available		j	X	X	
	B Installation						
1		te, cables are undamaged		all	X	<u>Q</u>	UV
2	Sealing of ducts and/or co			all	X	X	
3	Stopper boxes or barrier g			d	X		
4	Integrity of conduit system	and interface with mixed system is	s maintained	all	Х		
5		nections are tight, in good condition	n and of sufficient	all	X X	X X	
-	cross section				X		
6	Fault loop impedance is s		inconstinu)	power outlets	X		
7		tisfactory (check only during initial ctive devices are set correctly and of		all	<u> </u>		
8	permitted limits				X		
9	Special certification condi	tions U,X or B have been complied	with	all	X		
10	Cables/spare cores are te	rminated satisfactorily		all	Х		
11		to flameproof flanged joint		d	Х	X	
12	Ducts, pipes and enclosur			р	X	Х	
13	Protective gas is substant	ially free from contaminants (water	, oil, dirt)	р	X	Х	
14	Protective gas flow/pressu	ure is adequate		р	X		ļ
15	Pressure and/or flow indic	ators, alarms and interlocks function	on correctly	р	Х		ļ
16	Pre-energising purge peri-	od is adequate		р	X		
17	Condition of spark/particle	barriers of ducts exhausting the ga	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	Х	
21	As applicable, short circuit protection of the power supply is in accordance with the documentation	i	х	

	C Environment			<u> </u>	. ,
1	Apparatus adequately protected from corrosion, weather, vibration, other	all	X	\otimes	CORROSION
2	No undue accumulation of dust or dirt	all	X	∣ ^u x	
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	
Date: 9/9/11		Date:	

Device ID or tag
Action required to make device compliant:
- Equipment + cable I.O. required
- Remediate UV damaged cable sheath.
- Provide live theath to calle.
- Visible corrosion + poor condition tage suggesting replacement.

Reviewed by: N. GREEN	
Date: 21/9/11 Priority:	

Comments:			
All action items now completed:			
Job closed:	<u> </u>	_	

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:Vdtatsiztencompany operations/darwin/tenders/sbsj11/tyf1 - 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	1						
Dev	rice ID or tag: LSHH -	19 -	Asset:	P	52			7
	uit ID:		Physical location:	DABUIT	LI CTT	Y GAT	Ē	1
Area	a classification :		Environment: (hot?)			()//		-
	a from Label			11	LEGIBLE	DUE T	6 DALAS	τ.
App Mot	aratus type: (light, JB,	SH LEVEL SWITCH	Type of protection: (etc)	(d,e, i, n, p	La	Ex	d	
	ufacturer: UNTERN	ELECTBEC FRA)	HE		ß	-
	model number: 5400		Temp class: (T1-T6		76		-	-
Seri	al number:		Certificate number:	NOT-5	AA +	PPRO	VET A	SEx 609
IP C	Class		Test authority: (BAS			1 (70		1
			SAA etc)					
Nun	nber of cables:	4]					
			Jo		Ara	DEORS	γZ	BUNG
	each cable entry	gland 1	gland_2	}	ethers			7
Mod	nd manufacturer:	6	Willer		4	N N		1
	nd type of protection: (d,e)	1 22544	NO CER	7	No	CERT	3	NO CERT.
		11	and the state	• .		1 .		
Insp	ection	1.5.415			→ `	Circle a	s chepked	1
			and as the set	Applicable			·]	
	-A Equipment	Later and the second second		protection t		Internal	External	
1		temp class) is appropriate for are	a classification	all	<u> </u>	X	X	
2	Equipment ID or circuit ID			. all		. X	Ø	CIRUNT
3	Enclosure, sealing gáskets	s or compounds are satisfactory	,	all		Х	X	JA LRACKED
4		vidence of unauthorised modification		alf		X		JA LRACKED
5		anking elements are correct and tig	ght	all		<u>X</u>	<u> </u>	CODSE
6	Flange facings are clean a			6		Х	-	
7	Lamp rating, type and posi			all		<u>X</u>		
8	Electrical connections are			all		X		
9	Hermetically sealed device			n	13.20	× <u>×</u> × .		
10 11	Motor fans have sufficient	sure is satisfactory to enclosure and elegrapse	na/or covers	n metern				
12	Installation clearly labelled			motors		X	8	ALDE
13		stalled as per certification and sec	urely earthed where	i				
	required					X		
14	Entity calculation/documer	ntation is available		i		Х	X	
	B Installation							
1	Type of cable is appropriat	te, cables are undamaged		all		Х	Ó.] UV
2	Sealing of ducts and/or con			all		Х	Х]
3	Stopper boxes or barrier g			d	-	X]
4		and interface with mixed system i		ail		Х		
5	Earthing and bonding conr cross section	nections are tight, in good condition	n and of sufficient	all		х	x	
6	Fault loop impedance is sa	atisfactory		power ou	utlets	Х		1
7	Insulation resistance is sat	isfactory (check only during initial	inspection)	all		X		1
8	Automatic electrical protec	tive devices are set correctly and		all		X		1
	permitted limits							
9		ions U,X or B have been complied	with	all		Х		
10	Cables/spare cores are ter			all		X		-
11	No obstructions adjacent to			b		X	X	4
12	Ducts, pipes and enclosure		ail dist	p		X	X	4
13		ally free from contaminants (water	, oii, airt)	<u>р</u>		X	X	4
14 15	Protective gas flow/pressure	re is adequate ators, alarms and interlocks function	an correctly	<u>p</u>		X X		1
16	Pre-energising purge perio		on conecay	p D		X		1
17		barriers of ducts exhausting the ga	as into hazardous	p p				1
	area are satisfactory	sample of addits exhibiting the g		p		Х		
					í			

* JO CRACKED AT / CADLE ENTRY * Exposed nemous

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	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	ž	х	

	C Environment				(ORDENDEN N
1	Apparatus adequately protected from corrosion, weather, vibration, other	all	X	\otimes	Carriers (BIC
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 1 1 11 Date: Date:

Device	ID	or	tag
--------	----	----	-----

Action required to make device compliant: - Equipment + calle I.O. required. - Remediate UV damaged sheath. - Replace blue cable sheath. - JS damaye/cracking at gland entry, visitle carrosion. - Poor condition + age suggesting replacement.

Reviewed by: Date: 21(4) N.GREEN Priority:

Comments:		
All action items now completed: Job closed:		

Device now fully compliant, spreadsheet register 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 SITZLER other Ex devices Based on AS/NZS 60079 part 17

Ref: 1:Vata/sitzler/company operations/darwin/tenders/sbsj11/lyf1 - 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

16

17

Pre-energising purge period is adequate

area are satisfactory

Condition of spark/particle barriers of ducts exhausting the gas into hazardous

General	
Device ID or tag: $(LS + I + I - IBA) -$	Asset: F.S.Z.
Circuit ID:	Physical location: DARWIN CITY SATE
Area classification :	Environment: (hot?)

Data from Label			
Apparatus type: (light	ID	10.12	-

App	aratus type: (light, JB, WEGH LEVEL SWITCH	Type of protection: (etc)	d,e, i, n, p	o Erd		
	NUFACTURER: UNEFED ELECTREC FRANK			IC MAS		1
Full	model number: 2400-553 U1200	Temp class: (T1-T6)	To	İs .		
Seri	al number:	Certificate number:	HOT SAA-	APPROVI	to Aus	Ex 604
IP C	lass .	Test authority: (BAS SAA etc)			_	
Nun	nber of cables:] FB	Ad	APTORS X 2		BUNKS
	each cable entrygland 1	-gland 2	oth			
	nd manufacturer:	WILCO				_
Mod			QA .			NO GENTS
Glai	nd type of protection: (d,e)	NOCE		NO GERT	<u>s</u>	No Cents
Insp	A Equipment	A., 271.4	Applicable to protection type:	Circle a	s checked	I
1	Equipment (incl group and temp class) is appropriate for area	a classification	all	X	X	
2	Equipment ID or circuit ID is correct		all	X	α	LIRCUM
3	Enclosure, sealing gaskets or compounds are satisfactory		all	X	X	-EQUIP
4	There are no damage or evidence of unauthorised modification		<u>a</u> lí	X	X	
5	Bolts, cable entries and blanking elements are correct and tig	ght	ali	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			<u> </u>		
10	Restricted breathing enclosure is satisfactory to enclosure an	nd/or covers	n	<u> </u>	·	
11	Motor fans have sufficient clearance		motors only	<u> </u>	-	TLUE
12 13	Installation clearly labelled Safety barriers/isolators installed as per certification and secu	walu andhad where	i	X	10	alle
	required	urely earthed where	Ι	×	\otimes	
14	Entity calculation/documentation is available		i	X	X	
	B Installation					
1	Type of cable is appropriate, cables are undamaged		all	X	R	VV
2	Sealing of ducts and/or conduits is satisfactory		all	- Â	X	
3	Stopper boxes or barrier glands are properly filled		d	X		
4	Integrity of conduit system and interface with mixed system is	s maintained	ali	X		
5	Earthing and bonding connections are tight, in good condition cross section	n and of sufficient	all	x	x	
6	Fault loop impedance is satisfactory		power outlets	X		
7 -'	Insulation resistance is satisfactory (check only during initial i	nspection)	all	X		
8	Automatic electrical protective devices are set correctly and c permitted limits		all	×		
9	Special certification conditions U,X or B have been complied	with	all	×		
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		p	X	X	
13	Protective gas is substantially free from contaminants (water,	oil, dirt)	р	X	Х	
14	Protective gas flow/pressure is adequate		р	X		
15	Pressure and/or flow indicators, alarms and interlocks functio	n correctly	р	X		

р

р

Х

Х



		100 100		
18	Cables are installed and screens are earthed in accordance with the documentatioon	i	x	
	documentation			
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		<u>^</u>	

	C Environment				chan a d
1	Apparatus adequately protected from corrosion, weather, vibration, other	all	X	N N	CORMOSION
2	No undue accumulation of dust or dirt	all	X	× ا	
3	Electrical insulation is clean and dry	all	X		

Faults found? (circle as appropriate)

No:

Yes List action required

Contractor (write): Inspector Client (write): Inspector Supervisor 9 t Date: Date:

Device ID or tag		¥.				
Action required to r	nake device co	npliant:				
- Equipo						
- Remed	when un	danajo	d shear	L.		
- Provid	e Une	shealth	to call			
- V:5:61	e corros	ion				
			age sag	geli-g	replacement	t.

Reviewed by	, N. GREEN	
Date: 24	9/11	
Priority:		

Comments:		
	_	
All action items now completed:		
Job closed:		

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\sitzlerccompany 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-e, ex-d, ex-e, ex-d, ex-e, ex-d

Specifications

General

Device ID or tag: 25H-18	Asset: F-S-2
Circuit ID:	Physical location: DARWIEN CTTY GATE
Area classification :	Environment: (hot?)

Data from Labei

Apparatus type: (light, JB, HTGH LEVEL SWITTCH	Type of protection: (d,e, l, n, p
Manufacturer: UNITED FLECTBIC /	Gas group: (IIA/B/C)
Full model number: 5400 - 553	Temp class: (T1-T6)
Serial number:	Certificate number: NOT SAA APPROVED
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)			
	and the second sec	5 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	decent open by

Ins	pection	_
1115	pection	_

-					
		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	12 -	CALENIT.
3	Enclosure, sealing gaskets or compounds are satisfactory	all	X	Х	1
4	There are no damage or evidence of unauthorised modifications	all	X	Х	1
5	Bolts, cable entries and blanking elements are correct and tight	all	Х]
6	Flange facings are clean and undamaged	d	Х		1
7	Lamp rating, type and position correct	all	Х		1
8	Electrical connections are tight	all	X		l
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	Х		1
12	Installation clearly labelled	i	Х	8	1
13	Safety barriers/isolators installed as per certification and securely earthed where	i	х	8	
	required		^	0	
14	Entity calculation/documentation is available	i	Х	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	Х	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	x
6	Fault loop împedance 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 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	Х
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	Х
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	



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	Х	
21	As applicable, short circuit protection of the power supply is in accordance with the documentation	í	х	
	C Environment			

	C Environment			
1	Apparatus adequately protected from corrosion, weather, vibration, other	alt	Х	Ø
2	No undue accumulation of dust or dirt	all	Х	X
3	Electrical insulation is clean and dry	all	Х	
3		all	X	

Faults found? (circle as appropriate)

No:	List action required			
Contra	ctor (write): Inspector	Supervisor	Client (write): Inspector	
Date:	9 / 9 / 11		Date:	

Device ID or tag

Action required to make device compliant: - CORLE J. O. required.	
- Equipment label	illegible (apart from model #).
suggest new labels	to tatme reference.

Reviewed by:	N, GREEN
Reviewed by: Date: 21/9/11	
Priority:	

Comments:	
All action items now completed: Job closed:	
JOD Closed.	

Device now fully compliant, spreadsheet register has been updated Supervisor (write): Date:

Amadeus Pipeline Electrical Inspections

SBAUNK

* GLANO USES LOCKNUT NOTHONT WASHER BEHIND.

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

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Ref: I: Vdata\sit2ter/company operations\darwin\lenders\sbsj11\vf1 - 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

أ كرا

General	
Device ID or tag: LSH - 18A	Asset: FS-2
Circuit ID:	Physical location: DARVIN CTTY GATE
Area classification :	Environment: (hot?)

Data from Label

Apparatus type: (light, JB, HIGH LEVEL SWITTCH	Type of protection: (d,e, i, n, p, í, c, , , , , , , , , , , , , , , , ,
Manufacturer: UNITED ELECTRIC,	Gas group: (IIA/B/C)
Full model number: 5400 - 553	Temp class: (T1-T6)
Serial number:	Certificate number: NOT SAA APPROVED
IP Class	Test authority: (BAS, PTB,, SAA etc)

Number of cables:

For each cable entry	gland 1		gland 2	others
Giand manufacturer:	· ?.			
Model:				·
Gland type of protection: (d,e)			``````````````````````````````````````	
		(· · ·

Inspection -

		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	Ø	CIROUN
3	Enclosure, sealing gaskets or compounds are satisfactory	alf	X	X	
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	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	п	X		
11	Motor fans have.sufficient clearance	motors only	X ·		
12	Installation clearly labelled	i	Х	Ø	
13	Safety barriers/isolators installed as per certification and securely earthed where	i	X	0	
	required		^	a	
14	Entity calculation/documentation is available	i	X	X	

B Installation

	Diristanation			
1	Type of cable is appropriate, cables are undamaged	all	Х	\odot
2	Sealing of ducts and/or conduits is satisfactory	ail	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 light, in good condition and of sufficient cross section	all	×	x
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
12	Ducts, pipes and enclosures are in good condition	ρ	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	х	

í,



ables are installed and screens are earthed in accordance with the	i	Y	
ocumentatio0n		^	
he circuit is isolated from earth or earthed at one point only	i	Х	
eparation is maintained with non-IS circuits	i	X	
s applicable, short circuit protection of the power supply is in accordance with	í	~	
e documentation		^	
	cumentatioOn ne circuit is isolated from earth or earthed at one point only paration is maintained with non-IS circuits s applicable, short circuit protection of the power supply is in accordance with	wcumentatioOn i ne circuit is isolated from earth or earthed at one point only i eparation is maintained with non-IS circuits i s applicable, short circuit protection of the power supply is in accordance with i	xcumentatioOn A he circuit is isolated from earth or earthed at one point only i X eparation is maintained with non-IS circuits i X s applicable, short circuit protection of the power supply is in accordance with i X

	C Environment			
1	Apparatus adequately protected from corrosion, weather, vibration, other	all	Х	Х
2	No undue accumulation of dust or dirt	all	Х	Х
3	Electrical insulation is clean and dry	all	Х	

Faults found? (circle as appropriate)

No:				
Yes.	List action required			
Contra	ctor (write): Inspector	Supervisor	Client (write): Inspector	
Date:	9/9/11		Date:	

Device ID or tag

Device ID of tag		
Action required to make dev	vice compliant:	
- Cable la	bet required. e uv damaged cable sheath	
	the cuble sheath.	

Reviewed by: N.GREEN Date: 21/9/ N Priority:

Comments:		
All action items now completed: Job closed:		

Amadeus Pipeline Electrical Inspections * GLAND USES LOCKNUT WITHOUT STATIAN WASITER

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

General	
Device ID or tag: DBT - 18	Asset: FSZ
Círcuit ID:	Physical location: NARWIN UTY GATE
Area classification :	Environment: (hot?)

	a from Label paratus type: (light, JB, PRESSURE TRANS for)	Type of protection: (d,e, i, n, p			7
Moto Man	nufacturer: Ragismount .	Gas group: (IIA/B/C)				_
	Full model number: 351 CD 3A 22A 1AMSB417L4T1 Temp class: (T1-T6)					-
		Certificate number:				-
Sen	ial number: RS 0347135				-	-
IP C	Class	Test authority: (BAS SAA etc)	, РТВ,			
Nun	nber of cables:					
				A		A
	reach cable entry gland 1	gland 2	other	s Aorr	TON	BUNG
Mod				_	_	-
	nd type of protection: (d,e)			NO CER	.7	NOLOUT
Insp	ection			Circle a	is checked	ł
					1	
	A Equipment		Applicable to protection type:	Internal	External	
1	Equipment (incl group and temp class) is appropriate for	or area classification	all	X	X	1
2	Equipment ID or circuit ID is correct		all	X	Ô	CIRCUT
3	Enclosure, sealing gaskets or compounds are satisfact	tory	all	X	X	Davis
4	There are no damage or evidence of unauthorised mod		all	X	X	
5	Bolts, cable entries and blanking elements are correct		all	X	X	1
6	Flange facings are clean and undamaged		d	Х		1
7	Lamp rating, type and position correct		alf	X		
8	Electrical connections are tight		all	Х		1
9	Hermetically sealed devices are undamaged		n	X		1
10	Restricted breathing enclosure is satisfactory to enclose	ure and/or covers	n	X		1
11	Motor fans have sufficient clearance		motors only	X		
12	Installation clearly labelled		i	Х	\otimes	BLUE SHELL
13	Safety barriers/isolators installed as per certification ar required	nd securely earthed where	i	x	10	
14	Entity calculation/documentation is available		i	X	X	1
• •						1
	B Installation				- 18	VUT
1	Type of cable is appropriate, cables are undamaged		all	X	Ø	00
2	Sealing of ducts and/or conduits is satisfactory		all	X	X	4
3	Stopper boxes or barrier glands are properly filled	d	X		4	
4	Integrity of conduit system and interface with mixed system is maintained		all	X		4
5	Earthing and bonding connections are tight, in good co cross section	Indition and of sufficient	all	X	X	
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 correctly		all	X		
9	permitted limits Special certification conditions U,X or B have been cor	nplied with	all	X		-
1 0	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	Х]
13	Protective gas is substantially free from contaminants ((water, oil, dirt)	p	X	Х	
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	Х		
17	Condition of spark/particle barriers of ducts exhausting area are satisfactory	the gas into hazardous	р	×		

Amadeus Pipeline Electrical 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	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	ì	х	

	C Estanonnent			-	
1	Apparatus adequately protected from corrosion, weather, vibration, other	all ·	X	\otimes	COLROSION
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

Contractor (write): Inspector	Supervisor	Client (write): Inspector
O WILLIAMS	-	
Date: 9/9///		Date:

Device ID or tag

Action required to make device compliant:	
- Circuit I.D. required.	
- Remediate UV damaged sheath.	
- provide blue cable sheath.	
- Ex certification label not visible, provide new la	sel
and verify contification is I.S.	
- consion uisible	
- corosion visible - Un-certified plug + adoptor.	

Reviewed by: N. GREEN Date: 21/9/11 Priority: 21/9/11

Comments:				
All action items now completed:				
Job closed:	<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:Vdatasitzler/company operations\darwin\lenders\sbsj11Vyf1 - 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

۰.

Device ID or tag: 75 3 B-2	Asset: FILTER JEARLASTOL HO7-
Circuit ID: 5019	Physical location: DAPWIN CITY GATE
Area classification :	Environment: (hot?)

Data from Label

Type of protection: (d,e, i, n, p, icon, etc)	
Gas group: (IIA/B/C)	LABEL
Temp class: (T1-T6)	LABEL
Certificate number:	
Test authority: (BAS, PTB, SAA etc)	一)
	Gas group: (IIA/B/C) Temp class: (T1-T6) Certificate number: Test authority: (BAS, PTB,

Number of cables: 6

alco	260	7.
19154	WELOZ :	· ·
		1
	19254	

Insp	ection		Circle a	is che <u>c</u> ked	t
		Applicable to			
	A Equipment	protection type:	Internal	External	
1	Equipment (incl group and temp class) is appropriate for area classification	all	X	<u></u>	statistics for the
2	Equipment ID or circuit ID is correct	all	2 · X· ·	8	LARELS MOT
3	Enclosure, sealing gaskets or compounds are satisfactory	all	X	K	LEGICLE.
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	8	1
6	Flange facings are clean and undamaged	ď	X		
7	Lamp rating, type and position correct	all	X		1
8	Electrical connections are tight	all	X		
9	Hermetically sealed devices are undamaged	π.	' 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		S MGAT M
13	Safety barriers/isolators installed as per certification and securely earthed where required	i	x	x	v Boo
14	Entity calculation/documentation is available	i	X	X	A BAR
	B Installation		:		
1	Type of cable is appropriate, cables are undamaged	all	X	8	DV .
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	×	
6	Fault loop impedance is satisfactory	power outlets	X		1

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
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	p	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	p	x	

Amadeus Pipeline 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	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	0 CORROSIUN
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:

÷

 Contractor (write): Inspector
 Supervisor
 Client (write): Inspector

 Date:
 9/9/11
 Date:

I	Action required to make device compliant:
	- I.S. labelling to identify intrinsically safe circuits
	- Severe corrosion within JB which requires replacement prior to circuit failure.
Rear an an an an an airtí	- Replace blue Lable Sheathing.

Reviewed by: N, GREEN Date: 21/9/11 Priority:

Comments:		
All action items now completed: Job closed:		

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\sitzler\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-p and other ex devices.doc

Specifications

General NOT TAGGED	
Device ID or tag: (TT - 20) (OPSTREAM) -	Asset: ANALYSER RUN
Circuit ID: NONE	Physical location: DABWIN CITY GATE
Area classification :	Environment: (hot?) DUTDOOR -SUNSHADE

Data	a from Label					1	
App Mot	or) TEMPERATUR TRANSMITTER	Type of protection: (etc)	(d,e, i, n, p	Xd		iq]
Mar	nufacturer: YOKOGAWA	Gas group: (IIA/B/C)	110		NC	
Full	model number: YTA 10 EA408/501/53	Temp class: (T1-T6))	76		T.A]
Seri	ial number: (23A 00685 941	Certificate number:	AUS E	× 30	640	3652	.k
IP C	Class 66/67	Test authority: (BAS SAA etc)	, РТВ,		ŀ		
Nun	nber of cables:]					-
For	each cable entry gland 1	gland 2		others	APAPTO	\times	
Glar	nd manufacturer: ALCO			t.	LIPSA C	,	
Mod				.A.	JAP TA F	LEX 9	NO SEAD
Glar	nd type of protection: (d,e)			ļ (NO COM	e7 .	
Insp	ection		• · · ·	5ia ▶		s checked	C
			Applicable	to ·	1 L A -	4	
					•		
	A Equipment		protection t		Internal	External	
1	Equipment (incl group and temp class) is appropriate for area	a classification	protection t		Х		C DUIA
1 2	Equipment (incl group and temp class) is appropriate for area Equipment ID or circuit ID is correct	a classification	protection t all all		X X		- 52011
1 2 3 4	Equipment (incl group and temp class) is appropriate for area		protection t		Х		- EQUIP - LIALOUT

4	shere are no damage or evidence of unautionsed modifications	all all		× 1		
5	Bolts, cable entries and blanking elements are correct and tight	all	X	Х		
6	Flange facings are clean and undamaged	d	X			
7	Lamp rating, type and position correct	all	Х			
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	8	BLUE	
13	Safety barriers/isolators installed as per certification and securely earthed where	i	×	NO		
	required		~	N		
14	Entity calculation/documentation is available	i	Х	X		

B Installation

	D instanation			-
1	Type of cable is appropriate, cables are undamaged	all	X	w w
2	Sealing of ducts and/or conduits is satisfactory	all	Х	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	Х	
5	Earthing and bonding connections are tight, in good condition and of sufficient cross section	all	×	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	Х	
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	Х	Х
12	Ducts, pipes and enclosures are in good condition	p	Х	X
13	Protective gas is substantially free from contaminants (water, oil, dirt)	р	Х	Х
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	p	Х	
17	Condition of spark/particle barriers of ducts exhausting the gas into hazardous area are satisfactory	p	х	

CARLE SUPPORT + UV



18	Cables are installed and screens are earthed in accordance with the	i	х	
	documentatio0n			
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	i	Y	
	the documentation		^	

	CEnvironment			
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 Supervisor	Client (write): Inspector	
Contractor (write): Inspector Supervisor $D, \omega (c, c, m)$		
Date: 99111	Date:	

Device ID or tag

Action required to make device compliant:			
- Equipment + cituit I.D. required.			
- provide cable support.	Rug	steath.	
- Remediate cable sheath and replace	une.	seed in.	

Reviewed by: N.GREEN Date: 21/9/11 Priority:

Comments:		
All action items now completed:		
Job closed:		

Based on AS/NZS 60079 part 17

Ref: 1:4data/sitz/er/company operations/darwin/tenders/sbsj111/y/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 Not TAGGED	
Device ID or tag: TT-20A (DOWN STREAM)	Asset: ANAYSER RUW
Circuit ID: NONE	Physical location: DARWIN CITY GATE
Area classification :	Environment: (hot?) OUT&OUR - SAN SHAD(-

Data from Label

Apparatus type: (light, JB, Motor) TEMPE BATUBE TBANSMETTER	Type of protection: (d,e, i, n, p etc)
Manufacturer: YOKOGAWA	Gas group: (IIA/B/C)
Full model number: YTA 110 EA4 DE SUI 53	Temp class: (T1-T6) ナム
Serial number: C2 JA00685 941	Certificate number: AUS Ex 3652X
IP Class 66/67	Test authority: (BAS, PTB, SAA etc)
Number of cables:	

For each cable entry	gland 1	gland 2	others ADAPTOR	
Gland manufacturer:	ALCO		49APTAFLEY CI	IPSAL
Model:	۱.		ir.	IP NOT
Gland type of protection: (d,e)	No cont		NO CORT	MAINTHINGO

Inspection -

	and the second sec	Applicable to	Ļ	Ļ	
	A Equipment	protection type:	Internal	External	_
1	Equipment (incl group and temp class) is appropriate for area classification	alí	X	X	1
2	Equipment ID or circuit ID is correct	all	X	Ø	- GRUIP - CIRCULT
3	Enclosure, sealing gaskets or compounds are satisfactory	all	X _	X	- CIRWIT
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 dean 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 tabelled	i .	X	X]
13	Safety barriers/isolators installed as per certification and securely earthed where	i	X	X]
	required			^	
14	Entity calculation/documentation is available	i	X	X]

	B Installation			•
	Type of cable is appropriate, cables are undamaged	all	X	
	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 cross section	all	х	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	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	X
	Ducts, pipes and enclosures are in good condition	p		X
	Protective gas is substantially free from contaminants (water, oil, dirt)	p	X	Х
	Protective gas flow/pressure is adequate	p	Х	
[Pressure and/or flow indicators, alarms and interlocks function correctly	ρ	Х	
	Pre-energising purge period is adequate	p	X	
ĺ	Condition of spark/particle barriers of ducts exhausting the gas into hazardous area are satisfactory	p	Х	

Amadeus Pipeline Electrical Inspections

Circle as checked



18	Cables are installed and screens are earthed in accordance with the	i	х	
	documentatio0n		~	
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	i	×	
	the documentation		~	

	C Evalophinent			
1	Apparatus adequately protected from corrosion, weather, vibration, other	all	X	\bigotimes
2	No undue accumulation of dust or dirt	all	Х	8
3	Electrical insulation is clean and dry	alí	X	

Faults found? (circle as appropriate)

No:

Fee:	List action required			
Contra	D.VICC(Supervisor	Client (write): Inspector	
Date:	9/9/11		Date:	

Device ID or tag	
Action required to make device compliant:	
- Equipment + cable I.O. required.	
- Provide cable Support	
- Remediate cube shealt + replace due shealt.	

Reviewed by: 12-6.Rean Date: 21(9/14 Priority:

Comments:			
All action items now completed:			
Job closed:			

Device now fully compliant, spreadsheet register has been updated Supervisor (write): Date:

Based on AS/NZS 60079 part 17

Ref: I:Vatalsizzer/company operations/darwin/lenders/sosj11Vyf1 - 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 - 22	Asset: ANAMYSER RUN.
Circuit ID:	Physical location: DARUITN CITY GATE
Area classification :	Environment: (hot?)

Data from Label

Apparatus type: (light, JB, PBESSURE TRANSPIRITER	Type of protection: (d,e, i, n, p etc)
Manufacturer: ROSE MOUNT	Gas group: (IIA/B/C) $\mathcal{I} \mathcal{I} \mathcal{C}$
Full model number: 3051 T64A2.821B +7M57	Temp class: (T1-T6) (402) T5, T4 (70'C)
Serial number: 01239918	Certificate number: AUS Ex 1244 X
IP Class 66	Test authority: (BAS, PTB, SAA etc)

Number of cables:

For each cable entry	gland 1	gland 2	others PLUL
Gland manufacturer:	ALCO		GALSINOT REPART REPART
Model:	ALCHAW 20M20		PAD MO
Gland type of protection: (d,e)	dIC		EEKd
A	HUSER 03-3094		
Inspection	1 A		→ Circle as checked

1 2	A Equipment Equipment (incl group and temp class) is appropriate for area classification Equipment ID or circuit ID is correct	Applicable to protection type: all all	Internal X X	External X	CIRCUIT
3	Enclosure, sealing gaskets or compounds are satisfactory	all	+ <u>×</u>	X	
4	There are no damage or evidence of unauthorised modifications Bolts, cable entries and blanking elements are correct and tight	all all	X	X	
6	Flange facings are clean and undamaged	be b		<u> </u> ^-	
7	Lamp rating, type and position correct	all	$\hat{\mathbf{x}}$		
8	Electrical connections are tight	alí	1 X	1	
9	Hermetically sealed devices are undamaged	n '	. X		
10	Restricted breathing enclosure is satisfactory to enclosure and/or covers	n	X	1. 6	Auto
11	Motor fans have sufficient clearance	motors only	X	-	SLUG
12	Installation clearly labelled	i	X	<u>×</u>	Luciative
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

Ty	pe of cable is appropriate, cables are undamaged	all	X	L AS
	ealing of ducts and/or conduits is satisfactory	all	X	X
Ste	opper boxes or barrier glands are properly filled	d	X	
Int	legrity of conduit system and interface with mixed system is maintained	all	X	
	arthing and bonding connections are tight, in good condition and of sufficient	all	x	x
Fa	ult loop impedance is satisfactory	power outlets	X	
Ins	sulation resistance is satisfactory (check only during initial inspection)	all	X	
	tomatic electrical protective devices are set correctly and operate within rmitted limits	alí	x	
Sp	ecial certification conditions U,X or B have been complied with	all	X	
Ca	ables/spare cores are terminated satisfactorily	all	X	
No	o obstructions adjacent to flameproof flanged joint	d	X	X
Dù	icts, pipes and enclosures are in good condition	р	X	X
Pro	otective gas is substantially free from contaminants (water, oil, dirt)	p	X	X
Pro	otective gas flow/pressure is adequate	p.	X	
Pre	essure and/or flow indicators, alarms and interlocks function correctly	р	X	
Pre	e-energising purge period is adequate	p	X	
	ondition of spark/particle barriers of ducts exhausting the gas into hazardous ea are satisfactory	q	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	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	x	

	C FUALOUNIER			
1	Apparatus adequately protected from corrosion, weather, vibration, other	all	X	\bigotimes
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
DWILLIAMS		
Jel		
Date: 9911		Date:

Dovice		~ ~	+	
Device	ID	ОГ	tag	

			red		-	2 8 9 5-0		
				+	provide	blue	Sheath.	
	- Cable	- Cable ID.		- Cable I.D. required	- Cable J.D. required	- Cable ID. required	- Cable I.D. required	

Reviewed by: N. GREEN Date: 21/9/11 Priority:

Comments:	
e emmente.	
All action items now completed:	
Job closed:	
	-

Device now fully compliant, spreadsheet register has been updated Supervisor (write): Date:

Based on AS/NZS 60079 part 17

Ref: I:\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: PT - ZZ A	Asset: ANALYSER RUNI
Circuit ID: SOU ?	Physical location: DARWIIN CITY GATE
Area classification :	Environment: (hot?) OUTICOR SUNSHADE

Data from Label

Ap Mo	paratus type: (light, JB, PRESSUBE TRANSMITTE)	R Type of protection: ((d,e, i, n p Ex Lü			
	nufacturer: ROSEMOUNT	Gas group: (IIA/B/C) //c			
Ful	I model number: 3051 T44A2B2(BKT)MST	Temp class: (T1-T6) T5,-	T4 (7	0.0)	
Se	rial number: 01234 917	Certificate number:	AUS Ex	12419X		
IP	Class IP 66	Test authority: (BAS SAA etc)				
Nu	mber of cables:					-
Fo	F each cable entry gland 1	gland 2			`	
Gla	and manufacturer: ALCO		6	7246 -1.	CED HAT]
Mo	del: ALCHAW.20/M20.	Section Section 1	S 12	10 00.th	- PM ins	Ð
Gla	and type of protection: (d,e) しょばく さび			Sr d]
	AUSEX 03 30944					-
Insp	pection		>	Circle a	s checked	
•						
			Applicable to	Ļ	1	
	A Equipment		protection type:	Internal	External	
1	Equipment (incl group and temp class) is appropriate for an	ea classification	all	X		
2	Equipment ID or circuit ID is correct		all	X	× k	URUN
3	Enclosure, sealing gaskets or compounds are satisfactory		all	X	X	UREA BABI
4	There are no damage or evidence of unauthorised modification	ations	all	X	X	•••
5	Bolts, cable entries and blanking elements are correct and	tight ·	all	X	Х	
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	Х.,		
11	Motor fans have sufficient clearance		motors only	Х		
12	Installation clearly labelled		i	Х	00	TLUE
13	Safety barriers/isolators installed as per certification and se	curely earthed where	i	X	Ø	SHOATH
	required				127.01.	
14	Entity calculation/documentation is available		i	X	Х	
	B Installation					

Type of cable is appropriate, cables are undamaged	all	X	$\mid $
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	ail	Х	
Earthing and bonding connections are tight, in good condition and of sufficient cross section	all	х	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	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		X	X
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 ·	Χ.	
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	



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	X	
2	No undue accumulation of dust or dirt	all	X	Ø
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
Contractor (write): Inspector Supervisor	
Date: 9 9 1	Date:

Device	ID	or	taq
DEVICE	10	~	LUG

0011	0010	/ Or tug							
Acti	on re	equired to make devic	e compliant:						
	-	Remediate	cuble	Sheath	t	provide	blue	Pheath.	

Reviewed by: Date: 249/11 Priority:	N.GREEN	
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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: I:ktata/sitztencompany 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 - 24	Asset: ANALYSER RUN
Circuit ID: Jo2.6	Physical location: DARXIIN CITY GATE
Area classification :	Environment: (hot?) OUTDOOR - SUNSHADE

Data	a from Label						
App Mot	aratus type: (light, JB, or) LOW PRESSUBE 5 12TCH	Type of protection: (etc)	d,e, í, n, p	x d			(
Mar	nufacturer: ASHCROFT	Gas group: (JIA/B/C)	IIB			LisulAE
Full	model number: P7 ?	Temp class: (T1-T6))	T6) caller
Seri	al number: NON E	Certificate number:	AUS EX	54	47 1		/
IP C	ilass	Test authority: (BAS SAA etc)					
Nur	nber of cables:	1					
		1		-	Λ		
	each cable entry gland 1 nd manufacturer: NOT ANSTOPHY	gland 2		others	140	APAOR	l
Mod		the second second	2 9.592	17 11			
	nd type of protection: (d,e)				NOTE	NT.	
Insp	ection - the state - the state	Sec. 24			Circle a	as checked	
	A Equipment		Applicable protection t		↓ Internal	Exterлał	
1	Equipment (incl group and temp class) is appropriate for area	a classification	all		Х	X	
2	Equipment ID or circuit ID is correct		all		X	4	
3	Enclosure, sealing gaskets or compounds are satisfactory		all		X	X	
4	There are no damage or evidence of unauthorised modification	ons	all		X	X	
5	Bolts, cable entries and blanking elements are correct and tic	aht	all		Х	X	
6	Flange facings are clean and undamaged		d		X		
7	Lamp rating, type and position correct		alí		X	1	
8	Electrical connections are tight		all		X		
9	Hermetically sealed devices are undamaged		n n		X		
10	Restricted breathing enclosure is satisfactory to enclosure an		n	. /	X	├── ┤	
11				anhr		·	
	Motor fans have sufficient clearance		motors	oniy	X		
12	Installation clearly labelled	1	1		X		
13	Safety barriers/isolators installed as per certification and secu	urely earthed where	1		Х	\otimes	
	required						
14	Entity calculation/documentation is available		Í		Х	X	
	B Installation	_					
1	Type of cable is appropriate, cables are undamaged		all		X		UV
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	s maintained	all		Х		
5	Earthing and bonding connections are tight, in good condition		all		х	X	
6	Fault loop impedance is satisfactory		000000	tloto			
7	Insulation resistance is satisfactory (check only during initial i	nonnation)	power ou	niets	X		
8			all		<u>^</u>		
	Automatic electrical protective devices are set correctly and c 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		Х		
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		Х		
15	Pressure and/or flow indicators, alarms and interlocks functio	n correctly	p		Х		
16	Pre-energising purge period is adequate		p		X		
17	Condition of spark/particle barriers of ducts exhausting the ga area are satisfactory	as into hazardous	p		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	Х	
Separation is maintained with non-IS circuits	ì	Х	
As applicable, short circuit protection of the power supply is in accordance with the documentation	i	х	
	documentatio0n The circuit is isolated from earth or earthed at one point only Separation is maintained with non-IS circuits As applicable, short circuit protection of the power supply is in accordance with	documentatio0n i The circuit is isolated from earth or earthed at one point only i Separation is maintained with non-IS circuits i As applicable, short circuit protection of the power supply is in accordance with i	documentatio0n i X 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 i X

	C Environment	-		<u> </u>	CODDW DN.
1	Apparatus adequately protected from corrosion, weather, vibration, other	all	X	\otimes	CORRESION
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:

List action required			
Contractor (write): Inspector	Supervisor	Client (write): Inspector	
Date: 9 9 11		Date:	

Device	ID or tag	
Action	required	to ma

....

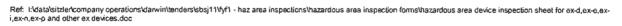
	required to make de			
-	Remediate	cable sheakh	+ provide blue &	heath
-	Equipmont	corrosion, poo	v undition, Megille	label.

Reviewed by: Date: 22 9/4 Priority:	N. GREEN	
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Comments:		
Ś.		
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



Specifications

	General					
1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1	Device ID or tag: 25C - 44)-	Asset:	V44	(OU 100)	TPOTS DULET
	Circuit ID:		Physical location: ${ ot\!\!\!\!\!\!\!\!\!\!\!\!P}$	ABWIN		GATE
	Area classification :		Environment: (hot?)			_

Data from Label					
Apparatus type: (light, JB, Motor) VALVE	LIMIT SWITCH	Type of protection: (d,e, etc)	i, n, p Ex		
Manufacturer: KEYSTO	ONE	Gas group: (IIA/B/C)	۱۱B		
Full model number: F792	K	Temp class: (T1-T6)	T6		
Serial number: 5358	12	Certificate number:	AUS Ex.	12416	
IP Class 65		Test authority: (BAS, PT SAA etc)		1/4	, . . 1
Number of cables:	gland 1	cland 2	othern	PLUG	
Gland manufacturer:		guarry 2	Uners	- mco q	
Model:	WG20Z	Q. 2 1	and the the	4	3.
Gland type of protection: (d,e)		2		-	_
A Equipment		And A	pplicable to		s checked
	(omn alaga) is becausists for an		otection type:	Internal	External
Equipment (Incl group and I Equipment ID or circuit ID is	emp class) is appropriate for are	a classification	<u>all</u>	·	× K
	or compounds are satisfactory.	44	all	X · ·	
	idence of unauthorised modificat	tions	all '	X	100
	aking elemente are correct and ti			$\hat{\mathbf{x}}$	

5	Bolts, cable entries and blanking elements are correct and tight	all	X	*	
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	n* 2.83862	× X		
10	Restricted breathing enclosure is satisfactory to enclosure and/or covers	, n	Χ.		
11	Motor fans have sufficient clearance	motors only	X ,	.'	
12	Installation clearly labelled	i	X	X	2
13	Safety barriers/isolators installed as per certification and securely earthed where	i	X		0
	required		X		
14	Entity calculation/documentation is available	i	Х	X	3

B Installation

	Binstanation				
1	Type of cable is appropriate, cables are undamaged	all	X	\otimes	fait after
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 cross section	all	x	0	
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	X		
10	Cables/spare cores are terminated satisfactorily	all	X		
11	No obstructions adjacent to flameproof flanged joint	d	X	0	
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	p	X		
17	Condition of spark/particle barriers of ducts exhausting the gas into hazardous area are satisfactory	p	X		



				a courte for the second s
18	Cables are installed and screens are earthed in accordance with the	i	Y	
	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	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	X		CORLOSION
2	No undue accumulation of dust or dirt	all [.]	X	8	SOPL.
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: 9/9/11	Date:

Device ID or tag

Action required to make device compliant: Equipment + cet J.D. required.
D:1 evidence of J.S. installation hance flaneproof installation considered.
Uncertified gland, plug + adaptor required replacement.
Corroded equipment regalting for their infraction for fitness for purpose.

Reviewed by: N. G. REEN Date: 21/9/11 Priority:

Comments:		
- 100 en		
All action items now completed: Job closed:		

Device now fully compliant, spreadsheet register has been updated Supervisor (write): Date:



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, ex-i, ex-n, ex-p and other ex devices.doc

Specifications

General Device ID or tag: -SV6-44 Asset: V44 Circuit ID: PARION LITS GATE. Physical location: Area classification Environment: (hot?)

Data from Label

Apparatus type: (light, JB, Motor)	Type of protection: (d,e, i, n, p etc)
Manufacturer: LUCIFER	Gas group: (IIA/B/C)
Full model number: 49219003 (coil)	Temp class: (T1-T6) + 4 (40°c)
Serial number:	Certificate number: ANS Ex 321
IP Class 6	Test authority: (BAS, PTB, SAA etc)

Number of cables: (

8

9

1**0**

11

12

13

14

15

16

17

permitted limits

area are satisfactory

For each cable entry	gland 1 CONDENT	gland 2	others
Gland manufacturer:	ADAPTORFLEX	puc.	
Model:	10		
Gland type of protection: (d,e)	DIP AUS EX 950		

Insp	ection		Circle a	s 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	- 200
3	Enclosure, sealing gaskets or compounds are satisfactory	all	Х	X	00
4	There are no damage or evidence of unauthorised modifications	all ·	×	8	
5	Bolts, cable entries and blanking elements are correct and tight	all	Х	N	
6	Flange facings are clean and undamaged	d	Х		
7	Lamp rating, type and position correct	all	Х		
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	Х		
11	Motor fans have sufficient clearance	motors only	Х		
12	Installation clearly labelled	i	X	X	
13	Safety barriers/isolators installed as per certification and securely earthed where required	i	x	×	
14	Entity calculation/documentation is available	i	Х	X	
	B Installation				
1	Type of cable is appropriate, cables are undamaged	all	X	8	1
2	Sealing of ducts and/or conduits is satisfactory	all	X	0	01630
3	Stopper boxes or barrier glands are properly filled	d	Х		0-K
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	×	Ø]
6	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

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

Х

Х

Х

Х

Х

Х

Х

all

all

all

d

р

р



				11 mm 27 3 mm
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	Í	х	

	C Entallolation			
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	X	

Faults found? (circle as appropriate)

No:			
tes?	List action required		
Contra	ctor (write): Inspector Supervisor	Client (write): Inspector	
Date:	9/9/11	Date:	

Device ID or tag

-	Equipment	+	cat	I. J.	requised		
	-						
	qu		equired to make device comp	equired to make device compliant:	equired to make device compliant:	equired to make device compliant:	equired to make device compliant:

Reviewed by: N. GREEN Date: 9/9/11 Priority:

Comments:			
	_		
All action items now completed: Job closed:			
305 003eu			

Device now fully compliant, spreadsheet register has been updated Supervisor (write): Date:



Based on AS/NZS 60079 part 17

Ref. 1/data/sitzier/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

Device ID or tag:	SV0- 44	Asset: V 44
Circuit ID:	-	Physical location: DARCUM CITA GATE
Area classification	1:	Environment: (hot?)

Data from Label

Gas group: (IIA/B/C)
Temp class: (T1-T6) T4 (4044
Certificate number: AUJ Or 32(
Test authority: (BAS, PTB, SAA etc)

Number of cables:

For each cable entry	gland-1 consur	gland 2	others
Gland manufacturer:	ADAPPORELES		
Model:			
Gland type of protection: (d,e)	DIP AUSEN 970		

Inspection -

Insp	ection		Circle a	s checked	b
	A Equipment	Applicable to protection type:	Internal	External	
1	Equipment (incl group and temp class) is appropriate for area classification	ali	X	Х	
2	Equipment ID or circuit ID is correct	all	X –	\$	-cct
3	Enclosure, sealing gaskets or compounds are satisfactory	all	X	R	
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	×]
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	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	<u> </u>	X	X	
13	Safety barriers/isolators installed as per certification and securely earthed where required	i	×	×	
14	Entity calculation/documentation is available	i	X	Х]
	B Installation				
1	Type of cable is appropriate, cables are undamaged	all	X	0	
2	Sealing of ducts and/or conduits is satisfactory	all	X	R	OIPZ
3	Stopper boxes or barrier glands are properly filled	d	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	Х	
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	
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	Х
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	Х
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	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	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	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	\bigotimes
2	No undue accumulation of dust or dirt	ail	Х	\bigotimes
3	Electrical insulation is clean and dry	all	X	

Faults found? (circle as appropriate)

No: List action required Contractor (write): Inspector Supervisor N. GREEN Date: 9/9/11 Date:

Device ID or tag

Action required to make device	e compliant:		
- Cct. I.O	required.		

Reviewed by:	N. GREEN	
Date: 21(9)4		
Priority:		

Comments:			
ļ			
All action items now completed:			
Job closed:	H		
		-	
Device now fully compliant, spreadsheet	t register has be	en updated	
Supervisor (write):			
Date:			



Based on AS/NZS 60079 part 17

Ref: 1/data/sitzlen/company operations/darwin/tenders/sbsj11/tyf1 - 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: LP SW.	Asset: STADPOY RUN.
Circuit ID:	Physical location: NARW IN CITY GATTES
Area classification :	Environment: (hot?)

	a from Label						
App Mote	Aratus type: (light, JB, PRESSURE SWITH) or) PRESSURE SWITH HUGACTURE: UNITED ENERTIC CONTROLS.	Type of protection: (etc)	d,e, i, n, p	od			
Man	USACTURES ENERTHIC CONTROLS.	Gas group: (IIA/B/C)	11	S			
Full	model number: H119 189	Temp class: (T1-T6)	Ť	6]
Seri	al number: 🌵	Certificate number	NEX 17	211			
IP C	lass 66	Test authority: (BAS SAA etc)	, PTB,				
Num	nber of cables:]			-		
For	each cable entry	- gland 2		ethers	J. Rox		
Glar	nd manufacturer:			clo	USB -A	TNOS	
Mod	el: C-H ATM N II			G	UA		
Giar	nd type of protection: (d,e)			E~	dIC	1.75	
	Ex 1108U			ALC EX	319		
Inspe	ection				- •	s checked	
mop						onepiceu	
			Applicable	10	1	1	
	A Equipment		protection t		Internal	External	
1	Equipment (incl group and temp class) is appropriate for are	a classification	all	ypc.	X		
2	Equipment ID or circuit ID is correct		all			č.	URWOT
3	Enclosure, sealing gaskets or compounds are satisfactory		all			X	- EQUIP.
4	There are no damage or evidence of unauthorised modification			-			•
		-	all		X	X	
5	Bolts, cable entries and blanking elements are correct and the	gnt	all		<u>X</u>	X	
6	Flange facings are clean and undamaged		d		<u>X</u>		
7	Lamp rating, type and position correct		all		X	<u>`</u>	
8	Electrical connections are tight		all		X	<u>ا</u> ا	
9	Hermetically sealed devices are undamaged		<u></u> n		X		
10	Restricted breathing enclosure is satisfactory to enclosure a	nd/or covers	n		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 sec required	urely earthed where	i	_	Х	х	
14	Entity calculation/documentation is available		i			x	
		_					
	B Installation						
1	Type of cable is appropriate, cables are undamaged		all			X	
2	Sealing of ducts and/or conduits is satisfactory		all		X	x	
3	Stopper boxes or barrier glands are properly filled		d		X		
4	Integrity of conduit system and interface with mixed system i	s maintained	all		X		
5	Earthing and bonding connections are tight, in good conditio		alì		~		
5	cross section	I and of sufficient	all		х	X	
6	Fault loop impedance is satisfactory			ut a ta		<u> </u>	
7		increation)	power ou	neis	X		
	Insulation resistance is satisfactory (check only during initial		all		Х		
8	Automatic electrical protective devices are set correctly and 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		Х		
11	No obstructions adjacent to flameproof flanged joint		b		Х	X	
12	Ducts, pipes and enclosures are in good condition		q		Х	X	
13	Protective gas is substantially free from contaminants (water	r, oil, dirt)	р		Х	Х	
14	Protective gas flow/pressure is adequate		p		Х		
15	Pressure and/or flow indicators, alarms and interlocks function	on correctly	р		X		
16	Pre-energising purge period is adequate		P		X		
17	Condition of spark/particle barriers of ducts exhausting the g area are satisfactory	as into hazardous	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	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			

	C Environment			
1	Apparatus adequately protected from corrosion, weather, vibration, other	all	X	(Conto 3100
2	No undue accumulation of dust or dirt	all	Х	X ANTONOM
3	Electrical insulation is clean and dry	all	Х	

Faults found? (circle as appropriate)

No: List action required Yes. Contractor (write): Inspector Supervisor Client (write): Inspector 9 a Date: 1 Date:

Device ID or tag

Action	required to make dev	vice compliant:				
-	Equipment Equipment installed . M required to	+ cct I.D Ex d val 1:1 avidence 0 verify de	e of I.S. esign method	bip con circuit, fu l of instr	duit system Thes investigation	-
-	Corosion vi	sible on a	conduct.			

Reviewed by: N. GREEN Date: 249/11 Priority:

Comments:			 	
All action items now completed:				
Job closed:			 	
Device now fully compliant, spreadsheet	t register has be	en updated	 	

Supervisor (write): Date:



Circle as checked

Based on AS/NZS 60079 part 17

Ref: 1/data/sitzlencompany operations/darwin/tenders/sbsj11/tyf1 - 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

Ge	ne	ra

General				
Device ID or tag:	-	(TURBINE METER)	Asset: STANDEY RUN	
Circuit ID:	-		Physical location: PAREWIN CITY GATOS	
Area classification :			Environment: (hot?)	

Data from Label

Apparatus type: (light, JB, METER Motor)	Type of protection: (d,e, i, n, p etc)
Manufacturer: / TRON	Gas group: (JIA/B/C)
Full model number: DE-07-MI002-PTB018	Temp class: (T1-T6) T5 c T6
Serial number: 2400334499 C 2010	Certificate number: LCIE 06 ATTEX 6031X
IP Class N/A DIELTAS-FLOW 640	Test authority: (BAS, PTB, SAA etc)
Number of cables:]

For each cable entry	gland 1	gland 2	others
Gland manufacturer:	~		
Model:	1,		
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) -	- ENRCUM - EQUIN.
3	Enclosure, sealing gaskets or compounds are satisfactory	all	X	8	- B QU P .
4	There are no damage or evidence of unauthorised modifications	all	X	ð	
5	Bolts, cable entries and blanking elements are correct and tight	aíl	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		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	$\langle X \rangle$	BLUE
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	<u>S</u>]
2	Sealing of ducts and/or conduits is satisfactory	aíl	X –	(x)]
3	Stopper boxes or barrier glands are properly filled	d	X	1000]
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	×	×	
6	Fault loop impedance is satisfactory	power outlets	X]

Insulation resistance is satisfactory (check only during initial inspection) Automatic electrical protective devices are set correctly and operate within	all	X	
Automatic electrical protective devices are set correctly and operate within			
permitted limits		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	Х	X
Protective gas is substantially free from contaminants (water, oil, dirt)	р	X	X
Protective gas flow/pressure is adequate	р	Х	
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	
	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	permitted limits 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 Protective gas flow/pressure is adequate p Pre-energising purge period is adequate p Condition of spark/particle barriers of ducts exhausting the gas into hazardous p	permitted limits 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 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 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	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	(X)
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:

Yes? List action required

Contractor (write): Inspector	Supervisor	Client (write): Inspector
Dibiliins		
pignet		
Date: 9/9/11		Date:

Device ID or tag

Action required to make device compliant: Equipment + cable I.O. required.
Blue cable sheath required.
Ex certification not applicable to Aus. standards, conformity assessment required.

Reviewed by: N. GREEN Date: 21/9/11 Priority:

Comments:					
All action items now completed:					
Job closed:	H				
Device now fully compliant, spreadshee	at register has	been undated	1	_	
Supervisor (write):	et register nas	been upuateu	I		
Date:					



Based on AS/NZS 60079 part 17

Ref. 1:\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

General	
Device ID or tag: $-(TT)$	Asset: STANDBY KUN
Circuit ID:	Physical location: OARNIN 4TY GATES
Area classification :	Environment: (hot?)

Data from Label

Type of protection: (d.e, i. n, p p <th< th=""><th></th><th></th><th></th><th></th><th></th><th></th><th></th></th<>							
Manufacture: V D K ObrAMVA Gas group: (IIAB/C) II C Full model number: V 1 A I I O (STV/LES) Fem class: (T1-T6) T 6 T 4 T 4 Serial number: FAA 4D /R / StV Certificate number: Ars Ex 3640, StS2x, 3652x StS2x, 3652x IP Class 66 / 67 Test authonity: (BAS, PTB, SAA etc) StAA etc) StAA etc) Number of cables: serial: serial: Serial: C 2 J 90 1750 937 For each cable entry gland 1 gland 2 others Cigland manufacture: Model: 10' PAPAPTOK F20' (PUC) Cirple as checked Model: 10' Artisk E 0047X Serial: C 2 J 90 1750 937 Inspection Acquipment (D or circuit ID is correct. self X 80 1 Equipment(ID or circuit ID is correct. self sectory self X 80 2 Equipment (D or circuit ID is correct. self sectory self X 80 3 Edit connections are tight all X 80 X 80 4 There are no damage or evidence of unauthorised modifications self sectors and undargaed d X 80 X 80	App Mof	or tight, JB, TEMP TRANSMITTOR Type of prot		a j	a,n]
Serial number: FACHUB Isua Serial number: FACHUB Isua Test automity: (BAS, PTB, SAA etc) IP Class 6667 Isua Isua Test automity: (BAS, PTB, SAA etc) Number of cables: Isua serial: Clast automity: (BAS, PTB, SAA etc) For each cable entry gland 1 gland 2 others Cland mainfacturer: Avglicable to For each cable entry gland 1 Ispection DrT #2 ATTEXE 0477Y Inspection Circle as checked Applicable to Applicable to Applicable to For each cable entry all X X 1 Equipment (Ind group and temp class) is appropriate for area classification all X X Eaclasser 1 Equipment (ID or circuit ID is correct all X X Eaclasser Eaclasser A Eaclasser A Eaclasser Eaclasser A Eaclasser A Eaclasser A Circle as checked Eaclasser A Eaclasser Eaclasser A Eaclasser Eaclasser Eaclasser A Eaclasser Eaclasser Eaclasser A		nufacturer: VDKDUANA Gas group:	IIA/B/C	110			1
Serial number: FACHUB Isua Serial number: FACHUB Isua Test automity: (BAS, PTB, SAA etc) IP Class 6667 Isua Isua Test automity: (BAS, PTB, SAA etc) Number of cables: Isua serial: Clast automity: (BAS, PTB, SAA etc) For each cable entry gland 1 gland 2 others Cland mainfacturer: Avglicable to For each cable entry gland 1 Ispection DrT #2 ATTEXE 0477Y Inspection Circle as checked Applicable to Applicable to Applicable to For each cable entry all X X 1 Equipment (Ind group and temp class) is appropriate for area classification all X X Eaclasser 1 Equipment (ID or circuit ID is correct all X X Eaclasser Eaclasser A Eaclasser A Eaclasser Eaclasser A Eaclasser A Eaclasser A Circle as checked Eaclasser A Eaclasser Eaclasser A Eaclasser Eaclasser Eaclasser A Eaclasser Eaclasser Eaclasser A	Full	model number: VTA 110 STULES Fremp class:	(T1-T6)	ThT	4 74	4	1
IP Class 66/67 Itst autnotity (BAS, PTB, SAA etc) Number of cables: SeA etc) 52.3 (2.23901750 93) For each cable entry gland 1 gland 2 others Gland manufacture: ArMACHNADA Data Cables Data Cables Data Cables Gland manufacture: ArMACHNADA Data Cables Data Cables <td>Seri</td> <td>ial number: FALLOR LILI Certificate n</td> <td>umber:</td> <td>Australi</td> <td>0 215</td> <td>> > > > (</td> <td></td>	Seri	ial number: FALLOR LILI Certificate n	umber:	Australi	0 215	> > > > (
Invester 66/67 SAA etc) Number of cables: Sec.A: c 2 J 901750 933 For each cable entry gland 1 gland 2 others Ciliand mainfacturer: AVD CORT P 20 (PUC) Olded Jor PAPPTOR P 20 (PUC) Gland mainfacturer: AVD CORT P 20 (PUC) Inspection Or Correct Jor PAPPTOR P 20 (PUC) Inspection Or Correct Jor PAPPTOR P 20 (PUC) Inspection Or Correct Jor Papeton Circle as checked A Equipment Origon and temp class) is appropriate for area classification Jor Papeton Circle as checked Inspection All Three are no damage or vidence of unauthorised modifications Jail X X Electrical connections are lost Jor Papeton and Undamaged Jor Papeton andu Undamaged Jor Papeton and Undamaged <t< td=""><td></td><td>T lest authon</td><td>ty: (BAS</td><td>, PTB,</td><td>0, 565</td><td>CX, 30;</td><td>s c x</td></t<>		T lest authon	ty: (BAS	, PTB,	0, 565	CX, 30;	s c x
For each cable entry gland 1 gland 2 others Gland manufacture:: 10° Aphtrok 520 (PUC) Model: 0° Aphtrok 520 (PUC) Inspection brt 0°L Art5×E 047X Circle as checked Inspection 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 Circle as checked 3 Enclosure, sealing gastets or compounds are satisfactory all X X Circle 4 There are in damage or evidence of unauthorised modifications all X X Circle 5 Bolts, cable entries and blanking elements are correct and tight all X X Circle 6 Flange facings are clencours is satisfactory to enclosure and/or covers n X X Circle 1 Motor fans have sufficient clearance motors only X X Circle 14 Entertion cleary is astisfactory all X X Circle <		Liass 66/67 SAA etc)					
Gland manufacturer: ATAC #VOD Model: 9' PAPHTOR P.20 (PVC) Gland type of protection: (d,e) N0 USIGT F.e. 1 Inspection DMT 02 ATEXE 0471Y Circle as checked AEquipment Applicable to protection type: Internal External 1 Equipment to or circuit Di is correct all X X 2 Equipment to or circuit Di is correct all X X 3 Enclosure, sealing gastets or compounds are satisfactory all X X 4 There are no damage or evidence of unauthorised modifications all X X X 4 Flange facings are clean and undamaged d X X X X 5 Bolts, cable entries and blanking elements are correct and light all X	Nun	nber of cables:	: C	23901750	933		
Gland manufacturer: ATAC #VIDIN PIC IC PIC <							
Mode: 10° MPAPTICK 12° (PVC) Gland type of protection: (d.e) No USRT DMT 02 ATTEXE 0477 Inspection Acquipment (in cligroup and temp class) is appropriate for area classification all X 1 Equipment (in cligroup and temp class) is appropriate for area classification all X X 2 Equipment Do roicuit D is correct all X X Curvet 3 Enclosure, sealing gaskets or compounds are salisfactory all X X Curvet 4 There are no damage or evidence of unauthorised modifications all X X Curvet 5 Bols, cable entries and blanking elements are correct and light all X X Curvet 6 Flange facings are clean and undamaged n X X X X 7 Lamp rating, type and position correct all X X X X X 8 Electrical connections are tight all X X X X X X X X X X X X X X X X		r each cable entry gland 1	gland 2	others	<u> </u>		1
Gland type of protection: (d.e) No USRT Lake It DHT 02 ATIEXE 0477 Cirple as checked AEquipment Applicable to protection type: Internal External 1 Equipment (incl group and term 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 X 4 There are no damage or evidence of unauthorised modifications all X X 5 Bots, cable entries and blanking elements are correct and tight all X X 6 Flange facings are class are undamaged n X X 10 Restricted connections are tight all X X X 11 Installation clearly labelled i X X X 12 Installation installation clearly labelled as per certification and securely earthed where i X X 12 Installation all X X X X 13 Safety barrefs/olstors installed as		del: 10' RPAPTOR 1. 70	, 1	PUC			-
Inspection Circle as checked Applicable to protection type: Internal External Equipment (incl group and temp class) is appropriate for area classification all X 1 Equipment ID or circuit ID is correct all X X Curvel Equipment ID or circuit ID is correct all X X 3 Enclosure, sealing gaskets or compounds are satisfactory all X X Curvel 4 There are no damage or evidence of unauthorised modifications all X X Curvel 5 Bolts, cable entries and blanking elements are correct and light all X X Curvel Curvel 6 Flange facings are clean and undanaged n X X X Curvel		nd type of protection: (d,e)	1		-	-	1
Inspection Circle as checked AEquipment 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 Internal External 3 Enclosure, sealing gastets or compounds are satisfactory all X X Internal External 4 There are no damage or evidence of unauthorised modifications all X X Internal External X X Internal External X X Internal External X X Internal X X Internal X		NMT 02	ATE	XE OUTX			
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7 Lamp rating, type and position correct all X 8 Electrical connections are tight all X 9 Hermetically seled 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 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 14 Entity calculation/documentation is available i X X 14 Entity calculation/documentation is available all X X 14 Entity calculation/documentation is available all X X 15 Sealing of ducts and/or conduits is satisfactory all X X 16 Installation all X X 17 Type of cable is appropriate, cables are undamaged all X X						~	
8 Electrical connections are tight all X 9 Hermetically sealed devices are undamaged n X 9 Restricted breating 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 C 13 Safety barriers/isolators installed as per certification and securely earthed where i X C 14 Entity calculation/documentation is available i X X 14 Entity calculation/documentation is available i X X 15 Selaing of ducts and/or conduits is satisfactory all X X 2 Stopper boxes or barrier glands are properly filled d X X 2 Sealing of bouch and on conduits system and interface with mixed system is maintained all X X 3 Stopper boxes or barrier glands are properly filled d X X 4 Integrity of conduit system and interface with mixed system is maintained all X X 5 Fault loop i							
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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 p X 17 Condition of spark/particle barriers of ducts exhausting the gas into hazardous p X		Protective gas is substantially free from contaminants (water, oil. dirt)			X		1
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							1
Pre-energising purge period is adequate p X 17 Condition of spark/particle barriers of ducts exhausting the gas into hazardous p y		Pressure and/or flow indicators, alarms and interlocks function correctly					1
17 Condition of spark/particle barriers of ducts exhausting the gas into hazardous p					X		1
area are satisfactory			ous		X		1



Х

all

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	Ø
2	No undue accumulation of dust or dirt	all	X	$\overline{\mathbf{x}}$

No undue accumulation of dust or dirt 3 Electrical insulation is clean and dry

Faults found? (circle as appropriate)

No:

Ves.

List action required

Contractor (write): Inspector	Supervisor	Client (write): Inspector	
P. Williams			
Date: 7/9/11		Date:	
Date: 9 9 10		Date:	

Device ID or tag

Action re	quired to mak	te device cor	npliant:	- 3 and			-	
-	Equips	nont +	cct	J.O. 10	gui	ed		
-	Blue	sheath	15.5.	label	to	conduit	required.	

N. LREEN Reviewed by: Date: 21/9/1/ Priority:

Comments:				-
	_			
All action items now completed: Job closed:				
Device now fully compliant, spreadshe	et register has been	updated	-	

pervisor (write): Date:

Based on AS/NZS 60079 part 17

Ref: 1:\data\sitzle^company operations\darwin\tenders\sbsj11\tyf1 - 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

opeomoutons	1
General	· ـ
Device ID or tag: (LP-SW _	Asset: DUTY RUN
Circuit ID:	Physical location: MARWIN CITY GRATTES.
Area classification :	Environment: (hot?)

Data from Label

Apparatus type: (light, JB. CON PRESSURIE SWITCH	Type of protection: (d,e, i, n, p etc)
Manufacturer: UIE	Gas group: (IIA/B/C) 113
Full model number: H119 189	Temp class: (T1-T6) 76
Serial number: 7000 PST 49 MPA-013	Certificate number: AUST Ex 1211
IP Class 66	Test authority: (BAS, PTB, SAA etc)
	1 m

Number of cables:

For each cable entry	gland + ADHP70R	-gland-2-	others	
Gland manufacturer:		CLOUSE HINDS		
Model:	CH. AMNI	GUA		
Gland type of protection: (d,e)	Erd	Exdle		
Inspection	Exilosu	AVE EX 319	>	Circle as checked
hispeetion				onpie as onepied

Inspection	
mopeonon	

		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	DIRBUT
2	Equipment ID or circuit ID is correct	all	X	\otimes	- TROUT
3	Enclosure, sealing gaskets or compounds are satisfactory	all	X	X	- icaer i
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	Х	
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		I
12	Installation clearly labelled	ì	X	X	
13	Safety barriers/isolators installed as per certification and securely earthed where	3	X	x	
14	required Entity calculation/documentation is available	i	X	X	

B Installation

	Difisialization			
1	Type of cable is appropriate, cables are undamaged	all	X	X
2	Sealing of ducts and/or conduits is satisfactory	all	X	Х
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	alf	x	x
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	_
1 1	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	p	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 area are satisfactory	p	х	

SITZLER



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	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	ì	X	

	C Environment				CORPOSIG
1	Apparatus adequately protected from corrosion, weather, vibration, other	. all	X	\otimes	
2	No undue accumulation of dust or dirt	all	X	X	1.0
3	Electrical insulation is clean and dry	all	x		Box.

Faults found? (circle as appropriate)

Yes:) List action required Contractor (write): Inspector Supervisor Client (write): Inspector 9 1 1 Date: Date:

Device ID or tag

No:

Action required to make de	vice compliant:		
- Equipment	+ cct I.O.	required.	
- Refer st	mdby son LP-	sw note on	Ex d.
- Corrosion	visible on J	ß.	

Reviewed by: N. SREEN Date: 21/9/11 Priority:

Comments:		 	
			·
All action items new completed.			
All action items now completed:			
Job closed:		 	
Device now fully compliant, spreadsheet register h	as been updated	_	
Supervisor (write):			
Date:			



Based on AS/NZS 60079 part 17

Ref: I:\data\sitzler\company operations\darwin\landers\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:	~	Asset:	DUTY	RUN
Circuit ID:	-	Physical location:	DARWA	4 CITY GATES
Area classification :		Environment: (hot?	?)	

Data from Label

Apparatus type: (light, JB, TORRINE METRR Motor)	Type of protection: (d,e, i, n, p Ey ia
Manufacturer: ITRON	Gas group: (IIA/B/C)
Full model number: DE-07~MI002-PTB018	Temp class: (T1-T6) 75 c T6.
Serial number: 2408318306/C 2010	Certificate number: LCIE 06 ATIEX 6031 X
IP Class N. A (PELTA S-FLOW G46)	Test authority: (BAS, PTB, SAA etc)

Number of cables:

For each cable entry	gland	gland 2	others	5	
Gland manufacturer:	- 1				
Model:					
Gland type of protection: (d,e)					

Inspection -

1 2 3 4	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	Applicable to protection type: all all all all	Internal X X X X	External X Ø	- 11.2007 - Ravis.
5	Bolts, cable entries and blanking elements are correct and tight	all	X	\bigotimes	
6	Flange facings are clean and undamaged	d	<u> </u>		
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		1
11	Motor fans have sufficient clearance	motors only	X		
12	Installation clearly labelled	i	X	R	BLUE
13	Safety barriers/isolators installed as per certification and securely earthed where required	i	×	æ	
14	Entity calculation/documentation is available	i	X	X]

B Installation

	B Installation			
1	Type of cable is appropriate, cables are undamaged	all	X	1 - SUPPER
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	х	\otimes
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	al)	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	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

Circle as checked



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	i	Х	
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	Х	X
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:

 List action required

 Contractor (write): Inspector

 Supervisor

 Client (write): Inspector

 Date:

Action re	quired to make device compliant:
	Equipment + cable J.D. required.
-	Blue cable shealth required.
1	Ex certification not applicable to Aus. standards, conformity assessment required.

Reviewed by: N. CREEN Date: 21/g/n Priority:

Comments:						
All action items now completed:						
Job closed:						
Device now fully compliant spreadsheet register	Device now fully compliant, spreadsheet register has been updated					
Supervisor (write):	nas seen apaatea					
Date:						



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 sheel for ex-d, ex-e, ex-i, ex-n, ex-p and other ex devices.doc

Spec	pown Stream					
Gen	eral (UPSTREAM? OF TUTUBINE MA	27BVC)		/		-
Devi	ce ID or tag. (17) -	Asset: DV				
Circu	iit ID: 🗾	Physical location:	DARWIN CAT.	y GAT	K	
Area	classification :	Environment: (hot?)	/ '			
	-				_	
	from Label			_		-
Appa Moto	aratus type: (light, JB, TEMP TRONSMITTER	Type of protection: (etc)	d,e,i,n,p	a, n		
	ufacturer: VOKOGAWA	Gas group: (IIA/B/C				1
Full	model number: VTA 110 STYLES	3) Temp class: (T1-T6)	76, 74	. 74		
Seria	al number: EA 4DB / SU1		AUS 6x 3640,	3657 X	265	x
IP C		Test authority: (BAS	, PTB,		-1.300	
		SAA etc)	TANDUA			
Num	ber of cables:	- SERIAL:	c23901749	155		
	each cable entry gland 1	gland 2				-
Mod	d manufacturer: ANDCONDA el: 90 ADATTER	DMTOR M	PUL			1
	d type of protection: (d,e)	Exe	THE T			1
		,				-
Inspe	ection			Circle a	s chepked	1
			Applicable to	(
	A Equipment		protection type:	Internal	External	
1	Equipment (incl group and temp class) is appropriate for a	rea classification	all	X	ð.	A) PIATIS
2	Equipment ID or circuit ID is correct		all	<u> </u>		- BOUTP.
3	Enclosure, sealing gaskets or compounds are satisfactory		all	<u>X</u>	8	-12000.
4	There are no damage or evidence of unauthorised modific		ali	X X	*	
5 6	Bolts, cable entries and blanking elements are correct and Flange facings are clean and undamaged	ugnt	all d	x x	4	
7	Lamp rating, type and position correct		all	$\frac{1}{x}$		
8	Electrical connections are tight		all	x		
9	Hermetically sealed devices are undamaged		n	<u> </u>		
10	Restricted breathing enclosure is satisfactory to enclosure	and/or covers	n	X		
11	Motor fans have sufficient clearance		motors only	X		10100
12	Installation clearly labelled		i	Х	3	BLUE
13	Safety barriers/isolators installed as per certification and s required	ecurely earthed where	i	X	CS	
14	Entity calculation/documentation is available		ii	<u>x</u>	X	
				· · · · ·		
	B Installation					-
1	Type of cable is appropriate, cables are undamaged		all	X	Ø	4
2	Sealing of ducts and/or conduits is satisfactory		all	X	8	-
3	Stopper boxes or barrier glands are properly filled Integrity of conduit system and interface with mixed system	n in maintained	d all	X		4
4 5	Earthing and bonding connections are tight, in good condi		all			-
5	cross section	tion and os sunicient	aii	Х	Ø	
6	Fault loop impedance is satisfactory		power outlets	X		
7	Insulation resistance is satisfactory (check only during initi		all	X		4
8	Automatic electrical protective devices are set correctly an permitted limits	nd operate within	all	X		
9	Special certification conditions U,X or B have been compli	ed 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	1
13	Protective gas is substantially free from contaminants (wa	ter, oil, dirt)	p	X	X	1
14	Protective gas flow/pressure is adequate		p	Х]
15	Pressure and/or flow indicators, alarms and interlocks fun	ction correctly	р	X]
16	Pre-energising purge period is adequate		р	X		
17	Condition of spark/particle barriers of ducts exhausting the	e gas into hazardous	ρ	x		
	area are satisfactory]



				10001209403
18	Cables are installed and screens are earthed in accordance with the	i	Y	
	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	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:

Ves: List action required

Contrac	tor (w	vrite): Ir	nspector	Supervisor	Client (write): Inspector	
	D'	WILL	-intras	•		
	,-		1.			
Date:	91	Q	111		Date:	
	- 1 1					

Device I	D or	tag
----------	------	-----

Actio	Action required to make device compliant:								
	-	Equipment + calle	J.O. regimed.						
	1	Blue shealt / I.S. label	required.						

Reviewed by: N. CREEN Date: 21/9/11 Priority:

		- 18 7	
Comments:			
All action items now completed:			
Job closed:			
Device now fully compliant, spreadsheet re	egister has been updated		
Supervisor (write):			
Date:			

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

Spe	cifications						
Ger	neral NGRK	PI 002)					
. Dev	vice ID or tag:	-001)-	Asset: BER	Riman 1	20 OUTLE	27]
Circ	cuit ID:		Physical location:	DARWIN	- CITY G	MIES	1
Аге	a classification :		Environment: (hot?)		/		1
			_	_		1	1
	a from Label		Turne of montal lines (d		V	7
App Mot	baratus type: (light, JB, tor)	PRESSURE TRANSMIT	Type of protection: (^{a,e, i, n, p} ML	AA, d, 19		
Mai	nufacturer: Rosch	nong	Gas group: (IIA/B/C)	TS. T.	5 TS/76.	756]
Full	model number: 305 TL	4A2B215K7M5T1P104	Temp class: (T1-T6)	11	ETT	2	1
Ser	نal number: <u>217 ها بر</u> ن بها الا 1	221	Certificate number:	JEL EX	BAS 09.007	5 X	1
	Class		Test authority: (BAS	DTD .			-
			SAA etc)	1013 C	09.0071X	15785 15	01 07.00 B
Nur	mber of cables:		KENO	- sqa	5AS 09 00	76×	
			-				1<
	r each cable entry		gland 2	0	thers 200	R RUN	4 1
Mo	nd manufacturer:	KALACONDA 20mm			ROSEMAN	1.	1
	nd type of protection: (d,e)	NOLERT			Exde		-
			·	KR	MA 07 MOX	40074	4
Insp	ection				→ Circle a	s checked	l
	A Equipment			Applicable to protection type	e: Internal	External	
1	Equipment (incl group and	temp class) is appropriate for are	a classification	all	X	X	
2	Equipment ID or circuit ID			all	X	Ø.	tikent
3		s or compounds are satisfactory		all	<u> </u>	8	-ERON.
4 5		evidence of unauthorised modificat			X	8	
6	Flange facings are clean	lanking elements are correct and ti and undamaged	gni	alld	X	8	
7	Lamp rating, type and pos			all	- Â		
8	Electrical connections are			all	X		
9	Hermetically sealed device			n	X		
10	Restricted breathing enclo	osure is satisfactory to enclosure a	nd/or covers	n	X		
11	Motor fans have sufficient			motors onl	*		
12	Installation clearly labelled			i	X	0	BLUE
13	Safety barriers/isolators in required	nstalled as per certification and sec	urely earthed where	j	×	8	
14	Entity calculation/docume	ntation is available		i	X	X	
	B Installation						
1		ate, cables are undamaged		all	X	X	1
2	Sealing of ducts and/or co			all	- <u>^</u>	BB	-
3	Stopper boxes or barrier			d	× –	4	1
4		and interface with mixed system i	is maintained	all	X		4
5		nections are tight, in good conditio		all	X	·•X	
6	Fault loop impedance is s			power outle			1
7	Insulation resistance is sa	itisfactory (check only during initial		all	X]
8		ctive devices are set correctly and	operate within	all	x]
0	permitted limits	liana II V ar Dhaun t		-11			{
9 10	Cables/spare cores are te	tions U,X or B have been complied	with	all	X		4
10		to flameproof flanged joint	-	a	X	x	1
12	Ducts, pipes and enclosu			p d	X	X	1
13		ially free from contaminants (water	r. oil. dirt)	p	X	X	1
14	Protective gas flow/press		,	p	X		1
15	Pressure and/or flow indic	ators, alarms and interlocks function	on correctly	p p			ſ
16	Pre-energising purge peri			p	X		1
17		barriers of ducts exhausting the g	as into hazardous	ρ	x		1
	area are satisfactory				^]



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	×	

	C Environment			•	1. A AASIL
1	Apparatus adequately protected from corrosion, weather, vibration, other	all	X	\otimes	Correst
2	No undue accumulation of dust or dirt	all	Х	X	OF ANALCO
3	Electrical insulation is clean and dry	all	X		

Faults found? (circle as appropriate)

No:			
List action required		<u>.</u>	
Contractor (write): Inspector	Supervisor	Client (write): Inspector	
Date g/g/11		Date	

Device ID or tag

Action required to make device compliant:	
- Equipment + cct I.D. required. - Corrosion visible at conduit adaptor.	
- Blue sheath / I.S. label required.	

Reviewed by: Date: 22/9/u Priority: N. GAEEN

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: I:\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, exi, ex-n, ex-p and other ex devices.doc

Specifications

Gen	eral						
		SWI)	Asset: REK	RIMAN RO	OUTH	<i><u><u></u></u></i> <u></u> <u></u> <u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u></u>]
Circ	suit ID:		Physical location:	DARWIN	CITY	GATES	-
Are	a classification :		Environment: (hot?)	,		411100	1
7.00]
	a from Label				,	_	_
	paratus type: (light, JB, P	ERSSURS SWITCH	Type of protection: (d,e, i, n, p]
Mot			etc)				-
<u> </u>	~	TELEMPIC CONTROLS					_
Full	model number: 0/2	0 168	Temp class: (T1-T6)				-
Seri	ia) number:		Certificate number:	AUS EX	542		
IP C	Class 66		Test authority: (BAS	, PTB,	,		
			SAA etc)				
Nur	nber of cables:]				
_				~11(Anna		
	r each cable entry nd manufacturer:	gland 1	gland 2		S ADAM	T	1
Mod		70 mm.		/	V CRA	· /	1
	nd type of protection: (d,e)				_		1
Insp	ection —			Applicable to	Circle a	as checked	
	A Equipment			protection type:	Internal	External	
1		temp class) is appropriate for are	a classification	all	X	X Z	ALRINT?
2	Equipment ID or circuit ID			all	X	<u>~</u>	- Execut
3 4	There are no damage or e	s or compounds are satisfactory evidence of unauthorised modification		all	X	8	N (C C
5		lanking elements are correct and ti		all	X	(X)	
6	Flange facings are clean a		<u></u>	d	X –		
7	Lamp rating, type and pos			all	X		
8	Electrical connections are			all	× –		
9	Hermetically sealed devic			n	X		
10		osure is satisfactory to enclosure a	nd/or covers	n	X		
11 12	Motor fans have sufficient Installation clearly labelled			motors only		N6	Busé
13		stalled as per certification and sec	urely earthed where	i		8	BUCC
	required				X	8	
14	Entity calculation/docume	ntation is available		i	Х	X	
	B Installation						
1		te, cables are undamaged		all	Х	Ø]
2	Sealing of ducts and/or co	onduits is satisfactory		all	X	8]
3	Stopper boxes or barrier of			d	X]
4		and interface with mixed system i		all	X		-
5	Earthing and bonding con cross section	nections are tight, in good conditio	n and of sufficient	all	x	Ø	
6	Fault loop impedance is s	atisfactory		power outlets	X		-
7	Insulation resistance is sa	tisfactory (check only during initial		all	X		
8	Automatic electrical protect permitted limits	ctive devices are set correctly and	operate within	all	x		1
9		tions U,X or B have been complied	with	all	x		•
10	Cables/spare cores are te			all	X		1
11	No obstructions adjacent	to flameproof flanged joint		d	X	X	
12	Ducts, pipes and enclosur	res are in good condition		р	Х	X	
13		ally free from contaminants (water	, oil, dirt)	p	Х	Х	
14	Protective gas flow/pressu	ure is adequate		Р	Х		
15		ators, alarms and interlocks function	on correctly	р	Х		-
16	Pre-energising purge perio			p	Х		-
17		e barriers of ducts exhausting the g	as into hazardous	р	X		
	area are satisfactory]

Amadeus Pipeline Electrical Inspections

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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	×	
	C Environment			

	C Environment			\sim	pAROSID.
1	Apparatus adequately protected from corrosion, weather, vibration, other	all	X	\otimes	TO LABO
2	No undue accumulation of dust or dirt	all	X	Х	BATRN
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: 9/9/1(Date:

Device ID or tag Action required to make device compliant: - Egipment + cot I.D. required - Blue sheath / I.S. label to conduit required.

Reviewed by: Date: 2/ 9/4	N. GREEN	
Priority:		

Comments:				
All action items now completed: Job closed:	님			
000 010300.			 	
Device now fully compliant, spread	dsheet register has be	en updated		
Supervisor (write):				
Date:				



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								
Device ID or tag:	IJB	001	Asset: 4 MAL	YSER SH	ETGA	,		7
Circuit ID:	-	028	Physical location:				71	-
	1315	010						-
Area classification :			Environment: (hot?)	OUTDOOR	2 ~ 5	MEL	16-L	
Data from Label Apparatus type: (light, J			Type of protection: (dainn	_			7
Motor)	18, JC	\$	etc)	u'e' i' ii' h				NO
Manufacturer: ?			Gas group: (IIA/B/C))		_		DATA.
	V/A		Temp class: (T1-T6)					
Serial number:	N/A		Certificate number:		_		_	
IP Class N	IA		Test authority: (BAS SAA etc)	, РТВ, —				
Number of cables:	(4)							
Eor each cable ontr		56029 gland 1	ρ_{1TOS} gland 2		$\beta_{1} \tau \sigma$	32		PIT033
For each cable entr Gland manufacturer:	, ,	CCC	HAWKE		HAWKE			HAU
Model:		IELEX MZO	501/453 RAC		01/453	RAC		HAUKE SO1/453R
Gland type of protection	n: (d <u>.</u> e)	exd TIL						
spection ——	Aus	EY 03.3844 X	JECEX BAS	06.0013>		Circle	as checked	4
ispection ———					-	Cincle a	as checked	1
				Applicable to		¥	↓ I	
A Equipment				protection typ	be: 1	nternal	External	1
Equipment (inclig Equipment ID or o		temp class) is appropriate for	or area classification	allall		<u>X</u>	X	-
		or compounds are satisfactor	orv	all		_ <u>^</u>	XX	-
		idence of unauthorised mod		all		X	Ø	1
		nking elements are correct a		all		x —	10	1
Flange facings ar				d		X		
Lamp rating, type				all		<u>X</u>		-
Electrical connect				all		X		-
Hermetically seal		ure is satisfactory to enclose	ure and/or covers	n		<u>X</u>		-
Motor fans have s				motors or	ป่ง	X		-
2 Installation clearly				i	<u> </u>	X	Ø	1
		talled as per certification and	d securely earthed where	i		Х	×	
4 Entity calculation/	document	ation is available		í		Х	X]
B Installation							-	-
		e, cables are undamaged		all		X	88	4
		duits is satisfactory ands are properly filled		alld		X X	<u>v</u>	-
		and interface with mixed sys	tem is maintained	all		X		1
		ections are tight, in good con		all		x	Ø	1
Fault loop impeda	ince is sati	isfactory		power out	ets	х		-
		sfactory (check only during i	nitial inspection)	all		X		1
		ve devices are set correctly		all		х]
	on conditio	ons U,X or B have been com	nplied with	all		Х		_
Cables/spare core	es are tern	ninated satisfactorily		all		Х		
		flameproof flanged joint		d		X	X	4
		s are in good condition	water all did	p		<u> </u>	X	-
		Ily free from contaminants (water, oli, dirt)	p		X	X	-
Protective gas flow Pressure and/or fl		e is adequate tors, alarms and interlocks fi	unction correctly	<u>р</u>		X		-
Pre-energising pu				p p		× X	<u> </u>	-
		parriers of ducts exhausting	the gas into hazardous	p				1
area are satisfact						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	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 Ell'all'oliment			
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)

Yes: List action required

Device ID or tag

Action required to make device compliant:	

Reviewed by: Date: Priority:

Comments:		
	_	
All action items now completed: Job closed:		
JOD Closed.		 _
Device new fully compliant approaches tr		

Device now fully compliant, spreadsheet register has been updated Supervisor (write): Date:

Based on AS/NZS 60079 part 17



Ref: 1:/data/sit2le/company 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:	PIT 3i	Asset: CARRIER GAS PRESSURE
Circuit ID:	PIT 031	Physical location: PARWIN CITY CATE
Area classification :	ZONE 2	Environment: (hot?) OUTOOR SHELTER

Data from Label

Apparatus type: (light, JB, PRESSURE TX	Type of protection: (d,e, i, n, p
Manufacturer: OKOGAWA	Gas group: (IIA/B/C)
Full model number: EJX 53 0A-EDS4N-014EF	-suz Temp class: (T1-T6)
Serial number: 9124-39334 117 -	Certificate number: $E \leq E_{\times}$ OS. 0005
IP Class 1866 21867	Test authority: (BAS, PTB, SAA etc)

Number of cables:

7

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9

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11 12

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14

15

16

17

permitted limits

area are satisfactory

ł

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

Cables/spare cores are terminated satisfactorily

Protective gas flow/pressure is adequate

Pre-energising purge period is adequate

No obstructions adjacent to flameproof flanged joint

Ducts, pipes and enclosures are in good condition

Automatic electrical protective devices are set correctly and operate within

For	each cable entry	gland 1	gland 2	oth	ers PWG	
Gland manufacturer:			LEG			
Model: 501 / 453 RAC			1	720		
Glan	d type of protection: (d,e)	EXD		e	Ex J. P.	
		JECEX BAS D60013 Y		AT	EX 13 032	·SX
Inspe	ection				Circle a	s checked
				Applicable to	4	Ļ
	A Equipment			protection type:	Internal	External
1	Equipment (incl group and	d temp class) is appropriate for area	a classification	all	X	Х
2	Equipment ID or circuit ID) is correct		all	X	X
3	Enclosure, sealing gaske	ts or compounds are satisfactory		all	X	X
4		evidence of unauthorised modificati		all	X	X
5	Bolts, cable entries and b	lanking elements are correct and tig	ght	all	X	X
6	Flange facings are clean			d	X	
7	Lamp rating, type and pos	sition correct		all	X	
8	Electrical connections are	e tight		all	X	
9	9 Hermetically sealed devices are undamaged			n	X	
10	Restricted breathing enclo	osure is satisfactory to enclosure ar	nd/or covers	n	X	
.11	Motor fans have sufficient	t clearance		motors only	X	
12	Installation clearly labelle	d		ì	_ X	
13		nstalled as per certification and sec	urely earthed where	i	X	0
	required					
14	Entity calculation/docume	entation is available		i	X	Х
	B Installation		_			
1		ate, cables are undamaged		all	X	\otimes
2	Sealing of ducts and/or conduits is satisfactory		all	X	x	
3	Stopper boxes or barrier			d	X	
4		n and interface with mixed system is		all	X	
5	Earthing and bonding cor cross section	nections are tight, in good condition	n and of sufficient	all	х	\otimes
6	Fault loop impedance is s	atisfactory		power outlets	X	

all

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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	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			0
1	Apparatus adequately protected from corrosion, weather, vibration, other	all	X	X
2	No undue accumulation of dust or dirt	all	X	S
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.C.PEEN			
Data	glaly		Defe	
Date:	6/9/10		Date:	
	11			

Device ID or tag

Action required to make device compliant:	_	
		ſ

Reviewed by: Date: Priority:

Comments:			
All action items now completed:			
Job closed:			
	<u>_</u>	-	
Device now fully compliant, spreadsheet re	agistor has been undeted		
Device now july compliant, spreadsneet n	egister nas 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

Device ID or tag: PIT 32_	Asset: CARRIER GAS PLESSURE
Circuit ID: Pit OSZ	Physical location: DARMIN CITY GATE
Area classification: ZONEZ	Environment: (hot?) OUT DOOR SHELTER

Data from Label

Apparatus type: Motor)	(light, JB, PR	ESSURE TX		Type of protection: (d,e, i, n, p	
Motor) Manufacturer:		530A 5546	- 02	Gas group: (IIA/B/C)	
Full model numb				Temp class: (T1-T6)	_
Serial number:	912	-439335	רוו	Certificate number: IEC Ex CSA 05.000	5
IP Class	IP 66	L 1P67		Test authority: (BAS, PTB, SAA etc)	

Number of cables:

area are satisfactory

EDS4N-DIHEF/SUZ/XZ

SITZLER

For each cable entry	gland 1	gland 2	others	; PLUG		
land manufacturer:	manufacturer: HAWKE			CCL		
lodel:	501/453RAC		M20			
land type of protection: (d,e)	Ex D			ix die		
	IECE BAS D60013×		ATEX	130325	ς×.	
spection ———	,		 →	Circle a	s check	
•				1		
			Applicable to	↓ I	↓ ↓	
A Equipment			protection type:	Internal	Externa	
Equipment (incl group a	nd temp class) is appropriate for an	ea classification	all	X	X	
Equipment ID or circuit			all	X	8	
	ets or compounds are satisfactory		all	X	00	
There are no damage o	r evidence of unauthorised modifica	ations	all	X	8	
	blanking elements are correct and	tight	all	X	8	
Flange facings are clear			d	Х		
Lamp rating, type and p			all	Х		
Electrical connections a			all	Х		
Hermetically sealed dev			n	Х		
Restricted breathing en	closure is satisfactory to enclosure	and/or covers	n	X		
Motor fans have sufficie			motors only	X		
	Installation clearly labelled		i	X	\otimes	
Safety barriers/isolators	installed as per certification and se	curely earthed where	i	x	0	
Entity calculation/docum	nentation is available		i	X	X	
B Installation						
Type of cable is approp	riate, cables are undamaged		ail	<u> </u>	Ø	
Sealing of ducts and/or	conduits is satisfactory		all	Х	X	
	r glands are properly filled		d	X		
	em and interface with mixed system	is maintained	all	X		
	onnections are tight, in good condition		all		he	
cross section				X	0	
Fault loop impedance is	satisfactory		power outlets	X		
	satisfactory (check only during initia	al inspection)	all	Х		
	tective devices are set correctly and		all	×		
permitted limits				X		
Special certification con	ditions U,X or B have been complie	ed with	all	X		
	terminated satisfactorily		all	X		
No obstructions adjacer	t to flameproof flanged joint		d	X	Х	
	ures are in good condition		р	X	X	
Protective gas is substa	ntially free from contaminants (wat	er, oil, dirt)	р	X	X	
Protective gas flow/pres			р	X		
	licators, alarms and interlocks func	tion correctly	р	X		
Pre-energising purge pe			p	X		
	Condition of spark/particle barriers of ducts exhausting the gas into hazardous					

Condition of spark/particle barriers of ducts exhausting the gas into hazardous

Х

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	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	

	CEnvironment			
1	Apparatus adequately protected from corrosion, weather, vibration, other	all	X	\bigotimes
2	No undue accumulation of dust or dirt	ail	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.GREEN			
Date: 9/9/11		Date:	

Device ID or tag

Action required to make device compliant:	
······································	

Reviewed by:	
Date:	
Priority:	

Comments:			
)			
	_		
All action items now completed:			
Job closed:		_	
Device a set fully a set of set of set of set	A wawlates has h		

Device now fully compliant, spreadsheet register has been updated Supervisor (write): Date:

Based on AS/NZS 60079 part 17

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Specifications

General				
Device ID or tag: PIT 33	Asset: CAL. GAS PRESSURE			
Circuit ID: PITO31	Physical location: DARMN CITY GATE			
Area classification :	Environment: (hot?) OUTDOOR SHELTER			

Data from Label Apparatus type: (light, JB, PLESSURE Type of protection: (d,e, i, n, p TX 14 etc) YOKOCAWA Manufacturer: Gas group: (IIA/B/C) TI C EJX 530 A TG Full model number: STYLE Temp class: (T1-T6) 07 439336 IECEX CSA 05.0005 Certificate number: Serial number: 91L 117 Test authority: (BAS, PTB, IP Class 67 & 66 SAA etc) EDS4N-014EF/502/X2 Number of cables:

or	each cable entry	gland 1	gland 2			
Glar	d manufacturer:	HAUKE	L L	PLUC	<u> </u>	Ś
Mod	el:	501 453 RAL		Ma	jo –	
Glar	d type of protection: (d,e)	EXD		Ee.	d.e	
		IECEX BAS D60013)	×	ATGY	130 32	SΧ
spe	ection ——			`		is ćhecke
				Applicable to	Ţ	1
	A Equipment			protection type:	Internal	External
		temp class) is appropriate for	or area classification	all	X	Х
	Equipment ID or circuit ID			all	X	X
	Enclosure, sealing gaskets or compounds are satisfactory			all	X	X
	There are no damage or evidence of unauthorised modifications			alt	X	X
	Bolts, cable entries and blanking elements are correct and tight			all	X	0
	Flange facings are clean a	d	X			
	Lamp rating, type and pos	sition correct		all	X	
	Electrical connections are	tight		all	X	
	Hermetically sealed devic	es are undamaged		n	X	
0	Restricted breathing enclo	osure is satisfactory to enclos	sure and/or covers	п	X	
1	Motor fans have sufficient	motors only	X			
2	Installation clearly labelled			i	X	8
3	Safety barriers/isolators in required	i	X	0		
1	Entity calculation/docume	ntation is available	-	i	X	X

1	Type of cable is appropriate, cables are undamaged	all	X	A
2	Sealing of ducts and/or conduits is satisfactory	all	X	8
3	3 Stopper boxes or barrier glands are properly filled		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	(X)
6	Fault loop impedance is satisfactory	power outlets	x	
0				
7	Insulation resistance is satisfactory (check only during initial inspection)	all	X	
8	Automatic electrical protective devices are set correctly and operate within	ail	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	Х
12	Ducts, pipes and enclosures are in good condition	p	X	Х
13	Protective gas is substantially free from contaminants (water, oil, dirt)	р	X	Х
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	

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	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 ENVIONMENT			-
1	Apparatus adequately protected from corrosion, weather, vibration, other	all	Х	Ø
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?			
K			

Yes:	List action required			
			<u> </u>	
Contra	ctor (write): Inspector	Supervisor	Client (write): Inspector	
Date:	9/9/11		Date:	_

Device ID or tag

Action required to make device compliant:	

Reviewed by:	
Date:	
Priority:	

Comments:			
All action items now completed:			
Job closed:			
Device now fully compliant, spreadshee	t register has been up	lated	



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Specifications

General

Device ID or tag: HEAT TRACING	Asset: ANALYSER SHELTGR
Circuit ID: Poo 4	Physical location: DARMING CITY GATE
Area classification :	Environment: (hot?) BUTDOOR SHELTCH

Data from Label

Apparatus type: (light, JB, HEAT TRACE JB Motor)	Type of protection: (d,e, i, n, p
Manufacturer: THERMON	Gas group: (IIA/B/C) //
Full model number: PN 27610	Temp class: (T1-T6) T4-T6 TECE ULO 5.0003
Serial number:	Certificate number: 9504 3 / UL 05003
IP Class 66	Test authority: (BAS, PTB, SAA etc)

Number of cables:

		PED ADTOR		
For each cable entry	gland 1	gland-2	others	
Gland manufacturer:	ccq	ILEGARUE ?		
Model:	1 STOPEX M2	3		
Gland type of protection: (d,e)	Exduc	5		

Inspection -

Insp	ection		Circle a	is checked	I
	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 x	Ô	Ea
2	Enclosure, sealing gaskets or compounds are satisfactory	all	x x	8	TAACE.
3	There are no damage or evidence of unauthorised modifications	all	x x	1×	
4			-	N N	
5	Bolts, cable entries and blanking elements are correct and tight	all	<u> </u>	8/	
6	Flange facings are clean and undamaged	<u>d</u>	<u> </u>		
7	Lamp rating, type and position correct	ali	X		
8	Electrical connections are tight	alí	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	X	
13	Safety barriers/isolators installed as per certification and securely earthed where required	i	X	X	
14	Entity calculation/documentation is available	ì	Х	Х	
	B Installation				_
1	Type of cable is appropriate, cables are undamaged	all	X	18]
2	Sealing of ducts and/or conduits is satisfactory	all	Х	8	7
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]

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	Х	
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	19 Sec
11	No obstructions adjacent to flameproof flanged joint	d	X	1
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	Х
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	



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			

	C Environment			0
1	Apparatus adequately protected from corrosion, weather, vibration, other	all	X	a del
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

Contrac	tor (write): Inspector ルムアモセト	Supervisor	Client (write): Inspector	
	N.LREEL	>		
Date:	9/9/11		Date:	
				-

Device ID or tag

Action required to make device compliant:	
- Equipment label requied, label heat	trace.
- Verify adapting reduce complies to	maintain I.P.
of installation, Ex cets etc.	
-	

Reviewed by: N-GREEN Date: 2/9/4 Priority:

Comments:			
All action items now completed:			
Job closed:			
Device now fully compliant, spreadsheet	register has been upda	ated	
Supervisor (write):	5		
Date:			

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Specifications

Gen	eral							
Devi	ice ID or tag: MA (27)	Asset: ANALY	ISER S	HEATE	R]
Circ	uitID: POOLMAZ7/	JOOT MAZZ / DATAMAZZOI	Physical location:	DARVIN	CITY	GATE		1
Area	a classification :		Environment: (hot?)	ONTDO	n/ S	HELTER		1
			_					1
Data	from Label							
App:	aratus type: (light, JB, Mot	STURE ANALYSER	Type of protection: (etc)	d,e, i, n, p	EEX	d/d	e	
	ufacturer: A		Gas group: (IIA/B/C)		11			1
		IETEK						-
		-0LV	Temp class: (T1-T6)		Τ6			1
Seria	al number: <u>3</u> 05	-0714	Certificate number:	ATCK	- 60	_ אַרָּס	_	
IP C	lass		Test authority: (BAS SAA etc)	, PTB,				
				NOT TEC	1SAA	APPRO	DUED V	
Num	ber of cables:							
For	each cable entry	gland 1	gland 2		others	PLUG	[x	27
	d manufacturer:	REDART UK	REDAPT UK		SABS		<u> </u>	
Mod		Apu	ADU		WSW	4474	_	
Glar	d type of protection: (d,e)		A		1-5-	EErde		J
Inone	ation	AUSEX 23410	AUSEY 234	0	ATEX	1303257		
inspe	ection	TO FILLED ENTRIES 25 25000 HD EXC AUS EX 23410			-	Circle as	s checked	
	FB-	25 ISWAN HO EXO	I I B	Applicable	0	↓ ↓	Ļ	
				protection t	ype:	Internal	External	
1		temp class) is appropriate for area	a classification			X	X	1.1/2
2	Equipment ID or circuit ID			a(I		X	Ø	INCOMPLETE
3 4		s or compounds are satisfactory evidence of unauthorised modification		all		X X	X	
4 5		anking elements are correct and tig		all		<u>х</u>	×	
6	Flange facings are clean a			d		X		
7	Lamp rating, type and pos		_	all		X		
8	Electrical connections are			all		X		
9	Hermetically sealed device			n		X		
10		osure is satisfactory to enclosure an	nd/or covers	n		X		
11	Motor fans have sufficient		_	motors	only	Х		
12	Installation clearly labelled	1		i		X	Х	
13	Safety barriers/isolators in required	stalled as per certification and secu	urely earthed where	i		x	Х	
14	Entity calculation/docume	ntation is available		i		Х	X	•
1	B Installation Type of cable is appropria	te cables are undamaged		all		v		1
2	Sealing of ducts and/or co			all		X	X	
3	Stopper boxes or barrier g			d		X		
4		and interface with mixed system is	maintained	all		x		
5		nections are tight, in good condition		all				
	cross section					Х	×	
6	Fault loop impedance is sa	atisfactory		power ou	tlets	X		
7		tisfactory (check only during initial i		all		X		
8	Automatic electrical protect permitted limits	ctive devices are set correctly and o	operate within	ali		х		
9		ions U,X or B have been complied	with	all		X		
10	Cables/spare cores are te			all		X		
11	No obstructions adjacent t			d		Х	X	
12	Ducts, pipes and enclosur			р		Х	Х	
13		ially free from contaminants (water,	oil, dirt)	р		Х	Х	
14	Protective gas flow/pressu			p		Х		
15		ators, alarms and interlocks function	n correctly	р		X		
16	Pre-energising purge perio			р		X		
17		barriers of ducts exhausting the ga	as into hazardous	р		x		
	area are satisfactory							

SITZLER



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	Í	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		^	

				-
1	Apparatus adequately protected from corrosion, weather, vibration, other	all	X	X
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): In	spector Super	visor	Client (write): Inspector	
D.WILL	ing			
	0			
Date: १ १ 1			Date:	
p.w.c.r.	Any		Date:	_

Device ID or tag

	equired to make device compliant:
	Egmpnent I.D. reynied.
-	Nil AUS cert detail available, conformity
	allellment requied. Ex dar e device allumed
	allellment required. Ex d'ar e device allumed as Exe istall al per connecting JB.

Reviewed by: N.G.REEN Date: 2/9/11 Priority:

Comments:			
All action items now completed:			
Job closed:			
Device now fully compliant, spreadshee	t register has be	en updated	
Supervisor (write):			
Date:			



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Specifications

ADAPTOR ON 664 NO VERT

area are satisfactory

General	
Device ID or tag: MA27 JUNCTION BOX	Asset: MAZY - AWALYSER SMELTER
Circuit ID: POOL-MAZ7/JOOL-MAZ7/PATA-MAZ7 BI	Physical location: DARVIN CITY GATE
Area classification : 2 IIA	Environment: (hot?) OUTDOOR - SHELTER

Data from Label

App	aratus type: (light, JB, JB	Type of protection: (etc)	d,e, i, n, p			
	ufacturer: GOVAN	Gas group: (IIA/B/C)	-			
Full	model number: ES 2315	Temp class: (T1-T6)				
Seria	al number: 20 9999 - 01	Certificate numbe	TECEXSIM	09.000	IX	
IP C		Test authority: (BAS SAA etc)				
Num	iber of cables: (5)	1	,		-	1
		DATAS		Dine	hr .	2 AS
	each cable entry Pool gland 1 Jool	gland 2	others	PLUG		ZAS MAZZ
Mod		501/453 RA	r M	.25		
	d type of protection: (d,e) d IIC Exe l	501/477 101				-
				EX C. SIM 10		J
-	Aus Ex 03.3844×	AUSEX DOISX				
Inspe	ection		──→	Circle a	is checked	
			Applicable to			
	A Equipment		protection type:	Internal	External	
1	Equipment (incl group and temp class) is appropriate for are	a classification	all	X		-
2	Equipment ID or circuit ID is correct	a olabolitoacion	all	X	⊢ ð	-EOULP.
				X		-
3	Enclosure, sealing gaskets or compounds are satisfactory		all		X	7
4	There are no damage or evidence of unauthorised modification		all	X	X	7
5	Bolts, cable entries and blanking elements are correct and ti	ght	all	X	<u> </u>	
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		n	X		
10	Restricted breathing enclosure is satisfactory to enclosure an	nd/or covers	n	X		
11	Motor fans have sufficient clearance					
			motors only	X		
12	Installation clearly labelled	1	1	X	X	
13	Safety barriers/isolators installed as per certification and sec required	urely earthed where		X	×	
14	Entity calculation/documentation is available		i	X	X	
	B Installation					٦
1	Type of cable is appropriate, cables are undamaged		all	X	X	tool Aller a too
2	Sealing of ducts and/or conduits is satisfactory		all	Х	1/2	CONDUCT NOT SEALON.
3	Stopper boxes or barrier glands are properly filled		d	X		spaces.
4	Integrity of conduit system and interface with mixed system is	s maintained	all	X		1
5	Earthing and bonding connections are tight, in good condition		all	~		1
	cross section			X	X	
6	Fault loop impedance is satisfactory		power outlets	Х		1
7	Insulation resistance is satisfactory (check only during initial	inenection)	all	X		1
8	Automatic electrical protective devices are set correctly and	all			-	
-	permitted limits			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	1
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	on correctly	р	X	<u> </u>	1
16	Pre-energising purge period is adequate		p	X		1
17	Condition of spark/particle barriers of ducts exhausting the g	an into hazardava				1
.,	area are satisfactory	as into nazaroous	p	X		

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	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	X
3	Electrical insulation is clean and dry	all	Х	

Faults found? (circle as appropriate)

No:

Yes: List action required

Client (write): Inspector
Date:

Device	۱D	or	tag
--------	----	----	-----

Action required to make device compliant: - Equipment I.O. required. - Jeal conduit below TE. - Verify maximum act power dissipation does not exceed 7 notts. - Verify adaptor on actingland to be Exie rated, replace as required.

Reviewed by: Date:	N.GREEN.	
Priority:		

Comments:				
All action items now completed: Job closed:			_	
				_
Device now fully compliant, spreadshee	t register has be	en undated		

Supervisor (write): Date:

Based on AS/NZS 60079 part 17

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SITZLER

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X X

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Specifications

14

General	top hoursone	
Device ID or tag:	(GC 28) -	Asset: MOISTURE ANALYSER
Circuit ID: Pto 1	-6628	Physical location: DARWIN CITY GATE
Area classification :	ZONE 2 LIA	Environment: (hot?) OUTDOOR SHELTCA

	Dat	a from Label				,			
	App Mot	paratus type: (light, JB, CM	wromatograph	Type of protection: (etc)	d,e, i, n, p	d]
	Mar		rson	Gas group: (IIA/B/C))	110	,		
	Full	model number: 7 -0	771-101	Temp class: (T1-T6)		14	(60°C	-)	
	Ser		1362	Certificate number:	SIRA D	4A	TEXH	55×	4
	IP (Class		Test authority: (BAS SAA etc)	, ртв, ГЕС	154	SIRA	08.000	8×-
	Nur	nber of cables: 7	`	7					-
PLUG	Fo	r each cable entry	ρ_{oo} aland 1	Poor Adaphor gland 2		5 km () athers	DATA	t	Adaphar
REDAPT		nd manufacturer:	CCG	<u>g.a.i.a z</u>		<u>r=</u>	L- 25		PEFEX
	Mo		I STOPGX 20	FRSIM		_ , .			CSEEX FR32M
?		nd type of protection: (d,e)	d 11C + et	1-1-31/2			9		- macine
-	Gia	na type of protection. (u,e)	anc + en				<u> </u>		
			MASC S/10 020X	/		Ause	× 2314		IEC 6+
	Insp	ection ———–	,			→	Circle a	s checked	SIM
		*							05.00174
					Applicable to		+	+	Λ
		A Equipment			protection typ	e:	Internal	External	
	1	Equipment (incl group and	temp class) is appropriate for are	a classification	all		Х		
	2	Equipment ID or circuit ID	is correct		all		Х	Ø	offic to
	3	Enclosure, sealing gasket	s or compounds are satisfactory		lís		Х	\otimes	Exizer
	4	There are no damage or e	evidence of unauthorised modificat	tions	all		Х	X	C / C
	5		lanking elements are correct and ti		all		Х	×××	
	6	Flange facings are clean a	and undamaged	<u> </u>	d		Х		,
	7	Lamp rating, type and pos			all		Х		
	8	Electrical connections are			alf		Х		
	9	Hermetically sealed devic			n		X		
	10		osure is satisfactory to enclosure a	nd/or covers	n		X		
	11	Motor fans have sufficient			motors or	1v	X		
	12	Installation clearly labelled			1		X	Х	
	13	Safety barriers/isolators in	nstalled as per certification and sec	curely earthed where	i		<u>x</u>	x	
	14	required Entity calculation/docume	ntation is available		i i		X	X	
	4	B Installation	ate, cables are undamaged		all		V	- <u>v</u>	7
	1 2	Sealing of ducts and/or co			all all				CONDUCT NOT
									SEALED
	3	Stopper boxes or barrier g		1	d		<u>X</u>		-
	4		and interface with mixed system		all		Х		4
	5	cross section	nections are tight, in good conditio	on and of sufficient	ali		×	\bigotimes	
	6	Fault loop impedance is s	atisfactory		power out	ets	X		
	7		tisfactory (check only during initial		all		X		
	8		ctive devices are set correctly and		all		X		
	9		tions U,X or B have been complied	s with	all		X		1
	10	Cables/spare cores are te			all		X		1
	11		to flameproof flanged joint		d d		X	X	1
	12	Ducts, pipes and enclosur			p d		X	X	4
	13		ially free from contaminants (water	r oil dirt)	p p		×	$\frac{1}{x}$	4

Protective gas flow/pressure is adequate Pressure and/or flow indicators, alarms and interlocks function correctly 15 16 Pre-energising purge period is adequate 17 Condition of spark/particle barriers of ducts exhausting the gas into hazardous area are satisfactory

- CONFRAM BARRIER GRANDS Amadeus Pipeline Electrical Inspections - ANACONO USED. FROM POSIFIT JU.



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	V	
	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	\bigotimes
3	Electrical insulation is clean and dry	all	X	

Faults found? (circle as appropriate)

No:

Wes: List action required

Contractor (write): Inspector	Supervisor	Client (write): Inspector	
D. Wifeins	•	D_{i}	
Date: 9/9/1)		Date:	
Date.		Date.	

Device ID or tag

Action required to make device compliant: - Equipment J.D. required - Verify conduit between GC & posifit JB is installed Exid' method of protection to AUS certificandords. - Seal cuble conduit located through concrete.

Reviewed by: N. LAREEN Date: 2, ALL Priority:

_

Date:

Based on AS/NZS 60079 part 17

Ref: 1:\data\sit2\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

Device ID or tag:	428 JB		Asset: ANALYISER SHELTER			
Circuit ID: GC28	DATA OIA 1	PATAOZA	Physical location: DARWIN CITY CATE			
Area classification : Z	ONE 2		Environment: (hot?) OUTODOR - SHELT			

Data from Label

Apparatus type: (light, JB, JC Motor)	Type of protection: (d,e, i, n, p
Manufacturer: CCC	Gas group: (IIA/B/C)
Full model number: $POS[F(T)]$	Temp class: (T1-T6) T6
Serial number: NONE	Certificate number: ANZE× 06, 200(
IP Class 1866 68	Test authority: (BAS, PTB, SAA etc)

Number of cables: (3)

Number of cables: (3/	_		APAPTOR
For each cable entry	gland 1	gland 2	others
Gland manufacturer:	HATEK	<u>C</u> Ctr	cck
Model:			M20-M25
Gland type of protection: (d,e)	d		de

Inspection -

		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	$ \alpha \cdot$	CIROUIT.
3	Enclosure, sealing gaskets or compounds are satisfactory	all	X	W	CIROUT.
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	R	
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	X	
13	Safety barriers/isolators installed as per certification and securely earthed where	í	x	X	
	required		^		
14	Entity calculation/documentation is available	i	X	X]

B Installation

	B Histanation			
1	Type of cable is appropriate, cables are undamaged	all	Х	X
2	Sealing of ducts and/or conduits is satisfactory	all	X	\otimes
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	X
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 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	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	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	

NOT SEALER

Armadeus Pipeline Electrical Inspections

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	Х	
1	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	\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	_
Date: 1911		Date:	

Device ID or tag

Action required to make device compliant: - Equipment + calle conduit T.O. required. - Verity conduit between JB + GC is installed Ex 0 method of protection to Aus cont./standards. - Seal calle conduit located through wherete.

Reviewed by: N. GREEN Date: 21/9/11 Priority:

Comments:				-
All eation items now completed				
All action items now completed: Job closed:				
Davice now fully compliant spreadshee	f register has he	on undeted	 	

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

Gei	neral								
De	vice ID or tag: PT-	42	Asset: CHANN	EL ISLAN	JD OU	TLET		7	
Cire	cuit JD;	VONE	Physical location:				RATE	1	
	a classification :		Environment: (hot?)		DOOR-			-	
				001	0001-	7300 310	/(De		
Dat	a from Label								
	paratus type: (light, JB,		Type of protection: (d,e, i, n, p	<u></u>	<u> </u>			L
Mo	tor) PRESSURE	TRANSMITTER	etc)		<u> </u>	ja		NO A	C
Ma	nufacturer: ROSEP	IOUNT	Gas group: (IIA/B/C)	1	1C			DATA	
Ful	I model number: 30,		Temp class: (T1-T6)	Tri	40'()	T4(-	70.0	1 /	
6.00			,			170			
Ser	ial number: RSOG1	9762	Certificate number:	AUS	<u>Ex</u>	1240	<u>1 x</u>		
IP (Class		Test authority: (BAS, SAA etc)	, PTB,			A	1	· ,
			0,0,4 (10)		121		T	JV	
Nur	mber of cables:]		UCT N	UMED IN	JFD.		
E e c	r aanh enklet	- aland 4	-110		a.4.k	PULLA			
	r each cable entry nd manufacturer:	gland 1 Aدده	gland 2				407	7	
Mo		FLPW 203	,		· · M2	<u>LA-RED</u>	<u> </u>	1	
	nd type of protection: (d,e)					110		-	
-	·····	1868 ErITCAUS Sq L	OOSE NUT	1. 2.0		10 83121	Br	-	
Insp	ection			1.000	>		s checked	1	
		·							
				Applicable		↓ _* .	+ .		
1	A Equipment	temp class) is appropriate for area	alocation	protection t all'		Internal X	External · X	1	
2	Equipment ID or circuit ID		a classification	all		<u> </u>	-ô	- 202	
2 3		s or compounds are satisfactory	100 M	all		X	8		
4		vidence of unauthorised modification		all	<u>.</u>	X	0-		
4 5		anking elements are correct and tig					8	C	1.000
6	Flange facings are clean a		i ne	<u>all</u>		<u> </u>	<u> </u>	40000	ovorc
7	Lamp rating, type and pos			all		X			
8	Electrical connections are			all		X			
9	Hermetically sealed device				· fair land	X			
5 10		sure is satisfactory to enclosure an	dlar cavara	n	8.5. 6.5	X			
11	Motor fans have sufficient		id/of covers		oply	× ,	191		
12	Installation clearly labelled			motors		<u> </u>	8	SHEATH	
13		stalled as per certification and secu	rely earthed where			^			
15	required	staned as per certification and sect	nety cartiled where	1		Х	8		
14	Entity calculation/documer	tation is available		ì		Х	X		
1	B Installation Type of cable is appropriate	e cables are understand	I		T	v	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	SURDON	0_
1 2	Sealing of ducts and/or co			all		X	8	Jourse	-7
				-				1	
3 4	Stopper boxes or barrier g		maintained	d		X		4	
4 5		and interface with mixed system is		all				1	
5	cross section	ections are tight, in good condition		all		Х	Х		
6	Fault loop impedance is sa	tisfactory		power ou	utlets	Х		Í	
7		isfactory (check only during initial in	nspection)	all		X		1	
8	Automatic electrical protec	tive devices are set correctly and o		all		X		1	
	permitted limits						•		
9		ons U.X or B have been complied	with	all		Х			
10	Cables/spare cores are ter			all		Х			
11	No obstructions adjacent to			đ		Х	Х		
12	Ducts, pipes and enclosure			p		Х	Х		
13		ally free from contaminants (water,	oil, dirt)	р		Х	Х		
14	Protective gas flow/pressu			р		Х		ļ	
15		ators, alarms and interlocks function	n correctly	р		Х			
16	Pre-energising purge perio			р		Х			
17	Condition of spark/particle area are satisfactory	barriers of ducts exhausting the ga	is into hazardous	Р		х			
			1		1	1		1	



18	Cables are installed and screens are earthed in accordance with the	i	х	
	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		^	

	C Environment				
1	Apparatus adequately protected from corrosion, weather, vibration, other	all	Х	X	CO PROSION
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:

 List action required

 Contractor (write): Inspector

 Supervisor

 Client (write): Inspector

 Date:

Device ID or tag

Action required to make device compliant: - CC+ I.D. required. - Tighten loose cable gland. - Provide blue cable sheath. - Visible external constin requiring internal inspection. . Cuble support required .

Reviewed	oy:	N. LREEN	
Date: 11	alu		
Priority:	1		

Comments:			
2			
All action items now completed:			
Job closed:	Ē	_	

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\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

...

	rice ID or tag: 5V0-4		Asset: CHAN DE	(ISLAND			
		• 4	Physical location:				-
A	•			MINCH	Dark	17 F	-
Area	a classification :		Environment: (hot?)	001	Dur		
Data	a from Label	+					
App	aratus type: (light, JB, 50L or)	ENDED NAME	Type of protection: ((d,e, i, n, p	1	,) NO
			etc)	<u> </u>	(<u>m</u>		
		ER VALVE	Gas group: (IIA/B/C	,	11 A		- NO
Full	model number:	NA	Temp class: (T1-T6)			- NO NO DAT/
Seria	al number:	NA	Certificate number:	AUS .E.	. 2541)	(J PLAT
IP C	lass	N/A	Test authority: (BAS SAA etc)	S, PTB,			
	6	~	_				
Num	nber of cables:	/					
For	each cable entry	1 gland 1 comount	gland 2	2	others		
Glan	nd manufacturer:	NO DATA - PAINTED				_	
Mod		- · · ·		1.1.2	·	· · ·	_
Glan	nd type of protection: (d,e)					1.27	
	The second second second second second second second second second second second second second second second s	승규는 이 동안이 없는 것이 같아.	144 - C. 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997				
nspe	ection	· · · · ·			→ Circle	as checked	
				Applicable t	。	↓	
	A Equipment			, protection ty	/pe: Internal	External	
	Equipment (incl group and	temp class) is appropriate for an	ea classification	alí	X	X].
	Equipment ID or circuit ID			all	<u> </u>	10	-36
							-LEE
		s or compounds are satisfactory		i all	X	\$	
	There are no damage or e	evidence of unauthorised modification	tions	all	X	Q	
;		anking elements are correct and t		all	X	R	1
	Flange facings are clean a			d	x		f°.
							4
	Lamp rating, type and pos			all	X		
	Electrical connections are			all	X		
)	Hermetically sealed device	es are undamaged		n	· . X]
0		sure is satisfactory to enclosure a	and/or covers	n	X		1
1	Motor fans have sufficient			motors o		<u>, h ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; </u>	1
2	Installation clearly tabelled		·	1100013 0		×	1
3	Safety barriers/isolators in	stalled as per certification and se	curely earthed where	i	X	X	
5	required				^	^	
	Entity calculation/documer	ntation is available	_	i	X	X	
	Entity calculation/documer	ntation is available		i	X	Х]
4	B Installation			· · · ·]
4 [B Installation Type of cable is appropria	te, cables are undamaged		ali	X	×]
4	B Installation Type of cable is appropria Sealing of ducts and/or co	te, cables are undamaged nduits is satisfactory		ali all			
4	B Installation Type of cable is appropria Sealing of ducts and/or co Stopper boxes or barrier g	te, cables are undamaged nduits is satisfactory lands are properly filled		all all d	X X X		
4	B Installation Type of cable is appropria Sealing of ducts and/or co Stopper boxes or barrier g Integrity of conduit system	te, cables are undamaged nduits is satisfactory lands are properly filled and interface with mixed system		ali ali d ali			
4	B Installation Type of cable is appropria Sealing of ducts and/or co Stopper boxes or barrier g Integrity of conduit system Earthing and bonding cond	te, cables are undamaged nduits is satisfactory lands are properly filled		all all d	X X X		
4	B Installation Type of cable is appropria Sealing of ducts and/or co Stopper boxes or barrier g Integrity of conduit system Earthing and bonding cont cross section	te, cables are undamaged nduits is satisfactory lands are properly filled and interface with mixed system nections are tight, in good condition		ali all d all all	X X X X X X		
4	B Installation Type of cable is appropriat Sealing of ducts and/or co Stopper boxes or barrier g Integrity of conduit system Earthing and bonding cont cross section Fault loop impedance is sa	te, cables are undamaged induits is satisfactory lands are properly filled and interface with mixed system nections are tight, in good conditionation atisfactory	on and of sufficient	ali all d all all power ou	X X X X X tlets X		
4	B Installation Type of cable is appropriat Sealing of ducts and/or co Stopper boxes or barrier g Integrity of conduit system Earthing and bonding cont cross section Fault loop impedance is sa Insulation resistance is sal	te, cables are undamaged induits is satisfactory lands are properly filled and interface with mixed system nections are tight, in good condition atisfactory tisfactory (check only during initia	on and of sufficient	ali all d all all power ou all	X X X X X tlets X X		
4	B Installation Type of cable is appropriat Sealing of ducts and/or co Stopper boxes or barrier g Integrity of conduit system Earthing and bonding cont cross section Fault loop impedance is sa Insulation resistance is sal	te, cables are undamaged induits is satisfactory lands are properly filled and interface with mixed system nections are tight, in good conditionation atisfactory	on and of sufficient	ali all d all all power ou	X X X X X tlets X		
4	B Installation Type of cable is appropria Sealing of ducts and/or co Stopper boxes or barrier g Integrity of conduit system Earthing and bonding com cross section Fault loop impedance is sa Insulation resistance is saf Automatic electrical protec permitted limits	te, cables are undamaged induits is satisfactory lands are properly filled and interface with mixed system nections are tight, in good condition atisfactory tisfactory (check only during initia	on and of sufficient linspection) operate within	ali all d all all power ou all	X X X X X tlets X X		
4	B Installation Type of cable is appropria Sealing of ducts and/or co Stopper boxes or barrier g Integrity of conduit system Earthing and bonding com cross section Fault loop impedance is sa Insulation resistance is sat Automatic electrical protect permitted limits Special certification condit	te, cables are undamaged nduits is satisfactory lands are properly filled and interface with mixed system nections are tight, in good condition atisfactory lisfactory (check only during initian tive devices are set correctly and ions U,X or B have been complied	on and of sufficient linspection) operate within	ali all d all all power ou all all	X X		
0	B Installation Type of cable is appropria Sealing of ducts and/or co Stopper boxes or barrier g Integrity of conduit system Earthing and bonding cont cross section Fault loop impedance is sa Insulation resistance is sat Automatic electrical protect permitted limits Special certification condit Cables/spare cores are ten	te, cables are undamaged induits is satisfactory lands are properly filled and interface with mixed system nections are tight, in good condition atisfactory tisfactory (check only during initian tive devices are set correctly and ions U,X or B have been complien rminated satisfactorily	on and of sufficient linspection) operate within	ali all d all all power ou all all all	X X		
0	B Installation Type of cable is appropria Sealing of ducts and/or co Stopper boxes or barrier g Integrity of conduit system Earthing and bonding cont cross section Fault loop impedance is sa Insulation resistance is sat Automatic electrical protect permitted limits Special certification condit Cables/spare cores are ter No obstructions adjacent to	te, cables are undamaged induits is satisfactory lands are properly filled and interface with mixed system nections are tight, in good condition atisfactory tisfactory (check only during initia tive devices are set correctly and ions U,X or B have been complien rminated satisfactorily o flameproof flanged joint	on and of sufficient linspection) operate within	ali all d all all power ou all all all d	X X		
0 1 2	B Installation Type of cable is appropria Sealing of ducts and/or co Stopper boxes or barrier g Integrity of conduit system Earthing and bonding cont cross section Fault loop impedance is sa Insulation resistance is sat Automatic electrical protect permitted limits Special certification condit Cables/spare cores are ter No obstructions adjacent to Ducts, pipes and enclosure	te, cables are undamaged nduits is satisfactory lands are properly filled and interface with mixed system nections are tight, in good condition atisfactory tisfactory (check only during initia itive devices are set correctly and ions U,X or B have been complien rminated satisfactorily o flameproof flanged joint es are in good condition	on and of sufficient l inspection) operate within d with	ali all d all all power ou all all all all d p	X X X X X tlets X X X X X X X X X X X X X		
4 0 1 2 3	B Installation Type of cable is appropriat Sealing of ducts and/or co Stopper boxes or barrier g Integrity of conduit system Earthing and bonding com cross section Fault loop impedance is sa Insulation resistance is sat Automatic electrical protect permitted limits Special certification condit Cables/spare cores are ten No obstructions adjacent to Ducts, pipes and enclosur Protective gas is substanti	te, cables are undamaged induits is satisfactory lands are properly filled and interface with mixed system nections are tight, in good condition atisfactory tisfactory (check only during initia tive devices are set correctly and ions U,X or B have been complied riminated satisfactorily o flameproof flanged joint es are in good condition ally free from contaminants (wate	on and of sufficient l inspection) operate within d with	ali all d all all power ou all all all all d p p	X X		
4 0 1 2 3 4	B Installation Type of cable is appropriat Sealing of ducts and/or co Stopper boxes or barrier g Integrity of conduit system Earthing and bonding com cross section Fault loop impedance is sa Insulation resistance is sal Automatic electrical protect permitted limits Special certification condit Cables/spare cores are ter No obstructions adjacent to Ducts, pipes and enclosure Protective gas is substantit Protective gas flow/pressu	te, cables are undamaged induits is satisfactory lands are properly filled and interface with mixed system nections are tight, in good condition atisfactory tisfactory (check only during initia itive devices are set correctly and ions U,X or B have been complien rminated satisfactorily o flameproof flanged joint es are in good condition ally free from contaminants (wate re is adequate	I inspection) operate within d with r, oil, dirt)	ali all d all all power ou all all all all d p	X X		
4	B Installation Type of cable is appropriat Sealing of ducts and/or co Stopper boxes or barrier g Integrity of conduit system Earthing and bonding com cross section Fault loop impedance is sa Insulation resistance is sal Automatic electrical protector permitted limits Special certification condit Cables/spare cores are ter No obstructions adjacent to Ducts, pipes and enclosure Protective gas is substanti Protective gas flow/pressure Pressure and/or flow indication	te, cables are undamaged induits is satisfactory lands are properly filled and interface with mixed system nections are tight, in good condition atisfactory tisfactory (check only during initia itive devices are set correctly and ions U,X or B have been complied irminated satisfactorily o flameproof flanged joint es are in good condition ally free from contaminants (wate re is adequate ators, alarms and interlocks function	I inspection) operate within d with r, oil, dirt)	ali all d all all power ou all all all all d p p	X X		
4 [0 1 2 2	B Installation Type of cable is appropriat Sealing of ducts and/or co Stopper boxes or barrier g Integrity of conduit system Earthing and bonding com cross section Fault loop impedance is sa Insulation resistance is sal Automatic electrical protect permitted limits Special certification condit Cables/spare cores are ter No obstructions adjacent to Ducts, pipes and enclosure Protective gas is substantit Protective gas flow/pressu	te, cables are undamaged induits is satisfactory lands are properly filled and interface with mixed system nections are tight, in good condition atisfactory tisfactory (check only during initia itive devices are set correctly and ions U,X or B have been complied irminated satisfactorily o flameproof flanged joint es are in good condition ally free from contaminants (wate re is adequate ators, alarms and interlocks function	I inspection) operate within d with r, oil, dirt)	ali all d all all all all all all d p p p	X X		



18	Cables are installed and screens are earthed in accordance with the documentatioon	i	х	
40		:	v	
19	The circuit is isolated from earth or earthed at one point only	I	~	
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	v	
	the documentation		~	

	C Environment			the second second second second second second second second second second second second second second second se
1	Apparatus adequately protected from corrosion, weather, vibration, other	all	Х	0 CORROCION
2	No undue accumulation of dust or dirt	all	x _	(X) VELMIN
3	Electrical insulation is clean and dry	ail	Х	

Faults found? (circle as appropriate)

No:

List action required			
Contractor (write): Inspector	Supervisor	Client (write): Inspector	
Date: 9/9/11		Date:	

Device ID or tag
Action required to make device compliant:
- Equipment + undrit J.D required
- Corralian and poor wordition suggesting replacement prior to failure.
- p: 1 Aus was certification available.
- Vermin ingress evident, sealing at IB required.

Reviewed by: Date: 21/9/11 Priority:	N. LREEN	
Priority:		

Comments:		
All action items now completed:		
Job closed:		

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 Based on AS/NZS 60079 part 17

Ref: 1:\data\sitzer\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 NOT LABELLED	
21	Device ID or tag: SVC-41	Asset: CHKNNEL ISLAND OUTLET.
	Circuit ID: N/A	Physical location: DARWIN CITY VSATE
	Area classification :	Environment: (hot?)

Data from Label

Apparatus type: (light, JB, SCLENOID VALVE	Type of protection: (d,e, i, n, p etc)	Nio
Manufacturer: SKINNEB VALVE		NO TAGS
Full model number: N/A	Temp class: (T1-T6)	110-3
Serial number: N/A	Certificate number: AUS. Ex 2541X	
IP Class N/A	Test authority: (BAS, PTB, SAA etc)	
Number of cables:]	

Inspection -Circle as checked -Applicable to A Equipment protection type: Internal External Equipment (incl group and temp class) is appropriate for area classification 1 all х ·69 2 Equipment ID or circuit ID is correct 0 alf Х CAT 3 Enclosure, sealing gaskets or compounds are satisfactory all X Ø 4 There are no damage or evidence of unauthorised modifications all Х Ø 5 Bolts, cable entries and blanking elements are correct and tight Х all Ø Flange facings are clean and undamaged 6 d Х 7 Lamp rating, type and position correct all Х 8 Electrical connections are tight all Х 9 Hermetically sealed devices are undamaged Х ٠n 10 Restricted breathing enclosure is satisfactory to enclosure and/or covers n Х 11 Motor fans have sufficient clearance motors only Х 12 Installation clearly labelled Х Х Safety barriers/isolators installed as per certification and securely earthed where 13 ì Х Х required Х 14 Entity calculation/documentation is available X ì

B Installation

1	Type of cable is appropriate, cables are undamaged	all	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	alí	X	
5	Earthing and bonding connections are tight, in good condition and of sufficient cross section	all	×	Ŭ
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	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	Х
13	Protective gas is substantially free from contaminants (water, oil, dirt)	р	X	Х
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	Х	
17	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	ŝ	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	

1	Apparatus adequately protected from corrosion, weather, vibration, other	all	Х	\otimes	CORRESION
2	No undue accumulation of dust or dirt	all	X	D	VERMO
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: 7/9/11	Date:

Device ID or tag

	required to n	nake device com	pliant:	
-	Refer	510-41	notes	
	_			

Reviewed by: N. LREZN Date: 20/9/11 Priority:

Comments:		
All estion items neur completed		
All action items now completed:	H	
Job closed:		



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Specifications

General

Device ID or tag: $(250/2.5C - 41)$ -	Asset: CHANNEL ISLAND OUTLET - KLV4
Circuit ID: NONG	Physical location: DXRWIN CITY GATE
Area classification :	Environment: (hot?) OUTDOOR - SUNSHADE

Data from Label

Apparatus type: (light Motor)	, JB, LIMIT SWITCH & ENCLOSULE	Туре of protection: (d,e, i, л, etc)	P N/A
Manufacturer:	LIMITORQUE	Gas group: (IIA/B/C)	NIA
Full model number:	SY	Temp class: (T1-T6)	N/A
Serial number:	700315B-LOO1399	Certificate number:	NIA
IP Class	7	Test authority: (BAS, PTB, SAA etc)	NIA

Number of cables: 2_____

For each cable entry	gland 1	gland 2	others ADAPTOR
Gland manufacturer:	NO INFO		NO INFO
Model:			
Gland type of protection: (d,e)			

nspection	→	Circle a	as chepke	d
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	-e
Enclosure, sealing gaskets or compounds are satisfactory	all	X	05	-6
There are no damage or evidence of unauthorised modifications	all	X	R	
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	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	
3 Safety barriers/isolators installed as per certification and securely earthed where required	i	×	X]
4 Entity calculation/documentation is available	i	X	X	1

1	Type of cable is appropriate, cables are undamaged	all	X	(X)	-UV
2	Sealing of ducts and/or conduits is satisfactory	all	X	8	- SHEA
3	Stopper boxes or barrier glands are properly filled	d	X		
4	Integrity of conduit system and interface with mixed system is maintained	ali	Х		1
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		1
7	Insulation resistance is satisfactory (check only during initial inspection)	all	Х		1
8	Automatic electrical protective devices are set correctly and operate within permitted limits	all	Х		
Э	Special certification conditions U,X or B have been complied with	all	Х		1
10	Cables/spare cores are terminated satisfactorily	all	Х		1
11	No obstructions adjacent to flameproof flanged joint	d	x	\otimes	
2	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	
4	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	p	Х		
17	Condition of spark/particle barriers of ducts exhausting the gas into hazardous area are satisfactory	p	х		

Amadeus Pipeline Electrical 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	Х	Ø
2	No undue accumulation of dust or dirt	all	Х	Ø
3	Electrical insulation is clean and dry	all	Х	

Faults found? (circle as appropriate)

No:

 List action required

 Contractor (write): Inspector

 N. GREEN

 Date:

 Date:

Device ID or tag

Date:

Action required to make device compliant: - Equipment + cct I.D. required. - Remediate OV damaged cable. Theath. - Nil hazardons area cert. Actail ava. Table for JR and limits.

Reviewed by: N. GREEN Date: 219/41 Priority:

Comments:			
All action items you completed.			
All action items now completed:	님		
Job closed:	L		
Device now fully compliant, spread	sheet register has be	en updated	
Supervisor (write):			

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

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Specifications

General

. . .

atabi ka Labati la	Device ID or tag: UV - 50	(ExeSB)	Asset:	
	Circuit ID: ITRO	3	Physical location: DARWIIN CITY SATE	
	Area classification :		Environment: (hot?)	

Data from Label

Apparatus type: (light, JB, 5B	Type of protection: (d,e, i, n, o etc)
Manufacturer: (SOVAN	Gas group: (IIA/B/C)
Full model number: GE335-1	Temp class: (T1-T6)
Serial number: 204679	Certificate number: AUS Ex-, 869X
IP Class 67	Test authority: (BAS, PTB, SAA etc)

Number of cables:

5

For each cable entry	gland 1 🙀 🐧	gland 2 😠 🖗	others PLUG.
Gland manufacturer:	CROWE MIMPI	CCG.	CLG
Model:	TWAE IM 20	00E1x 2055	M20 Mi25
Gland type of protection: (d,e)	Exe	exduc, exell	Exe
	AUS 8x1424	ADS Ex 01 3844x	AUS 0x 23 95/60

Inspection -

	_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	8
3	Enclosure, sealing gaskets or compounds are satisfactory	all	Х	(
4	There are no damage or evidence of unauthorised modifications	all	Х	
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	alí	X	
9	Hermetically sealed devices are undamaged	n in the	' X	
10	Restricted breathing enclosure is satisfactory to enclosure and/or covers	n	X.	1 1.
11	Motor fans have sufficient clearance	motors only	X	
12	Installation clearly labelled	i	X	Х
13	Safety barriers/isolators installed as per certification and securely earthed where required	í	х	х
14	Entity calculation/documentation is available	i	Х	X
1	B Installation Type of cable is appropriate, cables are undamaged	all	X	8
2	Sealing of ducts and/or conduits is satisfactory	all	Х	8
3	Stopper boxes or barrier glands are properly filled	6	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	×	Ø
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 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	Х	
11	No obstructions adjacent to flameproof flanged joint	d	Х	Х
12	Ducts, pipes and enclosures are in good condition	p	X	Х
13	Protective gas is substantially free from contaminants (water, oil, dirt)	р	Х	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	Х	
17	Condition of spark/particle barriers of ducts exhausting the gas into hazardous	р	~	
	area are satisfactory		^	

Circle as checked



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	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	CORROSION
2	No undue accumulation of dust or dirt	ali	× –	0	with w
3	Electrical insulation is clean and dry	all	Х		

Faults found? (circle as appropriate)

No:	
List action required	
Contractor (write): Inspector Supervisor	Cilent (write): Inspector
Date: 9/9/11	Date:

Device ID or tag

Action	required to make o	levice compliant:		i .		
-	corrosion. and app	to glands	within mediation	JB requ	ines attention	~
	,,	/		,		

Reviewed by:	N. GRZEN	
Date: 21/9/4		
Priority:		

Comments:		
All action items now completed:		
Job closed:		



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Specifications

General

	General			
TIERSON	Device ID or tag: UN - 50 15	B	Asset:	
(S.) A	Circuit ID: #JRISO		Physical location: DARXIIN	CITY BATE
	Area classification :		Environment: (hot?)	

Data from Label

Apparatus type: (light, JB, 5B) Motor)	Type of protection: (d,e, i, n, p, etc)
Manufacturer: COVAN	Gas group: (IIA/B/C)
Full model number: $G \not\in 333$ - 1	Temp class: (T1-T6)
Serial number: 204679	Certificate number: AUS Ex SECTY NO MARKING
IP Class	Test authority: (BAS, PTB, SAA etc)
Number of cables:	

Number of cables:

For each cable entry	gland 1 🔀	gland 2 🔀 🥱	others PLUG
Gland manufacturer:	CROWLE STORD	CRODIE hwas	GOVAL
Model:	TWARIMIG	TWASIMIS	mid and -
Gland type of protection: (d,e)	Exe	Cre	Ex C
Inspection	102 C + 1424 - 1 - 1 - 1 - 1	the second second second second second second second second second second second second second second second se	Aus Sr 74760 Circle as 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	Ø
3	Enclosure, sealing gaskets or compounds are satisfactory	all	X	00
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	0
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	fn i tit.	' 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 T	
13	Safety barriers/isolators installed as per certification and securely earthed where	i	х	\otimes
14	required Entity calculation/documentation is available	i	X	×

B installation

	D Instanation			
1	Type of cable is appropriate, cables are undamaged	all	X	8
2	Sealing of ducts and/or conduits is satisfactory	all	X	R
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	0
6	Fault loop impedance is satisfactory	power outlets	X	
7	Insulation resistance is satisfactory (check only during initial inspection)	ali	X	
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	Х
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	Р	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	

	C Environment				
1	Apparatus adequately protected from corrosion, weather, vibration, other	all	X	Ø	LARA SION
2	No undue accumulation of dust or dirt	all '	X	×.	to ithere
3	Electrical insulation is clean and dry	all	Ϋ́		

Faults found? (circle as appropriate)

No:	~	
Yes:	List action required	
Contra	ctor (write): Inspector Supervisor	Client (write): inspector

Contractor (write): Inspector Supervisor	Client (write): Inspector
Date: 9/9/11	Date:

Device ID or tag

Action required to make device compliant:	
- Coursion to glands it. DIN rail within requires attention and appropriate reme	IB diation.

Reviewed by:	N. GREEN	
Date: 21 9/4		
Priority:		

Comments:		
,		
All action items now completed:		
Job closed:		



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Based on AS/NZS 60079 part 17

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Specifications

General

Device ID or tag: PT-52	Asset: WICKAM POINT LINE PRESSURE
Circuit ID: PIT-S2	Physical location: DARWIN CITY GATE
Area classification :	Environment: (hot?)

Data from Label

Apparatus type: (light, JB Motor) PRESSURE TRANS MITTER	Type of protection: (d,e, i, n, p etc)	200
Manufacturer: ROSETAUUNT	Gas group: (IIA/B/C)	
Full model number: 3051CG5A02ALBMSK7DISSQ	Temp class: (T1-T6) (x02775; T6 (6+0'() 74	(20°C)
Serial number: 01700765 4TR	Certificate number: AUS Ex 03. 1347 × 124	9%
IP Class IP 66	Test authority: (BAS, PTB, SAA etc)]

Number of cables:

For each cable entry	gland 1		gland		others	
Gland manufacturer:	crowse humas		MT			
Model	TWAIM13	1996 1997	TP4	8-1 2-	· ·	\$2.78 C 1
Gland type of protection: (d,e)	-		2			
nspection	1. 1. S. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.			a da na		Circle as checked
		12	,* ·			nicie as checked

		sa phana ang ang taong tao			
		Applicable to	+	+	
	A Equipment	protection type:	Internal	External	
1	Equipment (incl group and temp class) is appropriate for area classification	all	X	X	AEVINE TAGGED
2	Equipment ID or circuit ID is correct	all	X		WITH STAMP
3	Enclosure, sealing gaskets or compounds are satisfactory	all	Х	8	HOWEDONL
4	There are no damage or evidence of unauthorised modifications	all	X	8	recommence
5	Bolts, cable entries and blanking elements are correct and tight	all	X	8	S.S. TA 6.
6	Flange facings are clean and undamaged	b	X		
7	Lamp rating, type and position correct	all	X		
8	Electrical connections are tight	all	Х		
9	Hermetically sealed devices are undamaged	n ,	ľX.		
10	Restricted breathing enclosure is satisfactory to enclosure and/or covers	n	X.		
11	Motor fans have sufficient clearance	motors only	X		1
12	Installation clearly labelled	i	X	8	-
13	Safety barriers/isolators installed as per certification and securely earthed whe	re i	X	\otimes	/
	required		^	6	
14	Entity calculation/documentation is available	i	X	X	

B Installation

1	Type of cable is appropriate, cables are undamaged	all	X	×
2	Sealing of ducts and/or conduits is satisfactory	all	X	8
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	Ø
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 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	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	Х	Х
14	Protective gas flow/pressure is adequate	p	Х	
15	Pressure and/or flow indicators, alarms and interlocks function correctly	р	Х	
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	q	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	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	Î	х	
	the documentation		~	

	C Environment			
1	Apparatus adequately protected from corrosion, weather, vibration, other	all	Х	X
2	No undue accumulation of dust or dirt	all	Х	(>)
3	Electrical insulation is clean and dry	all '	X	

Faults found? (circle as appropriate)

No			
Yes:	List action required]
. :			_
Contra	ctor (write): Inspector Supervisor	Client (write): Inspector	
Date:	9/9/11	Date:	

Device ID or tag

٢,

	o make device compl				
-Device	stamped	with instrum	ent try	of poor	visibility.
Recom	rend legil	te labol/ta itters on s	g be inst	allad I'm	ilan
to oll	re transm	itters on s	ite.		
1					
		_			

Reviewed by: M. CREEN Date: 9/9/1/ Priority:
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Comments:		
All action items now completed: Job closed:		



Based on AS/NZS 60079 part 17

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Specifications

General	
Device ID or tag	Asset: WICKAM POANT SUPPLY PRESSURE
Circuit ID: PIT 51	Physical location: DARWITIN CITY GATE
Area classification :	Environment: (hot?)

Data from Label

Apparatus type: (light, JBPRESSUBE TRANSMITTER Motor)	Type of protection: (d,e, i, n, Ex 3 ia
Manufacturer: BOSEMUUNT	Gas group: (IIA/B/C)
Full model number: 305165A02A12M5K7D125	Temp class: (T1-T6) (\$0() 79, I6 (40')
Serial number: 01700764 04TE	Certificate number: AUS. Fx 03. 1347X 1247X
IP Class 66	Test authority: (BAS, PTB, SAA etc)

Number of cables:

For each cable entry	gland 1		gland 2	others surge delige
Gland manufacturer:	CLOUSE MINDS			MTL
Model:	TWAIM 13			1948-1
Gland type of protection: (d,e)	1			7
		(1 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	all	Х	8	ES. GO TA
3	Enclosure, sealing gaskets or compounds are satisfactory	all	Х	X	CS. GUATA
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	Х	K	1
6	Flange facings are clean and undamaged	d	Х		
7	Lamp rating, type and position correct	all	Х		
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	Χ.		
11	Motor fans have sufficient clearance	motors only	X		
12	Installation clearly labelled	i	Х	R	
13	Safety barriers/isolators installed as per certification and securely earthed where required	Ì	х	Ø	
14	Entity calculation/documentation is available	i	Х	X	

B Installation

Type of cable is appropriate, cables are undamaged	all	X	
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	Х	
Earthing and bonding connections are tight, in good condition and of sufficient cross section	ali	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	Х	
Cables/spare cores are terminated satisfactorily	all	X	
No obstructions adjacent to flameproof flanged joint	d	Х	Х
Ducts, pipes and enclosures are in good condition	p	Х	X
Protective gas is substantially free from contaminants (water, oil, dirt)	p	X	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	p	Х	
Condition of spark/particle barriers of ducts exhausting the gas into hazardous area are satisfactory	p	х	
	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 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) Preseure 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	Sealing of ducts and/or conduits is satisfactory all 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 flow/pressure is adequate p Preseure 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	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 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 No obstructions adjacent to flameproof flanged joint d 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 Pre-energising purge period is adequate p X

Circle as checked

-



18	Cables are installed and screens are earthed in accordance with the documentatio0n		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 Entrioningit			
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)

Ng: Yes:	List action required			
103.				
		•		
Contra	actor (write): Inspector N. GREEN	Supervisor	Client (write): Inspector	
Date:	9/2/21		Date:	

Device ID or tag

i Produktaj

		quired to ma	ake device compliant:				
	T	Reter	comments	PIT-	52		
•							

Reviewed by: Date: 9/9/11 Priority:	N. GREEN		
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Comments:		
All action items now completed:		
Job closed:		

Device now fully compliant, spreadsheet register has been updated Supervisor (write): Date:

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				
Device ID or tag:	Asset: HV50A			
Circuit ID: ZS505	Physical location: DARWIN LITY GATE			
Area classification :	Environment: (hot?)			

Data from Label

Apparatus type: (light, JB, Motor)	Type of protection: (d,e, i, n, p etc) d (I.S. INSTAU)
Manufacturer: ELOMANIC	Gas group: (IIA/B/C)
Full model number: 4 7	Temp class: (T1-T6) 76
Serial number: 10017702/1	Certificate number: AUS Ex (246
IP Class 66	Test authority: (BAS, PTB, SAA etc)

Number of cables: 1

For each cable entry	gland 1	gland 2	others prog
Gland manufacturer:	crowse minds ?		CMP
Model:	TWAINIS 7		747 AM 20
Gland type of protection: (d,e)			Exde
Inspection			SLAD2 Arex (002 Circle as checked

Inspection -

	A Equipment	Applicable to protection type:	<u>Internal</u>	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	GQ
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	X	Ø	
6	Flange facings are clean and undamaged	b	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	
13	Safety barriers/isolators installed as per certification and securely earthed where required	ì	X	Ø	
14	Entity calculation/documentation is available	i	- <u>x</u>	X	1

B Installation

	B Installation				1 1
1	Type of cable is appropriate, cables are undamaged	all	X	O UV (pala	nj.
2	Sealing of ducts and/or conduits is satisfactory	all	X	K	-
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	×	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	х		
9	Special certification conditions U,X or B have been complied with	all	X		
10	Cables/spare cores are terminated satisfactorily	ali	X		
11	No obstructions adjacent to flameproof flanged joint	ď	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	р	X		
15	Pressure and/or flow indicators, alarms and interlocks function correctly	p	Х		
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	р	х		

Amadeus Pipeline Electrical Inspections

SITZLER



18	Cables are installed and screens are earthed in accordance with the documentatio0n	i	×	
1 9	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	x	

	C Environment			
1	Apparatus adequately protected from corrosion, weather, vibration, other	all	Х	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:
 Ves:
 List action required

 Contractor (write): Inspector
 Supervisor
 Client (write): Inspector

 Date:
 %/%/11
 Date:

Device ID or tag

Equipment Equipment		red.		
Moderate			shewith .	
6,	0			
				 _

Reviewed by: N.G.REEN Date: 9/9/10 Priority:

Comments:		
All action items now completed:		
Job closed:		
Device now fully compliant, spreadsheet register has be	en undated	
Supervisor (write):		
Date:		



Based on AS/NZS 60079 part 17

Ref: 1:\data\sitzlercompany operations\darwin\lenders\sbsj11\yr1 - 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: $(170-50)$ -	Asset: UV-50
Circuit ID: UY0-50	Physical location: DARWIN CITY GATE
Area classification :	Environment: (hot?)

Data from Label

Apparatus type: (light, JB, Motor) SOLENOTO VALVE	Type of protection: (d,e, i, n, p etc)
Manufacturer: PARKER LUCIFER	Gas group: (IIA/B/C)
Full model number:	Temp class: (T1-T6) T3, T4
Serial number:	Certificate number: AUS.Ex 321
IP Class 65	Test authority: (BAS, PTB, SAA etc)

Number of cables:

For each cable entry	gland 1	gland 2	others
Gland manufacturer:	CCG		
Model:	00 EI Ex 20 55	and the state	And some to see as
Gland type of protection: (d,e)	ducien		
	AUS CX 03.8844X - WACHER ?		
Inspection	· · · · · · · · · · · · · · · · · · ·		Circle as checked

Inspection -

mop			, 011pic c	is energies	
	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	R	3
3	Enclosure, sealing gaskets or compounds are satisfactory	all	X	20	
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	Ø	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		1
11	Motor fans have sufficient clearance	motors only	X	1	1
12	Installation clearly labelled	i	X	X	1
13	Safety barriers/isolators installed as per certification and securely earthed where required	i	x	Х	1
14	Entity calculation/documentation is available	i	X	X	1
1 2 3	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	all all d	X X X	R	-
4	Integrity of conduit system and interface with mixed system is maintained	all		+	-
5	Earthing and bonding connections are tight, in good condition and of sufficient cross section	all	x	Ø	1
	For the second		- X	1	-

	cross section			e
6	Fault loop impedance is satisfactory	power outlets	X	
7	Insulation resistance is satisfactory (check only during initial inspection)	alt	X	
8	Automatic electrical protective devices are set correctly and operate within	all	~	_
	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	Х
13	Protective gas is substantially free from contaminants (water, oil, dirt)	р	X	Х
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	p	~	
	area are satisfactory			



		27 114		and the second second
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	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	

	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:

 Ves:

 List action required

 Contractor (write): Inspector

 Supervisor

 N.GREEN

 Date:

Device ID or tag

- Equipment I.O. required. - Verify masher (nil cert.) at gland entry to sdenoid complies with Exie in Stall,	Action required to make device compliant:	
	- Equipment I.O. required. - Verity masher (nil cert.) at gland entry sdenoid compolies with Exie in Stall.	to

Reviewed by: Date: 7/9/4 Priority:	N.GREEN	
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Comments:			
]			
	_		
All action items now completed: Job closed:			



Circle as checked

Based on AS/NZS 60079 part 17

Ref: I:\data\sitzlercompany 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

General	
Device ID or tag: $(UYC - 50)$ -	Asset: UV-50
Circuit ID: UYC-SD	Physical location: DARWIN CITY GATE
Area classification :	Environment: (hot?)

Data from Label

Apparatus type: (light, JB, SOLE NOTO VALVE	Type of protection: (d,e, i, n, p etc)
Manufacturer: PARKER LUCIFER	Gas group: (IIA/B/C))\C
Full model number:	Temp class: (T1-T6) T3; T4
Serial number:	Certificate number: AUS Ex 321
IP Class 65	Test authority: (BAS, PTB, SAA etc)

Number of cables: 1

For each cable entry	gland 1	gland 2	others
Gland manufacturer:	664		
Model:	GOGIEX 2055		1.8 4
Gland type of protection: (d,e)	d IIC, ell		2
	AUS 2x 07-3844X - U	NAMER ?	

Inspection

•					
	August Stranger	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	\otimes	EQ
3	Enclosure, sealing gaskets or compounds are satisfactory	all	X		
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		
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	ึก	X		
11	Motor fans have sufficient clearance	motors only	X		
12	Installation clearly labelled	i	X	Х	
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		
2	Sealing of ducts and/or conduits is satisfactory	all	X	0	
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		

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	Q
	cross section			-
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	X
12	Ducts, pipes and enclosures are in good condition	р	X	Х
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	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	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	Ø	
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:

List action required

Contractor (write): Inspector	Supervisor	Client (write): Inspector	
AL C.	eren	. , ,	
Date: 9/9/1(Date:	

Device	ID	or	tag	
Action	re	qu	ired	

	Equipment I.D. required.
1	Verify walker (nil cert.) at gland entry to solenoid complies with Exis install.

Reviewed by: N.GREEN Date: 9/9/K Priority:

Comments:		_		
All action items now completed:	П			
Job closed:				
			_	



Circle as checked

Based on AS/NZS 60079 part 17

Ref: |:\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-n.ex-p and other ex devices.doc

Specifications

General

Device ID or tag: - (250 + 250 50)	Asset: UV-050
Circuit ID: - 2506.50	Physical location: WARMUN CUTH GATE
Area classification :	Environment: (hot?)

Data from Label

Apparatus type: (light, JB, LIMIT SWITCH Motor)	Type of protection: (d,e, i, n, p etc))
Manufacturer: g - (ElomATIC?)	Gas group: (IIA/B/C)	
Ful) model number:	Temp class: (T1-T6)	} LABEL
Serial number:	Certificate number:	
IP Class	Test authority: (BAS, PTB, SAA etc)	

Number of cables:

For each cable entry	gland 1	gland 2	others PLUS.
Gland manufacturer:	CCG		REDAPT
Model:	OO EIEX 2015		PA-D M25
Gland type of protection: (d,e)	Exal ILC GAR 2055		BEX & IS ILC
	205 Gr 03.3844X		SIRA 99ATEXILLS

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	\otimes	- EQ
3	Enclosure, sealing gaskets or compounds are satisfactory	ail	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	×]
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 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	X	
13	Safety barriers/isolators installed as per certification and securely earthed where required	i	×	×]
14	Entity calculation/documentation is available	i	X	Х	1

1	Type of cable is appropriate, cables are undamaged	alí	X	8
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 cross section	all	×	6
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	Х
12	Ducts, pipes and enclosures are in good condition	p	X	Х
13	Protective gas is substantially free from contaminants (water, oil, dirt)		X	Х
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 area are satisfactory	ą	x	



		-	~	and the second second
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	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	i	~	
	the documentation		^	

	C Environment			
1	Apparatus adequately protected from corrosion, weather, vibration, other	all	X	Ø
2	No undue accumulation of dust or dirt	all	X	S
3	Electrical insulation is clean and dry	all	X	

Faults found? (circle as appropriate)

No:

Mes: List action required

Contractor (write): Inspector Supervisor	Client (write): Inspector
Date: 9911	Date:

Device ID or tag

Dottoo iD oi lag								
Action required	d to make devic	ce compliar	nt:					
- Eg	quipment	I. O.	required					
- N	1:1 certifi	cation	ex.sts	to	AUS	Ex	standards.	
	1							

Reviewed by: N-CREEN Date: 9/ 9/ 11 Priority:

Comments:		 	 	
Comments.				
All action items now completed:				
Job closed:	$\overline{\Box}$			
Device now fully compliant, spreadsheet		 <u> </u>		

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/sitzter/company operations/darwin/tenders/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

IP Class

IP65

General	0	X		
Device ID or tag:	- (25	SOL)		Asset: UV SO DOOR LIMIT
Circuit ID:	ZS	SOC	(AT UV-50 JE)	Physical location: DARWIN CITY GATE
Area classification :				Environment: (hot?)
•				

Data from Label Type of protection: (d,e, i, n, p Apparatus type: (light, JB, JR LIMIT SWITCH d Motor) etc) Gas group: (IIA/B/C) UB Manufacturer: GOVAN Full model number: FG4-RA Temp class: (T1-T6) 76 AUS EX 157X Certificate number: Serial number: 20423104 Test authority: (BAS, PTB,

Number of cables ADAPTOR SWITCH For each cable entry gland 1 aland 2 others DL Gland manufacturer: 9 Model 7 Gland type of protection: (d,e)

SAA etc)

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	Х
2	Equipment ID or circuit ID is correct	all	X	Х
3	Enclosure, sealing gaskets or compounds are satisfactory	all	X	Х
4	There are no damage or evidence of unauthorised modifications	all	X	Х
5	Bolts, cable entries and blanking elements are correct and tight	all	X	Х
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	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
	BInstallation			
1	Type of cable is appropriate, cables are undamaged	all	<u> </u>	X
2	Sealing of ducts and/or conduits is satisfactory	all	X	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	x
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	alt	x	

Special certification conditions U,X or B have been complied with 9 all Х 10 Cables/spare cores are terminated satisfactorily all χ 11 No obstructions adjacent to flameproof flanged joint d Х X 1**2** Ducts, pipes and enclosures are in good condition р Х Х 13 Protective gas is substantially free from contaminants (water, oil, dirt) Х X р 14 Protective gas flow/pressure is adequate Х р Pressure and/or flow indicators, alarms and interlocks function correctly 15 р Х 16 Pre-energising purge period is adequate Х р Condition of spark/particle barriers of ducts exhausting the gas into hazardous 17 р Х area are satisfactory

SITZLER



18	Cables are installed and screens are earthed in accordance with the	i	Y	
	documentatio0n		^	
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		^	

1	Apparatus adequately protected from corrosion, weather, vibration, other	all	X	X
2	No undue accumulation of dust or dirt	all	X	X
3	Electrical insulation is clean and dry	ali	X	

Faults found? (circle as appropriate)

No:

List action required	
Contractor (write): Inspector Supervisor	Client (write): Inspector
Date: 21/9/11	Date:

Device ID or tag

Action required to make device compliant:
- Equipment ID required
- Further inspection on site required, only photographic
inspection completed.

Reviewed by: N-SREEN Date: U(9/11 Priority:

Comments:			
All action items now completed:			
Job closed:		_	
		_	
Device now fully compliant, spreadshe Supervisor (write):	et register has be	en updated	
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\/y/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: IR SECURITY BEAM X2	Asset: STATION SECURITY - RIGHT HAND	GANER
Circuit ID: NONE	Physical location: DARWIN LITY GATE	BUD WOOWN.
Area classification : ZONE 11 A?	Environment: (hot?) OUTDODR	our vour re.

Data from Label

Apparatus type: (light Motor)	, JB,	Type of protection: (d,e, i, n, p etc) NO INFORMATION
Manufacturer:	SUNWAVE	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 3/ Box	gland 2 x 2	-others WNOUT
Gland manufacturer:	CLIASAL		PUC ANACONDA
Model:	H-D.T.	EISLOUM.	
Gland type of protection: (d,e)	FOSE	JAK 6	
	Your Box		

Inspection -

11

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13

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16

17

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

	00101				
Insp	ection	─ ──→	Circle a	as checke	d
	A Equipment	Applicable to protection type:		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	Х	8	- 602
3	Enclosure, sealing gaskets or compounds are satisfactory	all	Х	8	-ca.
4	There are no damage or evidence of unauthorised modifications	all	Х	8	1
5	Bolts, cable entries and blanking elements are correct and tight	all	Х	8	1
6	Flange facings are clean and undamaged	d	Х		
7	Lamp rating, type and position correct	all	X		1
8	Electrical connections are tight	all	Х		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	1
13	Safety barriers/isolators installed as per certification and securely earthed where required	i	X	×	
14	Entity calculation/documentation is available	i	Х	X]
	B Installation				
1	Type of cable is appropriate, cables are undamaged	all	X	8	
2	Sealing of ducts and/or conduits is satisfactory	all	X	Ø	
3	Stopper boxes or barrier glands are properly filled	d	Х		
4	Integrity of conduit system and interface with mixed system is maintained	ali	X		
5	Earthing and bonding connections are tight, in good condition and of sufficient cross section	all	×	Ø	- STANK
6	Fault loop impedance is satisfactory	power outlets	X		T
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	X		7
10	Cables/spare cores are terminated satisfactorily	all	X		
	No shate estimate a discount to flow a second flow and is int			X	

0

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Х

Х

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X X

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			~	
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	ì	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	×
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			
Contra	ictor (write): Inspector	Supervisor	Client (write): Inspector	
Date:	9/9/11		Date:	

Device ID or tag

Action rea	quired to make device	compliant:					
-	Eginpoment	+ cc	+ I.P.	legi	red		
-	Equipment	not	rated.	for	hazardous	men.	in Stall at : and
١							

Reviewed by: N-CREEN Date: 1/9/H 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. 1:\data\siztercompany 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:		Asset: ANALMSER SHELTER		
Circuit ID: Po	00?	Physical location: PRAMN CITA GATE		
Area classification :		Environment: (hot?)		

Data from Label	light & switch Ullegia
Apparatus type: (light, JB, LIGHT + SwITCM	Type of protection: (d,e, i, n, p d + d
Manufacturer: BURN BRITE + WILD	Gas group: (IIA/B/C)
Full model number: FLP2 - 2x40 - 240 HPF ME	Temp class: (T1-T6) T5
Serial number: † WPSIIO	Certificate number: AUS Ex 229 + AUS Ex 27.7.
IP Class IP55	Test authority: (BAS, PTB, SAA etc)

Number of cables:

For each cable entry	gland 1 4 GKT	gland 2 x 2 Switchother	s puch
Gland manufacturer:	ALCO	2	7
Model:	FLPW 205	.	2
Gland type of protection: (d.e)	Exd	7	

Inspection -

		Applicable to	¥	+	
	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	Х	\otimes	GQ - LUMT
;	Enclosure, sealing gaskets or compounds are satisfactory	all	Х	\otimes	- 8000.
	There are no damage or evidence of unauthorised modifications	all	Х	\otimes	
i	Bolts, cable entries and blanking elements are correct and tight	all	X	R	
i	Flange facings are clean and undamaged	d	Х		
,	Lamp rating, type and position correct	all	Х		
1	Electrical connections are tight	all	X		
)	Hermetically sealed devices are undamaged	n	x		
0	Restricted breathing enclosure is satisfactory to enclosure and/or covers	n	X		
1	Motor fans have sufficient clearance	motors only	X		
2	Installation clearly labelled	i	X	X	
3	Safety barriers/isolators installed as per certification and securely earthed where required	i	×	×	
4	Entity calculation/documentation is available	i	X	X	

	DINStanation			0
1	Type of cable is appropriate, cables are undamaged	all	X	\boxtimes
2	Sealing of ducts and/or conduits is satisfactory	all	Х	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	Х	
5	Earthing and bonding connections are tight, in good condition and of sufficient cross section	all	х	8
5	Fault loop impedance is satisfactory	power outlets	X	
7	Insulation resistance is satisfactory (check only during initial inspection)	all	Х	
B	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	
0	Cables/spare cores are terminated satisfactorily	all	Х	-
1	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	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 ourge period is adequate	p	Х	
17	Condition of spark/particle barriers of ducts exhausting the gas into hazardous area are satisfactory	p	х	

Amadeus Pipeline Electrical Inspections

Circle as checked



			~	a constanting
18	Cables are installed and screens are earthed in accordance with the	i	Y	
	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	i	~	
	the documentation		^	

1	Apparatus adequately protected from corrosion, weather, vibration, other	all	Х	R
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:

 Ces:
 List action required

 Contractor (write): Inspector
 Supervisor

 Date:
 1(e(u)

Date:

Device ID or tag

Actio		to make devic A ₄ ઽw		required		
	-				remediation.	

Reviewed by: No. LAELN Date: 9994 Priority:

Comments:			
	_		
All action items now completed: Job closed:			
Device now fully compliant, spreadshee	et register has b	een updated	

Device now fully compliant, spreadsheet register has been updat 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\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

	Ger	eral	11-20	1000	- i	01		1
		ice ID or tag: LS	H-30 21		DARWIN C			•
				Physical location:		ing G	ATES	
	Are	a classification :		Environment: (hot?))			J
		a from Label		-				*
	App Mot	aratus type: (light, JB, \mathcal{U}_{0}	evel switch	Type of protection: (etc)	(d,e, i, n, p)
NOT	Mar	nufacturer: ?		Gas group: (IIA/B/C	>		<	
uot Ekinsuz	Full	model number: 2		Temp class: (T1-T6)		<	100
	Ser	al number:		Certificate number:			_	Λ
	IP C	Class		Test authority: (BAS SAA etc)				
	Nur	nber of cables:	1	7	others	2		/
	L			ADAPE	on Branch	_	-	
		r each cable entry	gland 1			<u> </u>		1
	Mo		W6.202					
		nd type of protection: (d,e)	- WIL	1				1
	Insp	ection —				Circle	as checked	
					Applicable to			
		A Equipment			protection type:	Internal	External	
	1		temp class) is appropriate for are	a classification	all	X	Х	
	2	Equipment ID or circuit ID i	s correct		all	X	X	
	3		or compounds are satisfactory	iono	all	X	X X	
	4 5		vidence of unauthorised modificat inking elements are correct and ti		all	X	â	1
	6	Flange facings are clean at			d	1 Â		N
	7	Lamp rating, type and posit	tion correct		all	X		
	8	Electrical connections are t			all	Х		
	9	Hermetically sealed device	s are undamaged		n	X		
	10		sure is satisfactory to enclosure a	nd/or covers	n	X		
	11	Motor fans have sufficient of	clearance		motors only	<u> </u>	0	BL
	12 13	Installation clearly labelled	stalled as per certification and sec	surely earthed where	i	X	Ø	
	13	required	called as per certification and sec	curery earlined where	r	X	æ	/
	14	Entity calculation/documen	tation is available		i	X	Х	
		B Installation					Â	JU
	1	Type of cable is appropriat			all	<u> </u>	Ø	0
	2 3	Sealing of ducts and/or cor Stopper boxes or barrier gl			d	X	X	5
	4		and interface with mixed system	is maintained	all	- <u>x</u>		5
	5	Earthing and bonding conn	ections are tight, in good condition		all	X	×	
	6	cross section Fault loop impedance is sa	fisfactor/		power outlets	X		
	б 7		isfactory (check only during initial	inspection)	all	x x		1
	8		tive devices are set correctly and		all			
		permitted limits	-			X		1
	9		ons U,X or B have been complied	d with	all	Х		
	10	Cables/spare cores are ter			all	X	<u> </u>	
	11	No obstructions adjacent to			d	X	X	1
	12 13	Ducts, pipes and enclosure Protective cas is substantia	es are in good condition ally free from contaminants (wate	r oil dirt)	p p	X	X	
	13	Protective gas is substantia Protective gas flow/pressu		, on, only	p	x		
	15		ators, alarms and interlocks functi	on correctly	p p	x		1
	16	Pre-energising purge perio	d is adequate		p	X		
	17	Condition of spark/particle	barriers of ducts exhausting the g	as into hazardous	p	ʻ 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	ì	Х	
21	As applicable, short circuit protection of the power supply is in accordance with the documentation	ì	х	

	C Environment			6	
1	Apparatus adequately protected from corrosion, weather, vibration, other	all	Х	(x)	CORRODE
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:

 Vest

 List action required

 Contractor (write): Inspector

 Supervisor

 Client (write): Inspector

 Date:

 1/4/11

 Date:

Device	ID	or	tag
--------	----	----	-----

Action re	quired to make	device com	oliant:					
-	Tighten	loose	gland					
-	Roplace C	lamaged	(uv)	blue	sheath	to	cabe.	
-	Lucarve	equipa	ent n	mercla	te, seve	ere co	orrasion	·
-	Provide	calle	suppor	+.				

Reviewed by: N- LREEN Date: 9/9/11 Priority:

Comments:				
	_			
All action items now completed:				
Job closed:				
		1.4 1	_	
Device now fully compliant, spreadsheet	t register has be	en updated		
Supervisor (write):				
Date:				

INSPECTION CHECK SHEET Intrinsically Safe Ex i



TAG/IDENTIFICATION DESCRIPTION													
Area Classification	n - Zone O	1 2 20 21	22 Non	Hazardous - Group	I IIA	IIB	IIC - T	emp	T1 T2	2 T3 ⁻	T4 T5 T	6	
Record Name Plat												ameplate information that may be	
Manufacturer					Vin		Chin	I		relevant			
Serial No.					Lin		Lin						
Model													
Certificate no.					Т		IP						
Certifying authorit	v					1							
Inspection Type Pe	,	I=Initial, P=Pe	eriodic, S=S	ample)				I	Р	S			
Inspection Grade I				-				D	с	v	De	tailed requires de-energization	
Equipment Y=OK,	N=Not Acc	ceptable, N/A=	=Not Appli	cable, N/C=Not Che	ecked				8		Inspect Grade	Remarks	
Equipment is Austr	ralian or IF	C Certified					Y	N	N/A	N/C	DCV		
EX markings are su							Y	N	N/A	N/C	DCV		
-			onriate tag/	identification detai	ls		Y	N	N/A	N/C	DCV		
Enclosure is not da	•		• •				Y	N	N/A	N/C	DCV		
Terminations are t	-						Y	N	N/A	N/C	DCV		
All unused conduct	-	nated					Y	N	N/A	N/C	DC		
Bolts, bungs, plugs			nd tight				Ŷ	N	N/A	N/C	DCV		
Fuses and lamps a							Ý	N	N/A	N/C	DCV		
		_					Ŷ	N	N/A	N/C	DCV		
Installation											Grade	Remarks	
Cable type is as pe			foringtalla	tion			Y	N	N/A	N/C N/C	D D		
IS Entity and cable	-			ltion			Y Y	N N	N/A N/A	N/C	DC		
The device is securely mounted Cables/conduits in acceptable condition							r Y	N	N/A	N/C	DC		
Cables/conduits in acceptable condition Cables/conduit entry correct, complete, and tight							Y	N	N/A	N/C	DCV		
No excessive vibra		-	-	stors to work loose			Y	N	N/A	N/C	DCV		
Segregation betwe	-	-			(1-0K)		Y	N	N/A	N/C	DCV		
Segregation betwe			-				Y	N	N/A	N/C	DCV		
Earthing and equip							Ý	N	N/A	N/C	D		
Insulation resistant		_		GGFR testing HA)			Ŷ	N	N/A	N/C	D		
Cable screens eart			-	-			Y	N	N/A	N/C	D		
				/ //							1		
Barriers			,								Grade	Remarks	
Record Safety Barr							Y	N	N/A	N/C	DC		
				ation details in 'Rer	narks')		Y	N	N/A	N/C	DCV		
Record Safety Barr			-				Y	N	N/A	N/C	DC		
Safety Barriers are				-			Y	N	N/A	N/C	DC	<u> </u>	
Safety Barriers are			ne earth ba	1			Y	N	N/A	N/C	DCV		
Barrier/Isolator ter		-	orrige/!!	toric 240V			Y	N	N/A	N/C	DCV		
Maximum voltage IS circuits are all fro							Y Y	N	N/A	N/C	DCV	<u> </u>	
		•					Y Y	N N	N/A N/A	N/C N/C	DCV DC		
	No energy storing devices in excess of the max energy permitted Relays acting as safety barriers are in good condition							N	N/A	N/C	DC		
				eutral point is <10	าฑ		Y Y	N	N/A	N/C	DCV	Check one connection at a time	
· · ·							l .	<u> </u>	.,	., •	<u> </u>		
Environment Equipment adequately protected against corrosion, weather, vibration, etc						1				Grade	Remarks		
		-			etC		Y	N	N/A	N/C	DCV		
Dust and dirt on th	ie equipme	ent and cable a	are within a	acceptable limit			Y	Ν	N/A	N/C	DCV	l	
Special conditions							1	-	-	_	Grade	Remarks	
Special conditions	on certifica	ate are satisfie	ed				Y	Ν	N/A	N/C	D		
Notes:													

Checked:

Date:

Inspected:

Date:



INSPECTION CHECK SHEET - Increased Safety Ex e

TAG/IDENTIFICATION DESCRIPTION												
Area Classification - Zone 0 1 2 Non Ha	azardous	- Group	I IIA IIB IIC -	Temp	T1	T2	Т3	T4 T5	Т6			
Record Name Plate Details		1						Reco	rd other nar	neplate information that may		
Manufacturer		KW FLC				be relevant						
Serial No.		Volts		RPI	М							
Model		1										
Certificate No.		Т		IP)							
Certifying authority												
Inspection type performed (I=Initial, P=Pe	riodic, S=	Sample)				T	Р	S				
Inspection Grade Performed (D=Detailed,			D	С	v	Detaile	d requires de-energization					
Equipment Y=OK, N=Not Acceptable, N/A	=Not App	licable,	N/C=Not Checked	1					Inspect	Remarks		
				Y	Ν	N	/A	N/C	Grade DCV			
Equipment is Australian or IEC Certified				Y	N		/A /A	N/C	DCV			
EX markings are suitable for the area		/:		Y			/A /A	N/C	DCV			
Equipment is clearly marked and has appro					N							
Enclosure is not damaged and maintains its		proofing	g (min IP54)	Y	N		/A	N/C	DCV			
Enclosure gaskets are in a satisfactory cond				Y	N		/A /A	N/C	D			
Bolts, bungs, plugs/blank plates installed an	nd tight			Y	N		/A	N/C	DCV			
Terminals are sized correctly for the rating				Y	N		/A /^	N/C	D			
Conductors > 0.5mm2 for multistranded an				Y	N		/A /^	N/C	D			
No chafing parts that may cause local hot s	pots (mo	tor fans)	(Y=OK)	Y	N		/A	N/C	D			
Guards are correctly fitted				Y	N		/A	N/C	D			
No unautorised modifications (Y=OK)				Y	N		/A	N/C	DCV			
Lamp rating, type and position are correct	Y	Ν	N	/A	N/C	D						
Installation					1	<u> </u>			Grade	Remarks		
Equipment carries correct circuit identificat isolator	tion at sw	/itchboai	d and local	Y	Ν	N	/A	N/C	D			
Effective means of isolation of all live condu	uctors (in	cluding r	neutral)	Y	N	N	/A	N/C	D			
Installation is in compliance with document				Y	N		/A	N/C	DC			
Cable type is as per the documentation	i i i i i i i i i i i i i i i i i i i			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	d tight (F	xd or Fx	e glands used)	Y	N	N	/A	N/C	DCV			
Exd glands have additional weatherproofin			8.0	Y	N		/A	N/C	DCV			
Electrical connections are tight	0			Y	N	N	/A	N/C	D			
Creapage and clearance distance are maint	ained			Y	N	N	/A	N/C	D			
All unused conductors terminated in Exe te				Y	N		, /A	N/C	D			
Earthing and equipotential bonding satisfact				Y	N		, /A	N/C	DCV			
Insulation resistance is satisfactory (NB Dar		FGGER t	esting HA)	Y	N		/A	N/C	D			
Motor parameters (la/ln and te) and TOLs of	0		o ,	Y	N		/A	N/C	D			
Cable Glands and adaptors									Grade	Remarks		
Cable glands details available, record (avail	able=Y. n	ot recor	ded=N/C)	Y	Ν	N	/A	N/C	DCV			
Cable glands certificate details available, record (avail												
recorded=N/C)				Y	N	IN	/A	N/C	DCV			
Adaptors and plugs details available, record	d (availab	le=Y, not	t recorded=N/C)	Y	Ν	N	/A	N/C	DC			
Glands and adaptors Ex markings are suitab	ole for ar	ea		Y	Ν	N	/A	N/C	DCV			
Environment				•		1			Grade	Remarks		
Equipment adequately protected against co	orrosion,	weather	, vibration, etc	Y	Ν	N	/A	N/C	DCV			
Dust and dirt on the equipment and cable a	are withir	n accepta	able limit	Y	Ν	N	/A	N/C	DCV			
Special conditions							,		Grade	Remarks		
Special conditions on certificate are satisfie	d			Y	Ν	N	/A	N/C	D			
Notes:												
Inspected: D	ate:		Checked:						Date:			

Hazardous Area Check Sheet Flameproof Ex d



TAG/IDENTIFICATION	TAG/IDENTIFICATION DESCRIPTION									
Area Classification - Zone 0 1 2 Not	Hazardous - Group I IIA IIB	IIC - Te	emp T1	L T2 T	ГЗ Т4	L T5	Т6			
Record Name Plate Details							Record other nameplate information that may			
Manufacturer		КW		FLC					be relevant	
Serial No.		Volts		RPM						
Model										
Certificate No.		Т		IP						
Certifying authority				•						
Inspection Type Performed (I=Initial, P	Periodic, S=Sample)				I	Р	S			
Inspection Grade Performed (D=Detail	d, C=Close, V=Visual)				D	С	v	Deta	ailed requires de-energization	
Equipment Y=OK, N=Not Acceptable, N	/A=Not Applicable, N/C=Not Che	ecked						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 ap	propriate tag/identification detai	ls		Y	N	N/A	N/C	DCV		
Enclosure is not damaged and maintain	its flameproof characteristics			Y	N	N/A	N/C	DCV		
Locking sealing, fastening devices are of	type certified by manufacturer			Y	N	N/A	N/C	DCV		
Locking sealing, fastening devices opera				Y	Ν	N/A	N/C	DC		
Bolts, bungs, plugs/blank plates installe				Y	N	N/A	N/C	DCV		
Sealing gaskets and components in acce				Y	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)				Y	N	N/A	N/C	DCV		
Equipment is clear of obstructions (min	mum dimensions 40mm)			Y	N	N/A	N/C	DCV		
No chafing parts that may cause local h				Y	N	N/A	N/C	D		
Guards are correctly fitted				Y	N	N/A	N/C	D		
Lamp rating, type and position are corre	ct			Y	N	, N/A	N/C	D		
Installation								Grade	Remarks	
Equipment carries correct circuit identif		solator		Y	N	N/A	N/C	D		
Effective means of isolation of all live co	nductors (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				Y	N	N/A	N/C	DCV		
Sealing of conduits, ducts or other conn				Y	N	N/A	N/C	D		
Integrity of conduit system and mixed s				Y	N	N/A	N/C	D		
Earthing and equipotential bonding sati				Y	N	N/A	N/C	DCV		
Insulation resistance is satisfactory (NB				Y	N	N/A	N/C	D		
Protection devices (Limit sws, phase rot	TOLs) operate correctly			Y	Ν	N/A	N/C	D		
Cable Glands and adaptors								Grade	Remarks	
Cable glands details available, record (a	vailable=Y, not recorded=N/C)			Y	Ν	N/A	N/C	DCV		
Cable glands certificate details available		ed=N/C)		Y	N	, N/A	N/C	DCV		
Adaptors and plugs details available, re-				Y	N	, N/A	N/C	D		
Adaptors and plugs have sufficient enga						N/A	N/C	DCV		
Glands and adaptors Ex markings are su	-			Y	N N	, N/A	N/C	DCV		
				-	•	-	-		- ·	
Environment					- /		• • • • -	Grade	Remarks	
Equipment adequately protected agains		etC		Y	N	N/A	N/C	DCV		
Dust and dirt on the equipment and cat	ie are within acceptable limit			Y	Ν	N/A	N/C	DCV		
Special conditions								Grade	Remarks	
Special conditions on certificate are sat	sfied			Y	Ν	N/A	N/C	D		
Notor										
Notes:										

Inspected:

Date:_

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 ENCAPSULATED EQUIPMENT (EX 'm')



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:							
Operator								
Name:	Identification no.:							
Company:	Company registration:							
Old repair label details: Reported fault (if any):								
Item Description of check	Remarks							
(a) Cracks in compound								
(b) Crazing								
(c) Exposure of encapsulated parts								
(d) Flaking								
(e) Shrinking								
(f) Swelling								
(g) Decomposition								
(h) Discoloration								
(i) Failure of adhesion								
(j) Change in hardness								

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 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 glands:	
General external condition:			
Enclosure dismantled:		Degree of protection: IF	
Internal Condition - Dust/Liquids:		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 no.:		Site:		
P&ID:		Area Classification:		
Equip	oment Details			
Equip	ment type:	Gas group (IIA/B/C):		
Manut	facturer:	Temp class (T1-T6):		
Model	no.:	Certificate no.:		
Serial	no.:	Test authority:		
Oper	ator			
Name	:	Identification no	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:

Capacity:	Serial no.:
Type of cooling:	
(megohmmeter)	
ΜΩ	
ΜΩ	
ΜΩ	
	Type of cooling: (megohmmeter) ΜΩ

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 no.:		Site:	
P&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	Description
ADP1498-ZSO-41	AD 1498-7001	1498-MLV-41	Nil hazardous area certification detail available for JB and limits
ADP1498-SVO-41	AD 1498-7001	1498-MLV-41	Nil Aus Ex certification available
ADP1498-SVC-41	AD 1498-7001	1498-MLV-41	Nil Aus Ex certification available
ADP1498-PY-15	AD 1498-7002	TCV-15	Refer Ex d/Ex i notes for PY-17 regarding barrier
ADP1498-PY-17	AD 1498-7002	TCV-17	Cable appears to have blue sheath, however device Ex rating not available and IS barrier not confirmed within control hut. Item (DVC 5010) does contain duel Ex d/Ex i certification. Further investigation required
			Uncertified gland/plug if Ex d method of protection
ADP1498-ISJB-1	AD 1498-7002	FS-1	Remove from installation or make safe and identify cable, JB etc.
ADP1498-ISJB-2	AD 1498-7002	FS-2	Remove from installation or make safe and identify accordingly
ADP1498-ZSC-44	DB0000-7000	Gas Off take	Equipment and certification ID required
			Nil evidence of I.S. Installation hence flameproof installation considered
			Uncertified gland, plug and adaptor required replacement



Тад	P&ID No.	Location	Description
ADP1498-PT-51	WP0000-7001	Wickham Point Pipeline	Refer comments for PT-52
ADP1498-UYO-50	WP0000-7001	Wickham Point Pipeline	Verify washer (nil cert.) at gland entry to solenoid complies with Ex e install
ADP1498-UYC-50	WP0000-7001	Wickham Point Pipeline	Verify washer (nil cert.) at gland entry to solenoid complies with Ex e install
ADP1498-ZSO-50	WP0000-7001	Wickham Point Pipeline	Nil certification exists to Australian Ex standards
ADP1498-ZSC-50	WP0000-7001	Wickham Point Pipeline	Nil certification exists to Australian Ex standards
ADP1498-DPT-16	AD 1498-7002	FS-1	Ex certification label not visible, provide new label and verify certification as IS
ADP1498-DPT-18	AD 1498-7002	FS-2	Ex certification label not visible, provide new label and verify certification is I.S.
			Un-certified plug adaptor
ADP1498-SVC-44	DB0000-7000	V44	Equipment and certification I.D. Required
ADP1498-LP-SW	DB0000-7000	Standby Run	Equipment Ex d rated however aid conduit system installed. Nil evidence of I.S. Circuit, further investigation required to verify design method of installation
ADP1498-LP-SW	DB0000-7000	Duty Run	Equipment Ex d rated however aid conduit system installed. Nil evidence of I.S. Circuit, further investigation required to verify design method of installation



Тад	P&ID No.	Location	Description
ADP1498- TURBINE METER	DB0000-7000	Standby Run	Ex certification not applicable to Australian Standards, conformity assessment required
ADP1498- TURBINE METER	DB0000-7000	Duty Run	Ex certification not applicable to Australian Standards, conformity assessment required
ADP1498-JB	AD 1498-7002	Analyser Shelter	Verify adapting reducer complies to maintain I.P. Of installation, Ex cert etc
ADP1498-MA-27	AD 1498-7002	Analyser Shelter	Nil Australian Certification detail available, conformity assessment required. Ex d or e device assumed as Ex c install as per connecting JB
ADP1498-JB	AD 1498-7002	MA27- Analyser Shelter	Verify maximum circuit power dissipation does not exceed 7 watts
			Verify adaptor on circuit gland to be Ex e rated, replace as required
ADP1498-GC 28	AD 1498-7002	Moisture Analyser	Verify conduit between GC and posifit JB is installed Ex d method of protection to Aus Cert/Standards
ADP1498-JB	AD 1498-7002	Analyser Shelter	Verify conduit between JB and GC is installed Ex e method of protection to Aus cert/standards
ADP1498-IR SECURITY BEAM		Station Security – Right Hand Corner	Equipment not rated for hazardous area installations