Riskcon engineering

State Environmental Planning Policy No. 33

Nepean Hospital Derby Street, Kingswood

Nepean Hospital
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Executive Summary

Introduction

Nepean Hospital is being upgraded as part of a redevelopment proposal for the facility. The development is a State Significant Development (SSD); hence, the Secretary Environmental Assessment Requirements (SEARs) have been issued requiring the preparation of a State Environmental Planning Policy No. 33 (SEPP 33) assessment for the proposed expansion. Should the thresholds detailed within SEPP 33 be exceeded, a Preliminary Hazard Analysis (PHA) will be required to demonstrate the risks are compliant with the land zoning.

CBRE Pty Limited (CBRE), on behalf of the Nepean Hospital, has requested Riskcon Engineering Pty Ltd (Riskcon) to prepare the SEPP 33 assessment report for the proposed redevelopment of the Nepean Hospital facility.

Conclusions

A review of the quantities of DGs proposed to be stored at the redevelopment of the Nepean Hospital at Derby Street, Kingswood NSW and the associated vehicle movements was conducted and compared to the threshold quantities outlined in Applying SEPP 33 (Ref. [1]). The results of this analysis indicates the threshold quantities for the DGs to be stored and transported are exceeded; hence, SEPP 33 does apply to the project.

As the facility triggers the SEPP 33 policy, it is regarded as being potentially hazardous; hence, it is necessary to prepare a Preliminary Hazard Analysis for the facilty to determine whether the storage of DGs might result in any offsite impacts.

Recommendations

The following recommendations have been made for the site:

- a Preliminary Hazard Analysis shall be perfromed for the site to assess whether the storage of dangerous goods may have potential offsite impacts.
- The DGs shall be stored in a manner which complies with the applicable storage standards (i.e. AS/NZS 3833:2007 or class specific standards such as AS 1940:2017).
- The documentation required by the Work Health and Safety (WHS) Regulation 2017 (Ref. [2]) shall be prepared to demonstrate the risks have been assessed and minimised So Far As Is Reasonably Practicable (SFARP) as required by the WHS Regulations.
- Where flammable gases or liquids are stored, a hazardous area classification in accordance with AS/NZS 60079.10.1:2009 (Ref. [3]) shall be prepared to ensure that an ignition source does not enter a hazardous atmosphere as required by the WHS Regulations.

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Abbreviations

Abbreviation	Description
AS	Australian Standard
CBD	Central Business District
DGs	Dangerous Goods
NZS	New Zealand Standard
PHA	Preliminary Hazard Analysis
SEARs	Secretary Environmental Assessment Requirements
SEPP	State Environmental Planning Policy
SSD	State Significant Development

1.0 Introduction

1.1 Background

Nepean Hospital is being upgraded as part of a redevelopment proposal for the facility. The development is a State Significant Development (SSD); hence, the Secretary Environmental Assessment Requirements (SEARs) have been issued requiring the preparation of a State Environmental Planning Policy No. 33 (SEPP 33) assessment for the proposed expansion. Should the thresholds detailed within SEPP 33 be exceeded, a Preliminary Hazard Analysis (PHA) will be required to demonstrate the risks are compliant with the land zoning.

CBRE Pty Limited (CBRE), on behalf of the Nepean Hospital, has requested Riskcon Engineering Pty Ltd (Riskcon) to prepare the SEPP 33 assessment report for the proposed redevelopment of the Nepean Hospital facility.

1.2 Objectives

The objectives of the study are to:

- Determine whether SEPP 33 applies to the proposed redevelopment of the Nepean Hospital based on the quantity of DGs being stored; and
- Report on the findings of the study in support of the DA.

1.3 Scope of Work

The scope of work is to prepare a SEPP 33 assessment for the Nepean Hospital redevelopment located on Derby Street, Kingswood NSW to determine whether the SEPP 33 policy applies to the site. Additionally, a review of the number of vehicle movements as a result of DG storage will be assessed to determine whether additional traffic management is required. The scope does not include any other sites, nor the preparation of any other planning studies should they be required.

2.0 Methodology

2.1 General Methodology

The methodology used in this assessment is as follows:

- Review the types and proposed quantities of DGs to be stored at the site.
- Compare the quantities of DGs against the threshold quantities listed in “Applying SEPP 33 – Hazardous and Offensive Development” (Ref. [1]) to identify whether the storage location or quantity triggers SEPP 33.
- Review the likely vehicular movements involving DGs and compare against the applicable thresholds detailed in Applying SEPP 33.
- Report on the findings of the SEPP 33 assessment.

2.2 Data taken from “Applying SEPP 33”

Figure 2-1, extracted from “Applying SEPP 33” provides details on the application of Figures or Tables from the same document to determine the applied screening threshold for each class of DG. **Figure 2-2** indicates the SEPP 33 general screening thresholds for DG storage (Table 3 from the document) and **Figure 2-3** indicates the SEPP 33 general screening thresholds for vehicular movements (Table 2 from the document).

Class	Method to Use/Minimum Quantity
1.1	Use graph at Figure 5 if greater than 100 kg
1.2-1.3	Table 3
2.1 — pressurised (excluding LPG)	Figure 6 graph if greater than 100 kg
2.1 — liquefied (pressure) (excluding LPG)	Figure 7 graph if greater than 500 kg
LPG (above ground)	table 3
LPG (underground)	table 3
2.3	table 3
3PGI	Figure 8 graph if greater than 2 tonne
3PGII	Figure 9 graph if greater than 5 tonne
3PGIII	Figure 9 graph if greater than 5 tonne
4	table 3
5	table 3
6	table 3
7	table 3
8	table 3

Figure 2-1: Screening Method to be Used

Class	Screening Threshold	Description
1.2	5 tonne	or are located within 100 m of a residential area
1.3	10 tonne	or are located within 100 m of a residential area
2.1	(LPG only — not including automotive retail outlets[1])	
	10 tonne or16 m^3	if stored above ground
	40 tonne or 64 m^3	if stored underground or mounded
2.3	5 tonne	anhydrous ammonia, kept in the same manner as for liquefied flammable gases and not kept for sale
	1 tonne	chlorine and sulfur dioxide stored as liquefied gas in containers <100 kg
	2.5 tonne	chlorine and sulphur dioxide stored as liquefied gas in containers >100 kg
	100 kg	liquefied gas kept in or on premises
	100 kg	other poisonous gases
4.1	5 tonne	
4.2	1 tonne	
4.3	1 tonne	
5.1	25 tonne	ammonium nitrate — high density fertiliser grade, kept on land zoned rural where rural industry is carried out, if the depot is at least 50 metres from the site boundary
	5 tonne	ammonium nitrate — elsewhere
	2.5 tonne	dry pool chlorine — if at a dedicated pool supply shop, in containers <30 kg
	1 tonne	dry pool chlorine — if at a dedicated pool supply shop, in containers >30 kg
	5 tonne	any other class 5.1
5.2	10 tonne	
6.1	0.5 tonne	packing group I
	2.5 tonne	packing groups II and III
6.2	0.5 tonne	includes clinical waste
7	all	should demonstrate compliance with Australian codes
8	5 tonne	packing group I
	25 tonne	packing group II
	50 tonne	packing group III

Figure 2-2: General Screening Threshold Quantities

	Vehicle Movements			Minimum quantity* per load (tonne)	
	Cumulative		Peak		
Class	Annual	*or*	Weekly	Bulk	Packages
1	see note		see note	see note	
2.1	>500		>30	2	5
2.3	>100		>6	1	2
3PGI	>500		>30	1	1
3PGII	>750		>45	3	10
3PGIII	>1000		>60	10	no limit
4.1	>200		>12	1	2
4.2	>100		>3	2	5
4.3	>200		>12	5	10
5	>500		>30	2	5
6.1	all		all	1	3
6.2	see note		see note	see note	
7	see note		see note	see note	
8	>500		>30	2	5
9	>1000		>60	no limit	

Figure 2-3: Transportation Screening Thresholds

3.0 General Description

3.1 Site Location

The site is located on Derby Street, Kingswood NSW which is approximately 48 km northwest of the Sydney Central Business District (CBD). **Figure 3-1** shows the regional location of the site in relation to the Sydney CBD.

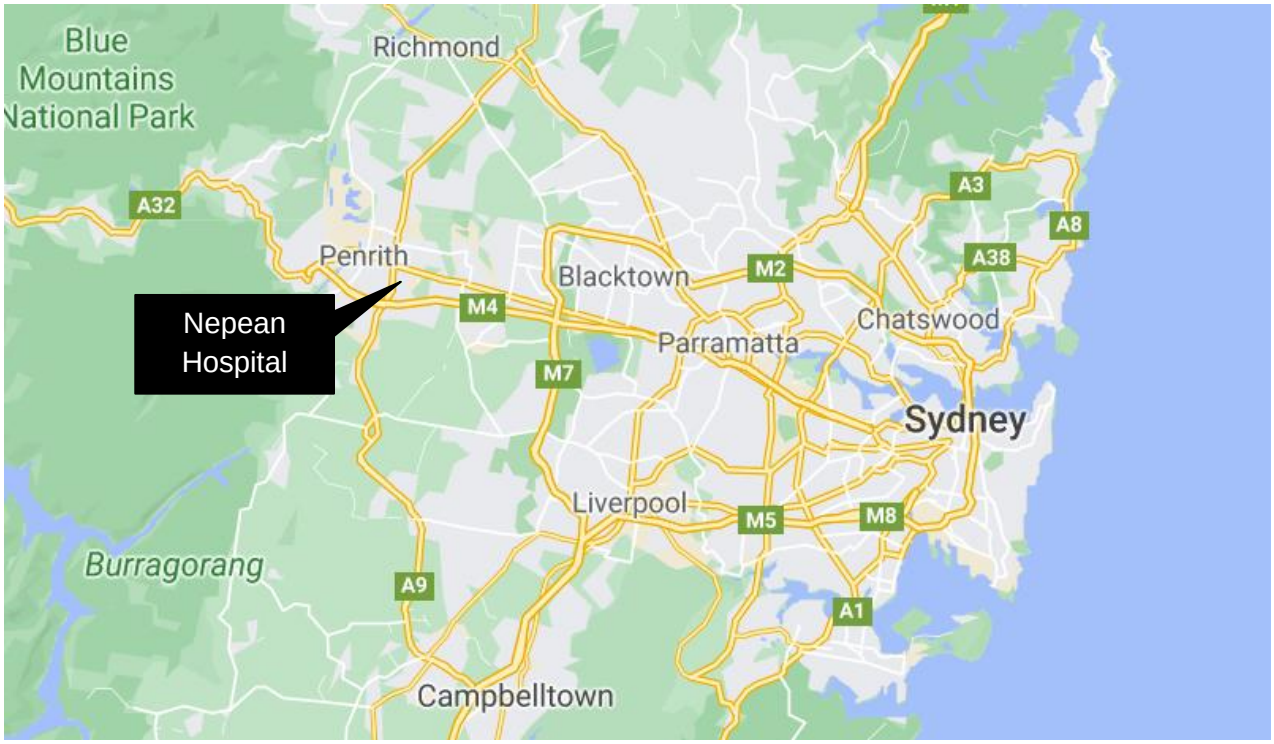

Figure 3-1: Site Location

3.2 Adjacent Land Uses

The Nepean Hospital is located in the Kingswood area and is surrounded by both residential and industrial land use. The following uses are directly adjacent to the site:

- North – Railway line and industrial area
- East – Residential housing
- South – Residential housing
- West – Residential housing

3.3 Site Layout

Provided in **Figure 3-2** is the site layout for the Nepean Hospital, including the locations where Dangerous Goods (DGs) are stored.

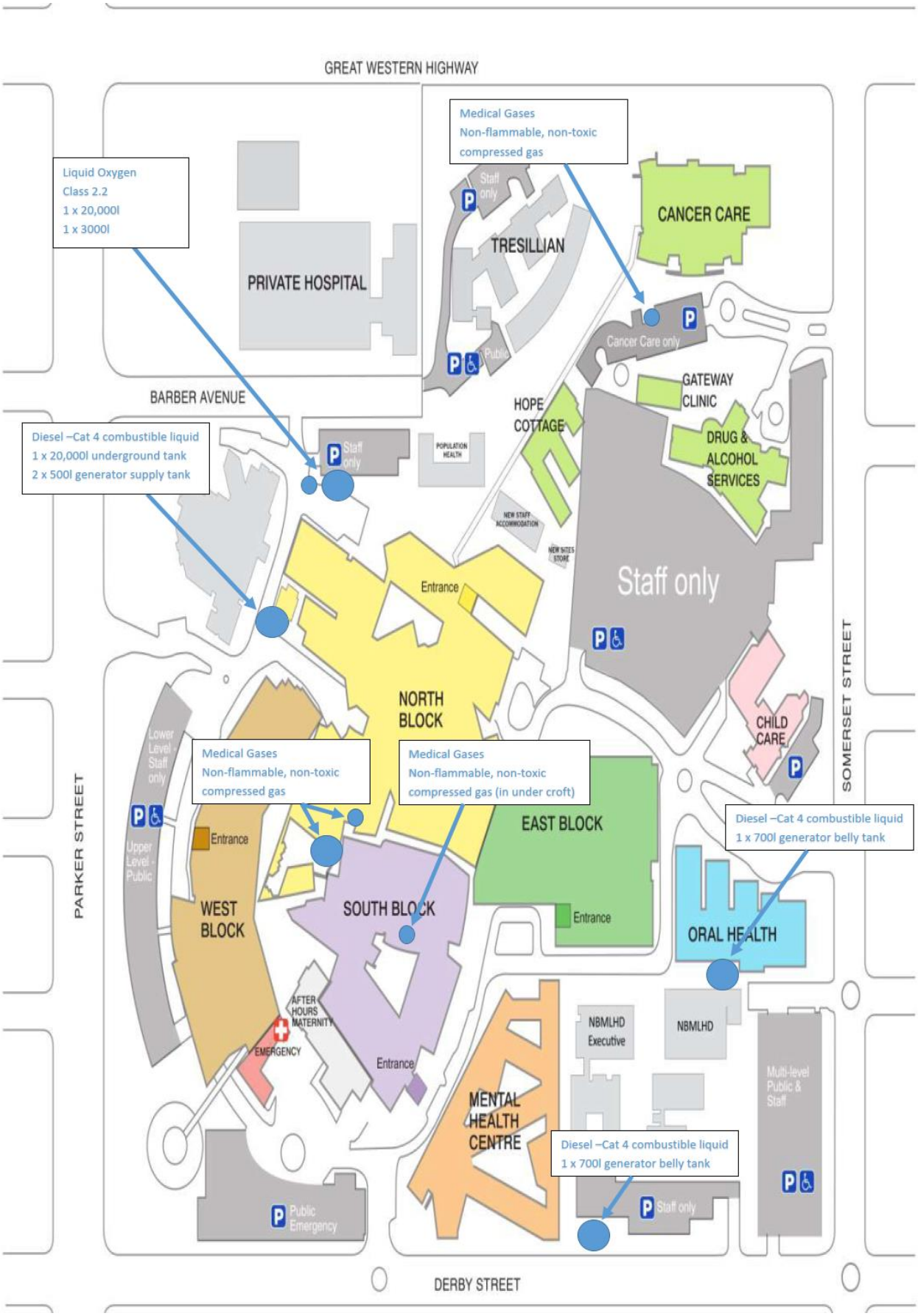

Figure 3-2: Nepean Hospital Site Layout

3.4 Quantities of Dangerous Goods Stored and Handled

The Dangerous Goods (DGs) stored on the site are primarily for medical application purposes. The vast majority of DGs are Cass 2.2 non-flammable non-toxic gases such as Oxygen and Carbon Dioxide for use within the hospital rooms and operating theatres. There are both bulk and minor stores of these gases on site, as per **Figure 3-2**. A number of medicines are also classified as DGs and are all stored in small packages for administering to patients (e.g. small vials / syringes); thus, the risk posed by these small quantities is significantly reduced compared to traditional stores of DGs. The aggregate classes and quantities of DGs to be stored throughout the facility are summarised **Table 3-1**.

Table 3-1: Classes and Quantities of Dangerous Goods Stored

Class	Description	Packing Group	Quantity (kg)
2.1	Flammable gases	n/a	146
2.2	Non-flammable non-toxic gases	n/a	2,129
2.2 (5.1)	Non-flammable non-toxic gas with oxidising subrisk (including liquid oxygen)	n/a	26,512
3	Flammable liquids	I	0.03
		II	2,400
		III	1,866
4.1	Flammable solids	I	0.04
		II	102
		III	3.6
4.2	Substances liable to spontaneous combustion	III	1.0
4.3	Substances that emit flammable gases in contact with water	II	0.5
5.1	Oxidising substances	II	9.4
		III	1.2
5.2	Organic peroxides	II	43
6.1	Toxic substances	I	0.2
		II	262
		III	8.9
8	Corrosive substances	II	520
		III	798
9	Miscellaneous DGs	III	426,434

4.0 SEPP 33 Review

4.1 Introduction

State Environmental Planning Policy No. 33 – Hazadous and Offensive Developments (SEPP 33) has been developed under the Environmental Planning and Assesment Act 1979 to control potentially hazardous and offensive developments and to ensure appropriate safety features are installed at a faclity to ensure the risks to surrounding land uses are minimised.

The policy includes a guideline that assists government and industry alike in determining whether SEPP 33 applies to a specific development. The guideline, “Applying SEPP 33 - Hazardous and Offensive Developments” (Ref. [1]) provides a list of threshold levels for the storage of DGs, above which the regulator considers the DG storage to be potentially hazardous. In the event the threshold levels are exceeded, SEPP 33 applies and a Preliminary Hazard Analysis (PHA) is required, followed by a series of hazard analysis studies stipulated by the Department of Planning, Industry, and Environment in the conditions of consent.

4.2 Storage Assessment

Threshold limits for the application of SEPP 33 are presented in **Table 4-1** indicating the maximum quantity that can be stored on site for each class. It is noted that Class 2.2 and Class 9 are not subject to risk screening for SEPP 33. Substances with subrisks are assessed against the thresholds of both DG classes they belong to.

It was found that the storage quantity of Class 5.1 oxidising agents exceeds the threshold provided in Applying SEPP 33. This is primarily due to the storage of large quantities of liquefied oxygen. Hence, the storage would be considered to be potentially hazardous and the requirements of SEPP 33 apply. Therefore, the following recommentation has been made:

- a Preliminary Hazard Analysis shall be perfromed for the site to assess whether the storage of dangerous goods may have potential offsite impacts.

Table 4-1: Quantities Stored and SEPP 33 Threshold

Class	Description	PG	Storage Quantity (kg)	SEPP 33 Threshold (kg)	Does SEPP 33 Apply?
2.1	Flammable gases (aerosols)	n/a	146	10,000	N
2.2	Non-flammable non-toxic gases	n/a	28,641	-	n/a*
3	Flammable liquids	I	0.03	2,000	N
		II	2,399	5,000	N
		III	1,866	5,000	N
4.1	Flammable solids	I, II & III	106	5,000	N
4.2	Substances liable to spontaneous combustion	III	1.0	1,000	N
4.3	Substances that emit flammable gases in contact with water	II	0.5	1,000	N
5.1	Oxidising substances	II & III	26,522	5,000	Y

Class	Description	PG	Storage Quantity (kg)	SEPP 33 Threshold (kg)	Does SEPP 33 Apply?
5.2	Organic peroxides	II	43	10,000	N
6.1	Toxic substances	I	0.2	500	N
		II & III	262	2,500	N
8	Corrosive substances	II	520	25,000	N
		III	798	50,000	N
9	Miscellaneous DGs	III	426,434	-	n/a*

*n/a – DG class is not subject to the risk screening requirements of SEPP 33.

4.3 Transport

The quantities to be stored are primarily less than SEPP 33, as shown in **Table 4-1**; hence, a high turnover of stored product would be required to exceed the transport movements associated with the corresponding storage. Although the oxidising agents exceed the value of SEPP 33, it is unlikely that the rate of turnover necessary to exceed the acceptable vehicular movements would be achieved; hence, it is considered that the transport screening thresholds of SEPP 33 would not be exceeded.

5.0 Conclusion and Recommendations

5.1 Conclusions

A review of the quantities of DGs proposed to be stored at the redevelopment of the Nepean Hospital at Derby Street, Kingswood NSW and the associated vehicle movements was conducted and compared to the threshold quantities outlined in Applying SEPP 33 (Ref. [1]). The results of this analysis indicates the threshold quantities for the DGs to be stored and transported are exceeded; hence, SEPP 33 does apply to the project.

As the facility triggers the SEPP 33 policy, it is regarded as being potentially hazardous; hence, it is necessary to prepare a Preliminary Hazard Analysis for the facilty to determine whether the storage of DGs might result in any offsite impacts.

5.2 Recommendations

The following recommendations have been made for the site:

- a Preliminary Hazard Analysis shall be perfromed for the site to assess whether the storage of dangerous goods may have potential offsite impacts.
- The DGs shall be stored in a manner which complies with the applicable storage standards (i.e. AS/NZS 3833:2007 or class specific standards such as AS 1940:2017).
- The documentation required by the Work Health and Safety (WHS) Regulation 2017 (Ref. [2]) shall be prepared to demonstrate the risks have been assessed and minimised So Far As Is Reasonably Practicable (SFARP) as required by the WHS Regulations.
- Where flammable gases or liquids are stored, a hazardous area classification in accordance with AS/NZS 60079.10.1:2009 (Ref. [3]) shall be prepared to ensure that an ignition source does not enter a hazardous atmosphere as required by the WHS Regulations.

6.0 References

[1] Department of Planning, “Applying SEPP 33,” Department of Planning, Sydney, 2011.

[2] SafeWork NSW, “Work Health and Safety Regulation,” SafeWork NSW, Lisarow, 2017.

[3] Standards Australia, AS/NZS 60079.10.1:2009 - Explosive Atmospheres Part 10.1: Classification of Areas, Explosive Gas Atmospheres, Sydney: Standards Association of Australia, 2009.

[4] National Transport Commission (NTC), “Australian Code for the Transport of Dangerous Goods by Road & Rail, 7th Edition,” 2011.