13th Dec 2022

Waitsia Stage 2
FirePro Fire Suppression
DEG - Z-9041

The following documents form the Commissioning & Acceptance Requirements of AS4487-2013 section 8.

Section 8.2.8 - Completion Certificate & Documentation-

- Certificate of Completion & Conformance to AS4487-2013.
- Operating manuals – provided separately.
- Calculation design density included below.
- Deviations from appropriate recommendation – (Waitsia specification)- provided in Design Verification Document-
- Drawings –
    - As installed
    - FIP Block Plan
    - Cable schedule.

FirePro. Reinventing Fire Suppression

CERTIFICATE OF COMPLETION & CONFORMITY

FORM - DEG-001

I/~~We~~ Ray Mergard **of** Fire Safety Equipment **hereby certify that we have completed a FirePro aerosol fire extinguishing installation/extension(s) in accordance with AS4487, as designed by** (company name).

Name of Client : Penske Australia

Address of Protected Area : Waitsia Gas Stage 2 WA

Description of Protected Area : Diesel Generator Z9041

Protected Area	Agent Quantity	Number of Containers	Agent Application Density	Applicable Drawing(s)
Diesel Generator	11,400g 130%	2	8,737g	Z-9041
				FIP block plan Cable schedule
				As installed equipment Generator discharge
			Text	pattern

Remote system monitoring will be performed by : Visulinx Modbus + K580 relay module

Date of Remote Monitoring Connection : 15/08/22

Variations from this Standard previously agreed to by the authority having jurisdiction are attached (clause references and related variations included).

Completed by:

Name: Ray Mergard **Signature:**

Company: Fire Safety equipment Pty Ltd **Date Completed:** 16/08/22

FirePro System Commissioning

Risk Area: Diesel Generator **Reference:** Z-9041

			Completed
INSPECTION			
	Tasks		**Completed**
1.	**Location of FirePro Aerosol Generators**	• Ensure units are mounted in appropriate location(s). • Are the brackets securely mounted.	Yes ok Yes ok
2.	**Cabling requirements**	• Has fire rated and shielded cable used. • Has cable been installed as per AS-3000. Has cabling been separated from other electrical cables via conduit or cable tray. • For High Voltage Environments - each FirePro unit is required to be connected to an earth circuit. • Inspect cable fixings to ensure no damaged insulation.	Yes Yes Yes Yes ok
3.	**Fire Indicator Panel (FIP)**	• Is the panel located in an appropriate location in accordance with Australian Standards. • Is the power connection to the panel a direct, suitable and dedicated supply to the Panel. • Is a separate battery backup installed.	Internal yes Yes ok Yes ok
4.	**Signage and Alarms**	• Are appropriate signs / sounder strobes installed.	Yes ok
COMMISSIONING			
1.	**FIP Programming**	• Programming of FIP meets client/site requirements. • Check FIP for fault(s) e.g. correct connection of FirePro units, correct connection of detection circuit.	Yes ok Yes ok
2.	**Activation Testing**	• ENSURE THE FIP IS SWITCHED TO SERVICE MODE. • Activation testing to be performed in accordance with the procedures specific to the FIP installed. • Ensure activation simulator lamps have activated • Ensure Signs and Alarms have activated. • Ensure shut down relays have activated.	Yes Yes Yes ok Yes ok Yes ok
3.	**Fault Monitoring**	• Disconnect cable from FirePro generator - fault should register on the FIP. Where multiple units are installed, this should done separately to test each unit. • Remove detector head from base - fault should register on the FIP.	Yes ok Yes ok
4.	**Earth Testing**	• Using a multimeter, test to ensure that all cables have insulation intact. Earth connection should indicate an open circuit	Yes ok
5.	**Detection Testing**	• ENSURE THE FIP properly isolated from activating the Firepro system. Apply heat gun or other device to place detectors into alarm. Ensure Visual/Aural Alarms have activated. Where multiple units are installed, this should done separately to test each unit.	Yes ok Spectrex IR3 ok

Inspections all found to be compliant - Tests all completed.

Completed by :

Name:	Ray Mergard	**Signature:**	
Company:	FireSafety Equipment	**Date Completed:**	16/08/22

Pre-engineered density calculation of DEG risk-

FirePro. Reinventing Fire Suppression

GENERAL APPLICATION

25/05/2022
Rev: 22.1

CLIENT NAME	Penske Waitsia Stage 2
Risk Description	Diesel generator enclosure
Constructed from	steel & SS

☑ Class A ☑ Class B ☑ Class E ☐ Class D ☐ Class F

GROSS DIMENSIONS	Not Used		Not Used		Not Used		Vol Entered	
		x		x		=	80.00	m³
Actual Leakage Measurement - m²						=		m²
Leakage Allowance without additional Agent						=	0.20	m²
GROSS Volume used for Calculation						=	80.00	m³
PRIMARY AGENT DISCHARGE						=	8,736	g
Secondary Agent Discharge						=	Not Required	

Model	L2 (mm)	L3 (mm)	Stream (mm)	Agent Qty	Concentration Primary	Concentration Secondary	Primary Quantity	Secondary Quantity
FP-0020	0	0	1000	20	-	-		
FP-0040	0	0	1000	40	-	-		
FP-0080	0	0	1000	80	-	-		
FP-0100	0	200	1000	100	-	-		
FP-0200	0	300	2000	200	-	-		
FP-0500	100	500	2000	500	-	-		
FP-1200	0	1500	3500	1,200	-	-		
FP-2000	0	1500	3500	2,000	-	-		
FP-3000	600	2000	3500	3,000	-	-		
FP-5700	600	2000	8400	5,700	11,400	-	2	

Total Concentration	11,400	-
Required Concentration	8,736	-
% Required Concentration	130%	

☑ Design Calculation has been Confirmed
☑ FirePro Units have suitable STREAM length for Risk Area Coverage
☑ Leakage compensation made in Primary Discharge
☐ Additional HOLD time Required for the risk

Aust. Std Design Notes

Pre-Engineered Design Calculation

CALCULATION OF VOLUME : Calculation is based on Gross Volume with NO deductions for any Objects that occupy volume within the protected space. This category covers fixed condensed aerosol extinguishing system units intended for total flooding applications. AS 4487 and AS5062.

Minimum Extinguishing Factor (mef) 84 X 1.3 = 109.2

- L2 is the thermal clearance required where the temperature of the discharge is less than 200° C
- L3 is the thermal clearance required where the temperature of the discharge is less than 75° C

APPROVED

Prepared By:	Company
RJM	FSE

Regards

Ray Mergard