

**POLLUTION INCIDENT RESPONSE MANAGEMENT PLAN**  
**SF6 Treatment Plant – Moorebank, NSW**

Created by: Atanu Mondal

Approved by: Awin Stephen

Date : 19.10.2018

Rev:3

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## 1 Purpose

This Pollution Incident Response Management Plan (PIRMP) is developed by ABB to comply with Chapter 5, Part 5.7A of the Protection of the Environment Operations (POEO) Act, and Chapter 7, Part 3A of the Protection of the Environment Operations (POEO) Regulation 2009. It also responds to the amendments on the Protection of the Environment Legislation Amendment Act 2011 (PELA), which requires license holders to improve the way how pollution incidents are managed and reported.

## 2 Background and Scope

The legislation listed in the introduction requires the following:

- The holder of an environment protection license must prepare a pollution incident response management plan (POEO Act, Section 153A)
- The PIRMP must include the information detailed in the POEO Act (section 153C) and the POEO Regulation (clause 98C)
- The PIRMP must be in the form required by the POEO regulation (clause 98B)
- The PIRMP must be kept in the relevant premises to which the environmental protection license relates and it must be made available as required by the regulation (POEO Act, Section 153D)
- The PIRMP must be tested according to regulations (POEO Act, Section 153E)
- The PIRMP must be implemented immediately in case of an incident that can cause material harm to the environment (POEO Act, Section 153 F)
- The PIRMP is to be tested every 12 months to ensure that the information in the plan is accurate and the plan is capable of being implemented in an effective manner (POEO Regulation, Section 98E)

## 3 Responsibilities

It is the responsibility of the operations manager PGHV service to ensure that this document is kept up to date and responsibilities are assigned where necessary.

## 4 Procedure

In accordance to regulations, this Pollution Incident Response Management Plan includes the following information:

### 4.1 Description of Hazards

- Contains gas under pressure; may explode if heated.
- Sulphur Hexafluoride, a potent greenhouse gas and may contribute to global warming. It appears to be highly persistent in the atmosphere and exhibits very high specific radiative forcing. SF6 has 23,900 times the greenhouse potential of carbon dioxide.
- Leakage/escape of liquid nitrogen
- Fire hazard due to wooden crates and vegetation nearby
- Mobile plant in SF6 operations area
- Acidic/ alkaline water from washing decommissioned equipment
- Failure of containment leading to chemical spill, leak or escape e.g. from SF6, liquid nitrogen and other chemicals stored at the site.

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**4.2 Likelihood of Hazards Occurring**

Hazard	Risk	Probability	Consequence	Risk Rating
Gas under pressure	Explosion if heated	D	2	M
SF6	SF6 gas release into atmosphere	D	2	M
Nitrogen	Leakage of nitrogen	D	4	L
Wooden crates and vegetation nearby	Fire hazard	D	1	M
Mobile plant in SF6 area	Collision with equipment, gas cylinders resulting in release of gas	D	2	M
Acidic/ Alkaline water stored in SF6 area	Release of acidic/ alkaline water into environment	D	4	L

MATRIX						Probability	Consequences	
	A	B	C	D	E	A – Repeating occurrence-happens on most occasions. B – Common occurrence-happens approx 1 in 10 C – Could occur-infrequent occurrence-happens approx 1 in 100 D – Not likely to occur-unusual occurrence-approx 1in 500 E – Practically impossible-occurs less than 1 in 5000	<b>People</b> 1 – fatality or permanent disability 2 – lost time injury or illness 3 – medical treatment 4 – <u>first</u> aid treatment 5 – <u>incident</u> report only	<b>Environment</b> 1 – off site release with major detrimental effect 2 – off site release with minor detrimental effect 3 – on site release contained with outside assistance 4 – on site release immediately contained 5 – <u>no</u> environmental impact
1	H	H	H	M	M			
2	H	H	M	M	M			
3	H	M	M	M	L			
4	M	M	M	L	L			
5	M	M	L	L	L			

Bush fire or any other local fire even can increase the probability of adverse effects including fire in the area, cylinder explosion and gas leakage.

**4.3 Pre-emptive actions, mitigation factors**

- a. SF6 recycling plant
  - SF6 leak detection system (HALOGUARD) available for immediate detection and action in case of leakage.
  - Pressure monitoring using digital and analog meters during operation of the SF6 recycling plant is part of daily checks
  - Weekly and monthly internal inspections and annual external inspections
- b. Nitrogen storage vessel
  - Annual inspection and maintenance of pressure vessel conducted by Air Liquide Australia
  - Pressure monitoring using pressure gauge is part of weekly and monthly checks
- c. Fire hazard due to wooden pallets
  - Unnecessary wooden pallets and packaging material removed periodically to avoid buildup
- d. Mobile plant in SF6 area
  - No through traffic of mobile plant in the SF6 area
  - Mobile plant only enters area after communication with plant operator
- e. Acidic/ Alkaline water

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pH level of water checked soon after washing contaminated switchgear and neutralized as necessary  
Water is stored in a tub and bunding provided

**4.4 Safety equipment**

- a. Pressure release device: SF6 recycling plant is equipped with pressure release valve and all SF6 cylinders are fitted with pressure release systems
- b. PPE including safety goggles, chemical gloves and cartridge mask are provided in addition to the standard site PPE requirements

**4.5 Inventory of pollutants**

- a. SF6

SF6 gas is kept in premises inside cylinders or inside the chamber of the treatment plant while it is being processes. Inventory of SF6 gas in cylinders maintained by recording the weight of the cylinder before and after filling or clearing/emptying.

ABB uses online tracking system “Trackabout” to maintain SF6 inventory for any received or outbound gas and cylinders.

- b. Nitrogen

The Liquid Nitrogen (LN) is stored in a cylinder and this LN system is operate and maintained by Air Liquide Australia Ltd.

- c. Acidic/alkaline water

Water from washing decommissioned equipment are acidic due to presence of SF6 by-products (e.g. SO2). Soda Lime is used to neutralize the acidity of the water. Excess quantity of Soda lime may also make the water Alkaline in nature. PH level is measured and maintained during this neutralization process.

Item No.	Pollutant	Indicate Quantity	Updated On
1	New SF6	2,886.94kg	16 July 2018
2	Used/ Old SF6	17,722.78kg	16 July 2018
3	Liquide Nitrogen	3,015 M <sup>3</sup>	16 October 2018
4	Acidic/Alkaline water	300 litre	16 October 2018

**4.6 Notification Protocol**

Type of situations that require notification:

- Major SF6 gas leak
- Major Nitrogen gas leak
- Compressed cylinder explosion
- Fire in the SF6 premises

The following people have a duty of alerting relevant personnel in case of any of the above pollution incident occurring:

Person Responsible	Designation	Contact Details
Wesley Oakes	SF6 Plant Operator	Ph: +61433657297
Atanu Mondal	SF6 Plant Manager	Ph: +61411488037

**Mechanism for contacting relevant persons:**

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- SF6 Operator / Plant Manager to contact & report incident to Chief Warden / HSE Coordinator
- Chief Warden/ HSE Coordinator to contact emergency services and initiate site evacuation.
- SF6 Operator to isolate entry to SF6 plant area at driveway entry to area.
- SF6 Operator to notify Building 3 warden that area is clear and access isolated then proceed to assembly point.

The following list includes contact details to institutions in case of an emergency:

Organization Name	Contact	Title	Phone number
ABB	Steven Ton	Chief Warden	Mobile: 0428 207 150
ABB	Andy Hogg	Deputy Warden (Building-3)	Mobile: +61 402 780 637
ABB	Vanessa Tracey	HSE Coordinator	Phone: (02) 9753 7145 Mobile: 0439 196 458
Emergency Services	Emergency	Emergency Services	000
Liverpool Fire Station	Emergency	Liverpool Fire Station	Phone: +612 9824 0521
Mayo Hardware	Mark Maritz	Operations Manager	Phone: 0400369851 Office: 1300 360 211
Röhlig Australia Pty. Ltd			Phone: (02) 8781 8999
Caesarstone Australia	Linda Della-Vecchia	National Sales Administrator	Phone: 0456986521 Office: (02) 9426 0500
Invenco			Phone: 1300 795 800
SC Johnson Professional Pty Ltd	Andre Muller	National Distribution Manager	Phone: (02) 8763 1800
Tactical Group	Nathan Cairney	Director	Phone: 0499555817

SF6 Plant Manager to contact following to notify about the incident after the emergency is under control:

Organization Name	Contact	Title	Phone number
EPA	NSW Office	Regulatory & Compliance Support Unit	131 555
Local council	Liverpool council	Local council	Ph: 1300 36 2170
Ministry of Health	Ministry of Health	Ministry of Health	Ph: +612 9391 9000

#### 4.7 Mechanisms for early warnings

Neighbors will be contacted during annual drill and provide any information and link to the updated PIRMP on the ABB website.

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**4.8 Accidental Release Measures****4.8.1 Accidental SF6 Release**

A HALOGUARD IR infrared gas monitoring device is installed near the plant to detect SF6 leakage.

**a. Minor incident**

This system detects leakage of very low quantities of SF6 (0-1000PPMV SF6) which may not require major action. Such incidents will be considered minor SF6 release incidents and PIRMP will not be activated for these incidents.

The plant operator will wear the required PPE, shut down the plant and identify the location of the leak before next operation.

**b. Major Incident**

Gas release with noise or damage/ explosion of SF6 cylinder will be considered a major gas leak and PIRMP will be activated for such incidents.

Since the SF6 recovery plant and SF6 cylinders are stored in a well ventilated area, even with moderate leakage, immediate risk to persons nearby is minimal. However, in case there is a strong unpleasant odour, the area should be evacuated immediately and PIRMP notifications should be commenced.

**4.8.2 Accidental Nitrogen Release**

The main risks caused by release of nitrogen is Asphyxiation due to displacement of oxygen and cold burns due to the release of liquid nitrogen from the compressed cylinder. Spillage of liquefied nitrogen will rapidly vaporise and may form a vapour cloud. The best response to nitrogen gas release is to evacuate the area and prevent access till emergency personnel arrive.

PIRMP notification process will be activated in case of leakage caused by damage to the nitrogen tank.

**4.8.3 Acidic water release**

Water from washing decommissioned equipment are acidic due to presence of SF6 by-products (e.g. SO2). Soda Lime is used to neutralize the acidity of the water. In case the acidic water leaks before neutralisation, the following steps should be taken.

**a. Stop**

The source of the leak should be closed if possible after wearing appropriate PPE including safety shoes, overalls, safety glasses and gloves

**b. Contain**

The spill should be contained using the spill kit on site with special care taken to prevent the spill from reaching storm water drains or flowing into soil.

**c. Report**

For major spills with potential to harm the environment, PIRMP notification protocol will be followed.

**d. Cleanup**

The area will be cleaned up appropriately and made safe before resuming normal operations.



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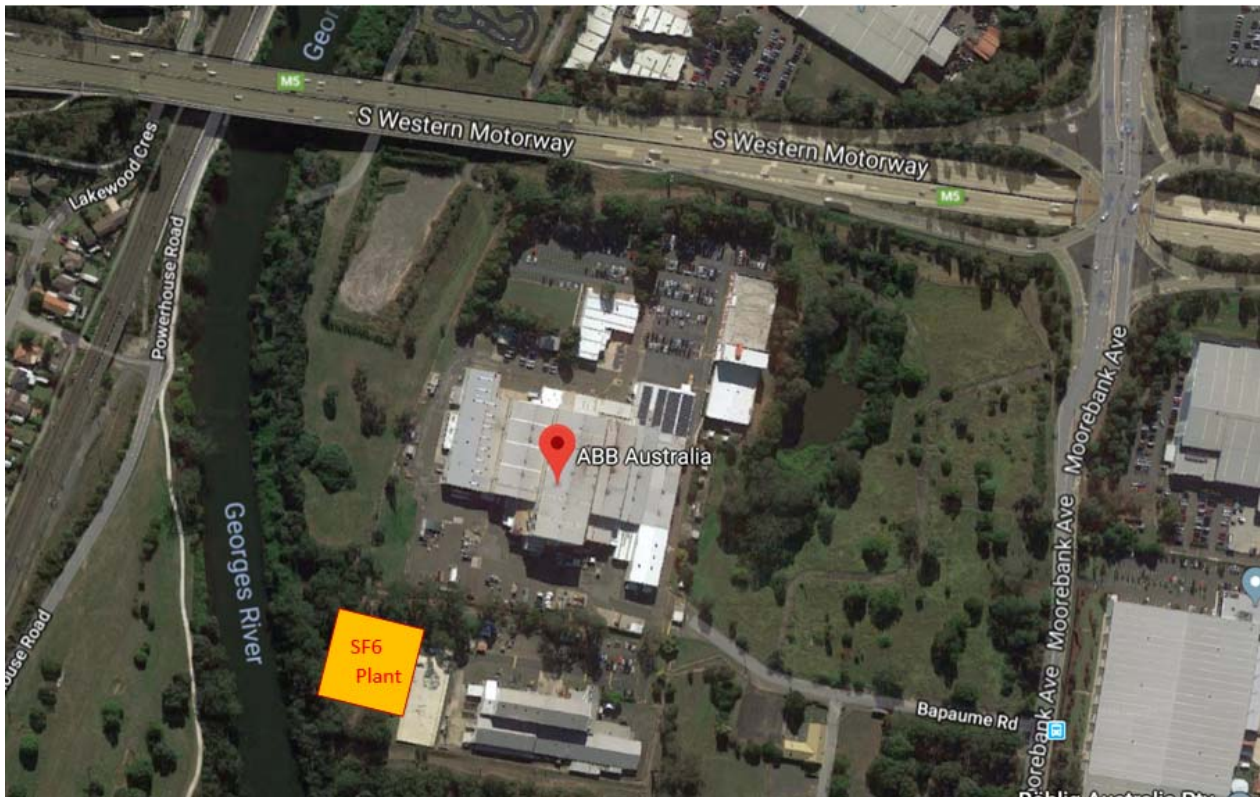
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**4.9 Map, Location**



**Figure 1: General location map with references: 1 Bapaume Road, Moorebank, NSW 2170. Location of SF6 Plant inside the premises: (Dock W. South West end of premises)**



**Figure 2: SF6 Plant Layout**

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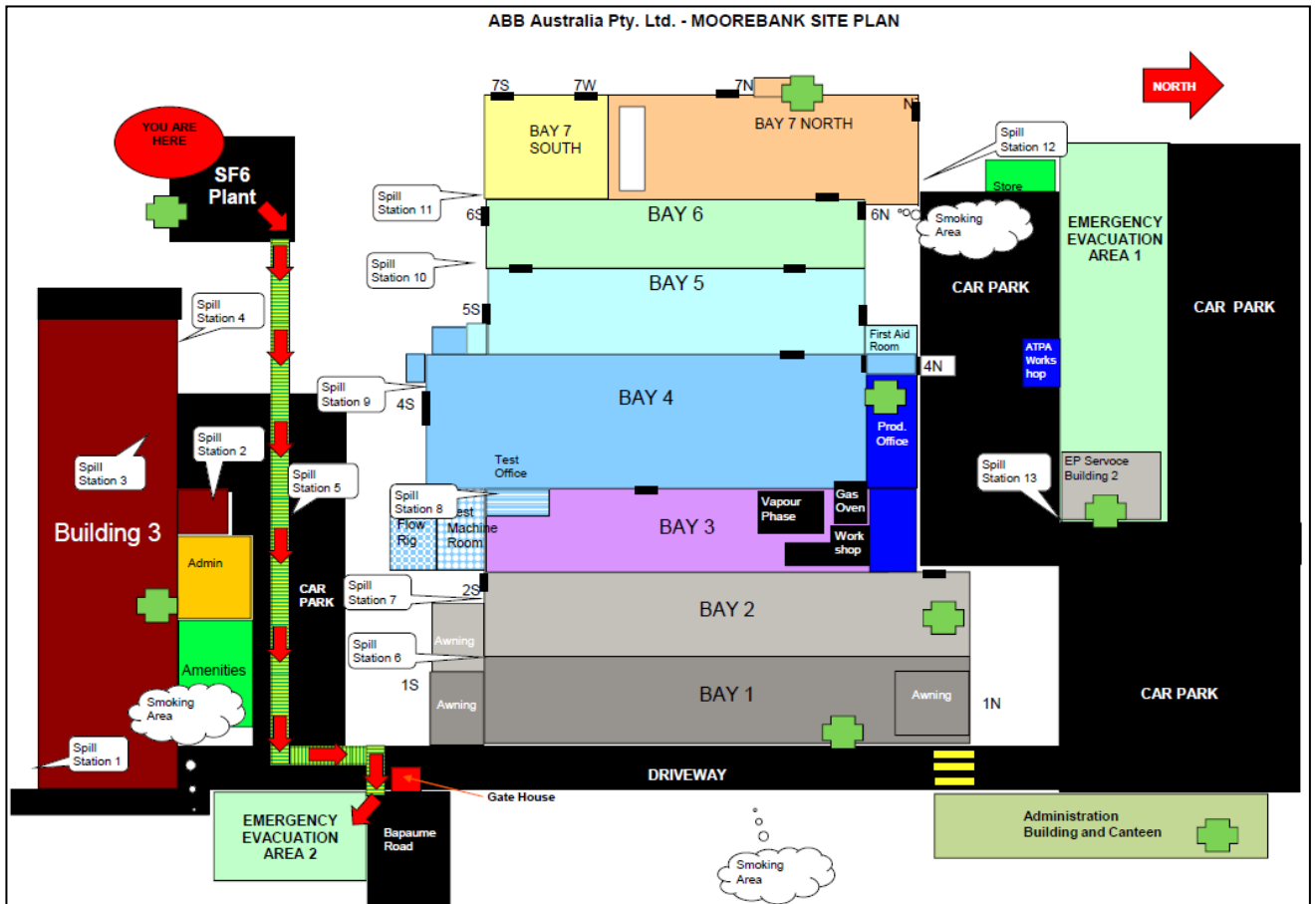


Figure 3: Emergency Evacuation Plan – Map

#### 4.10 Staff Training

In order to familiarize staff with the PIRMP and enable them to execute the activation of PIRMP, regular training is organized.

Training for personnel include:

- a. PIRMP procedure refresher annually for SF6 plant operator and SF6 plant manager
- b. PIRMP emergency drill for whole site

### 5 Testing the PIRMP

The PIRMP will be tested annually by conducting a mock drill and initiating the notification procedure.

PIRMP was tested on the following dates:

S. No	Person Responsible	Scenario	Date
1	Vanessa Tracey	Liquid nitrogen tank is leaking and covering SF6 area	27 July 2018



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**6 Amendment Register**

<b>Rev.No</b>	<b>Date</b>	<b>Page No</b>	<b>Description of Change</b>
1	20.03.2018	All	Revised as required
2	14.06.2018	All	Reviewed whole document
3	19.10.2018	All	Changed format. Revised based on EPA audit report.