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CONSULTANTS ADVICE NOTICE

Project:	Harrisons R&D Lab Installation	**Ref No.:**	RCE-23338
From:	Steve Sylvester	**Date:**	8 February 2024
		Issue:	1

	Attention	**Company**	**Email/Fax**
To:	Tony Granville	Harrisons SPARC	Tony.Granville@harrison.com.au
cc:			

RE: Reliance and Hazards State Environmental Planning Policy – 75 Old Pittwater Road.

1. INTRODUCTION

1.1. Background

Harrisons SPARC (SPARC) proposes the construction of a new laboratory (the Lab) at 75 Old Pittwater Road, Brookvale, NSW. This laboratory will be located south of the office building on the property. This construction will include a 12 metre x 7 metre building for laboratory purposes only and the relocation of a 12 metre by 3 metre office demountable.

As part of the Lab operations, a number of Dangerous Goods (DGs) will be used, including liquids and chemical solids. As part of the Development Application (DA), facilities storing and handling DGs may be subject to the Resilience and Hazards State Environmental Planning Policy (RH-SEPP), hence, it is necessary to review the storage of DGs at the facility to determine whether the RH-SEPP applied to the centre.

SPARC has engaged RiskCon Engineering Pry Ltd (RiskCon) to review the proposed DG storage at the centre and to identify whether the RH-SEPP applies to the DA.

This document provides RiskCon's Consultant's Advice Notice for the RH-SEPP assessment of the Proposed Laboratory at 75 Old Pittwater Road, Brookvale, NSW.

1.2. Objectives

The objective of the RH-SEPP assessment is to identify whether the RH-SEPP applies to the proposed laboratory project and to report on the findings of the assessment for inclusion in the DA submission.

1.3. Scope

The scope of work is for a RH-SEPP assessment of the proposed Laboratory and does not include any other developments associated with the Harrisons property at 75 Old Pittwater Road, Brookvale, NSW.

2. METHODOLOGY

The following methodology was applied:

- Project Review – a review of the proposed Laboratory project was conducted to identify the types of DG proposed for storage in the facility;

- DG Types and Quantities – a list of DGs was developed detailing the DG type (i.e. flammable, oxidising, corrosive, etc.), the DG Class, package group and the quantity;
- RH-SEPP Review – the threshold quantities were then listed, from the document "Applying SEPP33, and the DG quantities identified were compared to the permissible thresholds;
- Application of RH SEPP – where DG quantities were below the threshold, no further assessment was considered to apply, where threshold values were exceeded (if any), a PHA was recommended ; and
- A draft consultants advice notice (CAN) was developed for review and comment by MQU, followed by a final report incorporating comments for points of fact.

3. BRIEF DESCRIPTION OF THE HARRRISON SPARC LABORATORY

3.1. Location and Surrounding Land Uses

The proposed laboratory will be located in Harrisons Manufacturing site at 75 Old Pittwater Road, Brookvale, NSW. **Figure 3.1** shows the regional location of the proposed laboratory and Figure 3.2 shows the surrounding land uses in adjacent properties to the building.

The building is in a commercial area of Brookvale with Warringah Mall located to the south following Old Pittwater Road. Surrounding businesses are of similar use with offices and commercial premises located on the surrounding land.

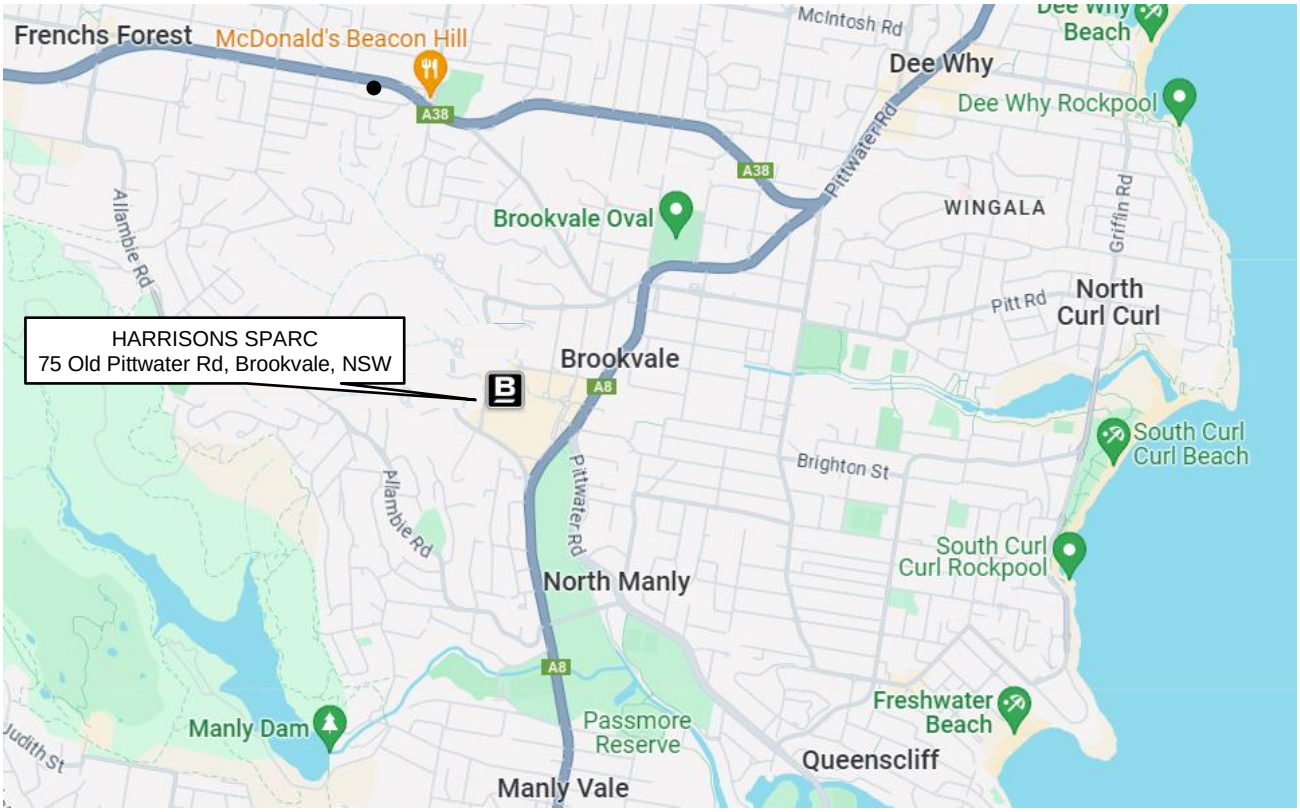


Figure 3.1: Location of the Proposed Laboratory in Brookvale, NSW (Ref. Google Maps)

Figure 3.2: Harrisons Building and Surrounding Land Uses in Brookvale, NSW

Figure 3.3: Location of the Proposed Laboratory on Site in Brookvale, NSW

3.2. Brief Description of the Proposed Laboratory Project

The proposed laboratory is to be built in the highlighted section as seen in **Figure 3.3**. It is adjacent to an existing laboratory, office and relocated demountable. The building is located to be 3 metres from any other existing structures.

3.3. Proposed Storage of DGs within the Building

The operations associated with the proposed laboratory will require the storage of a number of DGs, predominantly relatively small quantities of flammable liquids, chemical solids and corrosive substances. A list of DGs classes and proposed storage classes are provided in **Table 3.1**.

Table 3.1: Proposed DG Storage Details – Harrisons Laboratory Centre Project

DG Type	DG Class	Package Group	Proposed Storage Type	Proposed Quantity
Flammable L:iquid	3	II	DG Cabinet	50 L
Flammable Solids	4	II	DG Cabinet	30 kg
Oxidising Agent	5	II	DG Cabinet	30 L
Toxic Substance	6	II	DG Cabinet	30 L
Corrosive (Acid)	8	II	DG Cabinet	50 L
Corrosive (Alkali)	8	II	DG Cabinet	50 L
Miscellaneous DG	9	II	DG Cabinet	30 L

The layout and storage of these DGs can be seen in **Figure 3.3**. All DGs will be stored in laboratory cabinets specific to each DG Type. The storage is all accessible from ground level only and will comply with the requirements of the relevant Australian Standard applicable to the DG stored. Materials stored in the cabinets will all be in containers below retail size packages volumes.

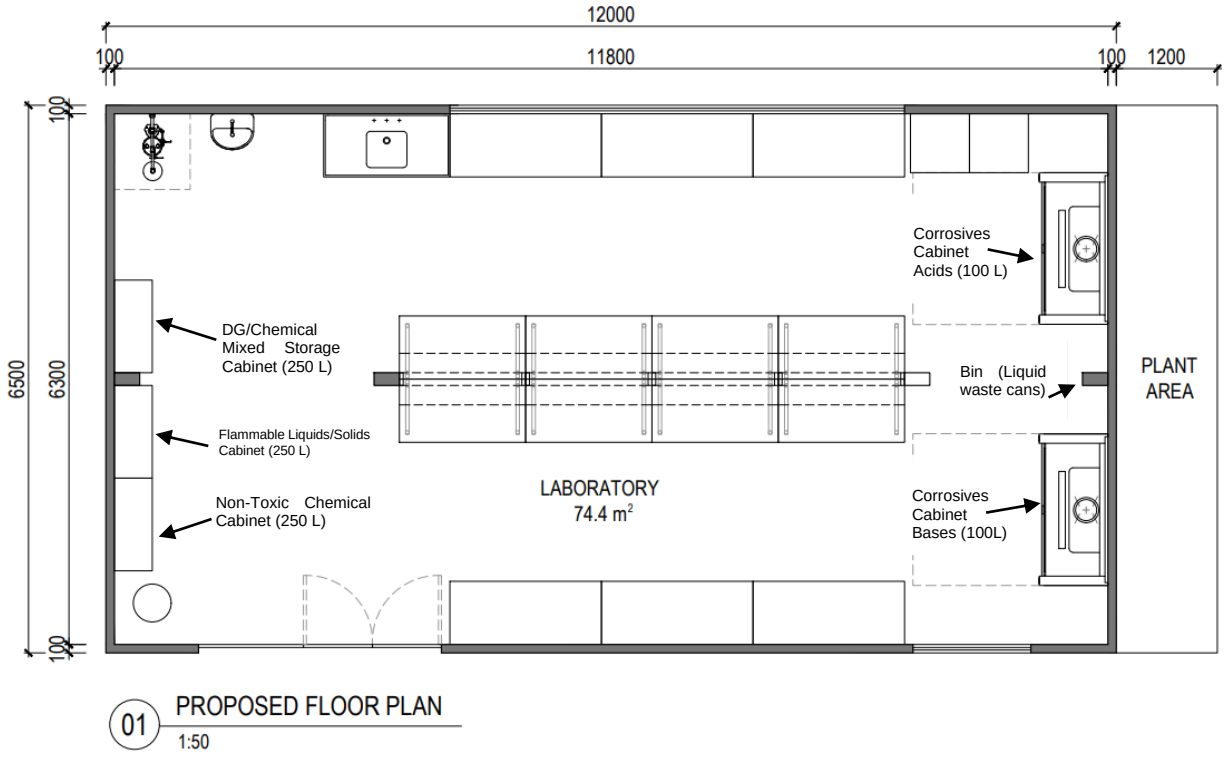


Figure 3.3: Storage Locations of DGs in Proposed Laboratory

4. RESULTS OF THE RH-SEPP ASSESSMENT

4.1. Screening Thresholds

The applicable screening thresholds for the laboratory have been extracted from Applying SEPP33 (Ref.1) and are included at **Appendix A**. These screening thresholds have been used to determine acceptable levels of DGs that may be held in each warehouse.

The quantity of DGs that are proposed for storage in the laboratory is shown in **Table 4.1**, along with the maximum permissible threshold quantities (Ref.1). It is noted that the Class 3, 4, 5, 6 & 8 DGs will be held in compliant storage cabinets within the Lab.

Figure 4.2 shows the maximum permissible quantity of flammable liquids that may be stored in the building before the RH-SEPP applies, as listed in "Applying SEPP33 (Ref.1), based on the specific separation distances of the flammable liquids storages area from the boundary.

Table 4.1 shows that threshold quantities are not exceeded at the proposed Laboratory and **Figure 4.2** shows that the maximum permissible storage quantities of flammable liquids are not exceeded, hence, Chapter 3 of the RH SEPP does not apply to the storage of DGs at the proposed Lab project, as all DGs are under the storage screening threshold.

Table 4.1: Maximum Storage Quantities of DGs at the Laboratory Project

Proper Chemical Name	Class	Package Group (PG)	Max. quantity held on site*	RH SEPP Threshold Qty	RH SEPP Applies Y/N
Flammable Liquids	3	II	0.05 tonnes	5 tonnes	No
Flammable Solids	4	II	0.03 tonnes	5 tonnes	No
Oxidising Agents	5	II	0.03 tonnes	2.5 tonnes	No
Toxic Substances	6	II	0.03 tonnes	2.5 tonnes	No
Corrosive Substances (Acid)	8	II	0.1 tonnes	25 tonnes	No
Miscellaneous DG	9	II	0.05 tonnes	25 tonnes	No

* Conservative assumption – 1 L = 1kg

Figure 9: Class 3PGII and 3PGIII Flammable Liquids

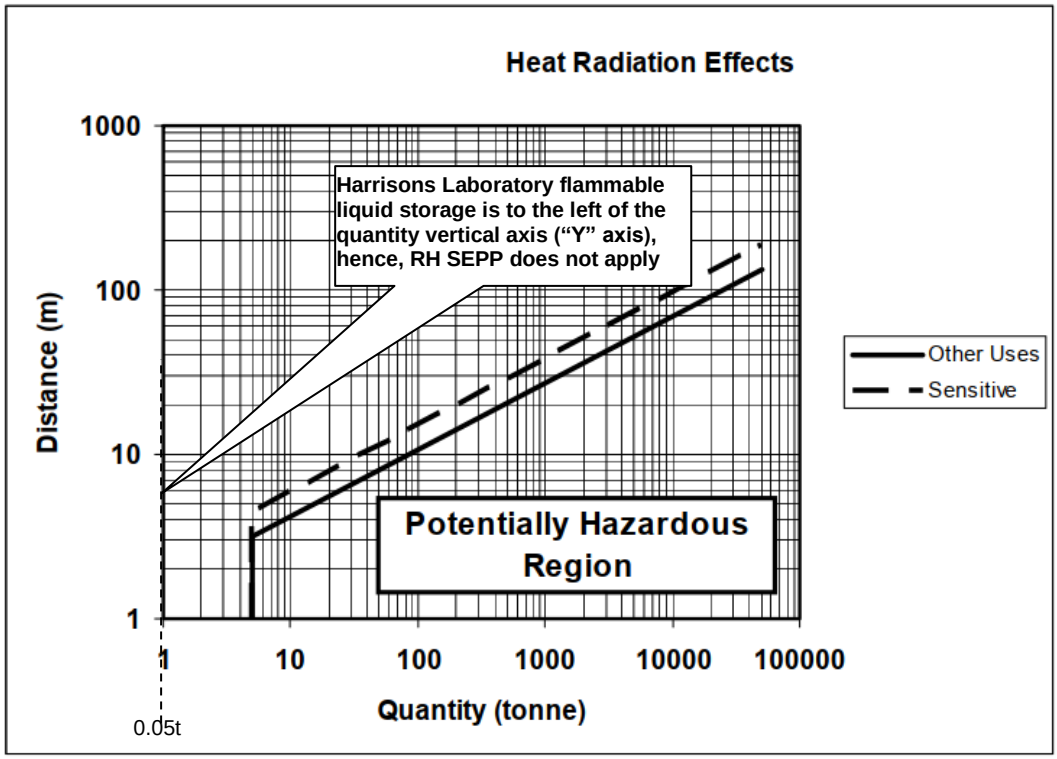


Figure 4.2: Laboratory Flammable Liquids Storage Plot - Qty Vs Distance from Boundary

4.2. RH-SEPP Transport Review

It is necessary to assess the impact of transporting DGs on the surrounding arterial roads to and from the Harrisons building at 75 Old Pittwater Road, Brookvale. As the total quantities to be stored in the warehouse is well below the RH SEPP threshold levels, it can be assumed that the frequency of movements would be low and certainly the quantity of DGs on a transport vehicle would be below placard quantity. Therefore, it is considered prudent to review the RH SEPP transport criteria on the basis of minimum transport load listed in the guideline (Applying SEPP33, Ref.1). **Table 4.4** has been developed based on the minimum load of goods to compare with the maximum storage quantity, within the SPARC Laboratory, to conceptualise whether the loads would be likely to be exceeded based on the maximum storage quantities.

Table 4.4: RH SEPP Transport Quantity vs Building Storage Limits – SPARC Lab

Class	Minimum Load Quantity (Listed in SEPP33)	Maximum Storage within the Laboratory
3	10 tonnes	0.05 tonnes
4	2 tonnes	0.03 tonnes
5	5 tonnes	0.03 tonnes
6	3 tonnes	0.03 tonnes
8	5 tonnes	0.1 tonnes
9	No Limit	0.03 tonnes

Based on the maximum quantity to be stored in the Harrisons Laboratory facility and the RH SEPP load limits, the quantities are unlikely to be exceeded as that would indicate very high turnover of product which would be unlikely to be achieved considering that vehicle movements to and from the Lab will be predominantly non-DG products, resulting in the majority of vehicles not carrying DGs. In addition, those movements where DGs are transported as a combined load (Non-DGs and DGs together), the majority of loads would be below the transport placard quantity, which does not exceed the maximum load quantities listed in **Table 4.4**.

Therefore, it is considered that the RH SEPP limits for transport would not be exceeded; hence, additional traffic management plans would not be required. It is noted, that the transport of DGs is covered by the Australian Dangerous Goods Code (ADG, Ref.3) Therefore, incident response will be covered by the transport of DGs via the ADG as appropriate with the loads being carried.

4.3. Offensive Industry Assessment

4.3.1. Dangerous Goods Storage and POEO Regulation

The laboratory will hold a small quantity of DGs in packages and cabinets and the operatioons at the facility are all laboratrory based (i.e. processing and handling of very small quantities of chemcials).

A review of the Protection of Environmetal Operations (POEO) Regulation 2010 (the Regulation) indicates that chemical storage facilties would trigger the application of the Regulation where chemicals are stored in exceed of 2,000 tonnes. The maximum quantity of chemicals stored in the sleep centre does not exceed 0.3 tonnes.

4.3.2. Environmental Health (Odour and Air Quality Issues)

In addition to the storage volumes, chemicals will be processed during experiments and tests, whereby up to 500 gramns of materials will be mixed, which reacts forming hydrogen sulphide (H2S) and volatile organic compounds (VOCs) as a reaction. This reaction occurs over a 2 hour period releasing around 2 grams of H_2S and VOCs, hence, the release rate is 2 grams/7200 seconds = $2.8x10^{-4}$ grams/second ($2.8x10^{-7}$ kg/second). Noting that H_2S has the highest impact (odour) and is a toxic gas, this material has beenm conservatively used in the asessment.

Based on a density of H_2S, at STP conditions (20^{o}C, 101 kPa) of 1.34 kg/m^3, the volume of H2S in the release from the experiment/test operation is

Volume of H_2S released = mass release/density of release

Volume of H_2S released = $2.8x10^{-7}$/ 1.34 = $2.1x10^{-7}$ m^3/s.

Experiments and tests are all conducted within the fume cupboard in the laboratory. The fume cupboard has an extraction flow rate of 1m^3/s. The concentration of H2S within the extraction stream is volume released/volume of extraction flow:

Extraction Stream Concentraton = Volume release/Volume opf extraction flow

Extraction Stream Concentraton = $2.1x10^{-7}$ m^3/s/1000 = $2.1x10^{-10}$ or 0.21 parts per billion (ppb)

The extraction stream from the fume cupboard is also scrubbed, to remove any contaminants from the extraction stream. A conservative estimate of 95% scurbbing efficiency is used for the assessment, hence, the concentration of H_2S discharging from the fume cupboard vent is:

Discharge Concentration from scurbber vent = extraction concentration x scrubber efficiency

Discharge Concentration from scurbber vent = $2.1x10^{-10}$ x 0.05 = 1x10-11 or 0.001 ppb

A review of the SafeWork Australia Workplace Exposure Standard for Airborne Contaminats (2019) indicates that the Time Weighted Average (TWA) for H_2S (i.e. the maximum concentration for 8 hours exposure) is 10 parts per million (ppm). The discharge from the fume cupboiard vent (after the scrubber) is over 10,000 times less than the TWA and at these levels, odour would not be detectable.

In summary, the fume cupboard ventilation rate and scrubber dilute and extract H2S to a point where it will not exceed acceptable xposure standards and odours would not be detectable.

4.3.3. Summary of Potential Offensive Operations

Based on the above review of the proposed operations at the Laboratory and the maximum quantity of DGs stored in relation to the POEO Regulation 2010, there will be no requirements for an environmental operations licence from the Environmental Protection Authority (EPA). Further, there would be little, if any, noise generatio, waste discharge to the trade waste systems, or odour from the fume cupboard discharge, hence, there would be no offensive operations that would require a environmental licence in this area. Based on this, the site is not considered to cause offense to the surrounding land uses and the RH SEPP would not be applicable under the offensive component of the SEPP.

5. CONCLUSIONS AND RECOMMENDATIONS

5.1. Conclusions

An analysis of the application of Chapter 3 of the Resilience and Hazards State Environmental Planning Policy, Hazardous and Offensive Developments (RH-SEPP) was conducted for the proposed Laboratory development at the Harrisons Manufacturing facility located at 75 Pittwater Road, Brookvale, NSW. The proposed project involves the development of a laboratory within the site located on the land at 75 Pittwater Road, Brookvale.

The analysis was conducted based on the proposed DG storage and handling quantities at the proposed laboratory involving a limited quantity of Dangerous Goods (DGs) stored and handled at site.

The analysis identified that the quantity of DGs held the Laboratory did not exceed the storage threshold levels listed in “Applying SEPP33”(Ref.1). It was also identified that based on the relatively low quantity of DGs stored and handled, and the type of operations proposed at the Lab (i.e. the site is not a dedicated DG storage facility), it was unlikely that the maximum permissible transport quantity and number of vehicle operation listed in “Applying SEPP33”(Ref.1) would be exceeded. In addition to the DG storage and transport assessments, a potentially offensive industry assessment was conducted, which identified that the operations at the site would not classify the Lab as offensive.

Based on the RH SEPP assessment conducted in this study and the results indicating that Chapter 3 of the RH SEPP does not apply to the proposed laboratory development, it is concluded that the requirements of the Chapter 3 of the RH SEPP do not apply to the proposed development at 75 Pittwater Road, Brookvale, and there are no recommendations made with regards to the RH-SEPP assessment.

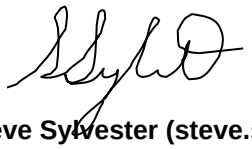
6. REFERENCES

1. Applying SEPP 33 (2011), “Hazardous and Offensive Development Application Guidelines”, NSW Department of Planning, Industry & Environment (DPIE).;

2. AS1940-2017, “The storage and handling of flammable and combustible liquids”, Standards Australia, Sydney;

3. “The Australian Code for the Transport of Dangerous Goods by Road and Rail”, known as The Australian Dangerous Goods Code or ADG, ed. 7.7, 2020, Federal Office of Road Safety, Canberra, ACT

For and on behalf of RiskCon Engineering Pty Ltd,



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APPENDIX A
SCREENING THRESHOLDS (Ref.1)

Figure A.1, extracted from "Applying SEPP33" provides details on the application of Figures or Tables from the same document to determine the applied screening Threshold. It shows that:

- for Class 3 PG II and III, Figure 9 of Applying SEPP33 (Ref.1) shall be used;
- for Class 4 PG II Table 3 of Applying SEPP33 (Ref.1) shall be used;
- for Class 5 PG II Table 3 of Applying SEPP33 (Ref.1) shall be used;
- for Class 6 PGII, Table 3 of Applying SEPP33 (Ref.1) shall be used;
- for Class 8 PGII & PGII, Table 3 of Applying SEPP33 (Ref.1) shall be used.
- For transport, Table 2.

The note after Table 1 of Applying SEPP33 (Ref.1) state the following:

> **Note:** *Classes 1.4, 1.5, 1.6, 2.2, 7 and 9 are excluded from the risk screening. Classes used are those referred to in the Dangerous Goods Code and are explained in appendix 6.*

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 A.1: Screening Method to be Used (extracted from Table 1 of Applying SEPP33 (Ref.1))

Figure 9 and Table 3 from "Applying SEPP33" have been extracted and are shown in **Figure A.2** & **A3**

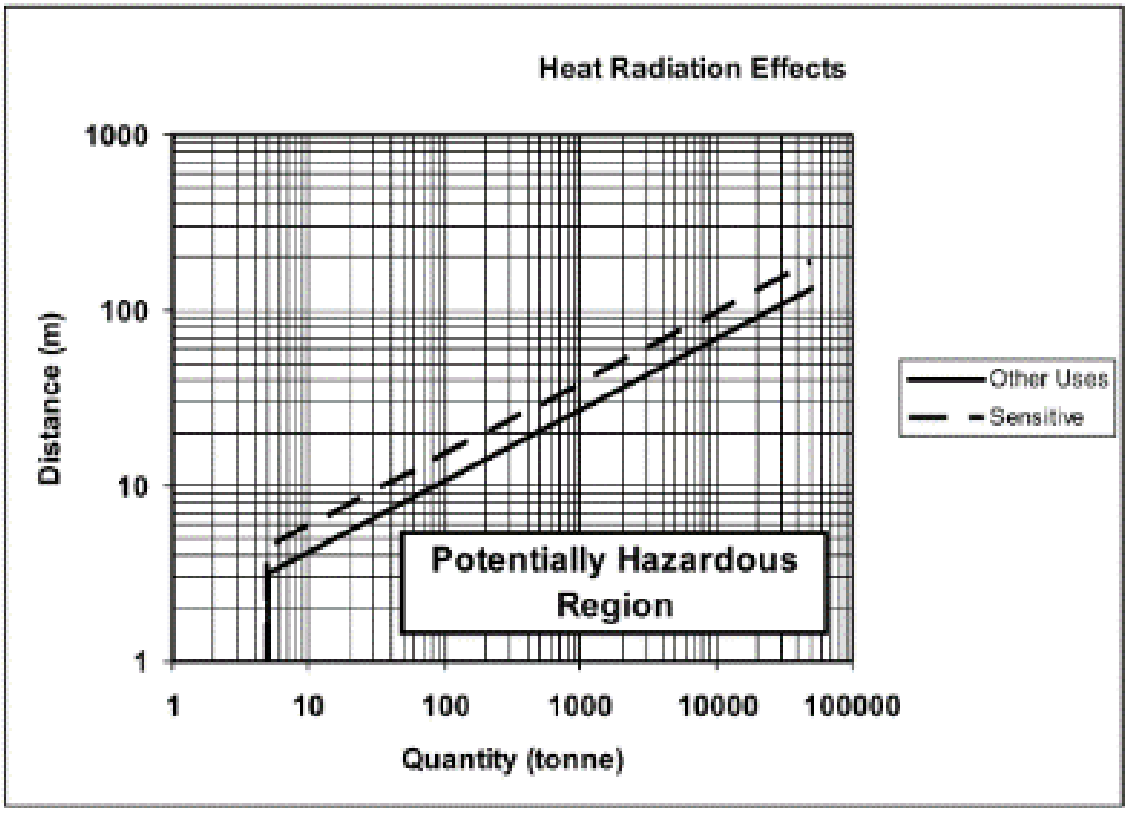

Figure A.2: Class 3 PGII and PGIII Flammable Liquids (extracted from Figure 9 of Applying SEPP33 (Ref.1)

Table 3: General Screening Threshold Quantities

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

Note: *The classes used are those referred to in the Australian Dangerous Goods Code and are explained in Appendix 7.*

Figure A.3: General Screening Threshold Quantities (extracted from Table 3 of Applying SEPP33 (Ref.1)

Product will be transported to and from the warehouses/industrial facility; hence, it is necessary to review the implications the transport of DGs will have on the surrounding arterial roads. Table 2 from "Applying SEPP33" has been extracted and is shown in **Figure A.4**.

	Vehicle Movements		Minimum quantity*	
	Cumulative	Peak	per load (tonne)	
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 A.4: SEPP33 Transport Thresholds (extracted from Table2 of Applying SEPP33 (Ref.1)

*If quantities are below this level, the potential risk is unlikely to be significant unless the number of traffic movements is high.