Core Engineering Group • Fire • Risk • Emergency Management

27th June, 2016
Level 4, Grafton Bond
201 Kent Street
Sydney NSW 2000
Ph: (02) 9299 6605

Our Reference: 200079

Mr. Luis Soares
Brookfield Multiplex Australasia
Sydney NSW 2000

Dear Luis,

Regarding: SEPP33 Application for the SEB, UNSW

Thank you for your query regarding the application of the State Environmental Planning Policy No. 33 (SEPP33) to the Science and Engineering Building (SEB) at the Kensington Campus of UNSW.

Attached is a completed SEPP33 assessment for the SEB, UNSW based on maximum allowable quantities of Dangerous Goods to be stored as part of the operations. The results of the analysis indicate the maximum quantities stored, and the location of the storage, do not result in the facility being classified as a potentially hazardous development; therefore, no additional planning risk studies are required for the facility.

Should you have any questions regarding the attached, please contact either myself (0405 523 448) or Steve (0411 659 309).

Yours faithfully,

CORE - Risk Engineering Solutions

Julia Hasche
Risk Engineer
BEng (Mining), AMAIDGC

Steve Sylvester
Associate Director
BEng., MAIDGC,
FS Engineer (TÜV 2203/10),
EEHA CT04598a&b

1. INTRODUCTION

1.1. Background

The University of NSW (UNSW) proposes to construct a new Science and Engineering Building (SEB) at the Kensington Campus, NSW. The project involves the construction of a new building at the campus in the engineering precinct of the campus. The proposed occupants plan to store a number of Dangerous Goods and Hazardous Materials within the warehouse, hence, the facility is required to be assessed to determine whether it is subject to the State Environmental Planning Policy No 33 (SEPP33), based on the proposed quantity of DGs stored.

The aim of the study is to determine whether SEP33 applies to the proposed development and, in the event SEPP33 does apply, recommend alternate storage configurations (where possible) to ensure SEPP33 does not apply.

Brookfield Multiplex Australasia (BMA) has commissioned Core Engineering (CORE) to conduct the SEPP33 assessment for the facility. This document represents CORE's assessment of SEPP33 to the proposed facility.

1.2. Scope of Work

The scope of work is for a SEPP33 assessment of the proposed quantities of Dangerous Goods (DGs) being stored and the location within the SEB, UNSW, to determine whether the SEPP33 applies to the facility. The assessment does not include any other sites or the preparation of any other planning studies (i.e. preliminary hazard anlaysis or fire safety study) should they be required as determined by this assessment.

2. METHODOLOGY

The methodology used in this assessment is as follows;

- Review the types and maximum quantities of DGs to be stored at the site;
- Compare the quantities of DGs the class specific thresholds as documented in "Applying SEPP33 – Hazardous and Offensive Development" to identify the applicability of SEPP33; and
- Report on the findings of the SEPP33 assessment.

3. SEPP33 REVIEW

3.1 Data taken from "Applying SEPP33"

A summary of each class and the applicable Table or Figure has been provided in **Table 3-1** extracted from "Applying SEPP33".

Table 3-1: SEPP33 Threshold Sources

CLASS	SEPP33 THRESHOLD RESOURCE
2.1	Figure 6
2.3	Table 3
3(I)	Figure 8
3(II & III)	Figure 9
4, 5, 6, 8	Table 3

It is noted that Class 2.2 and Class 9 are not subject to SEPP33 and do not require assessment under this policy framework.

The figures and tables referenced in **Table 3-1** have been extracted from SEPP33 and are displayed in **Figure 3-1** - **Figure 3-4**.

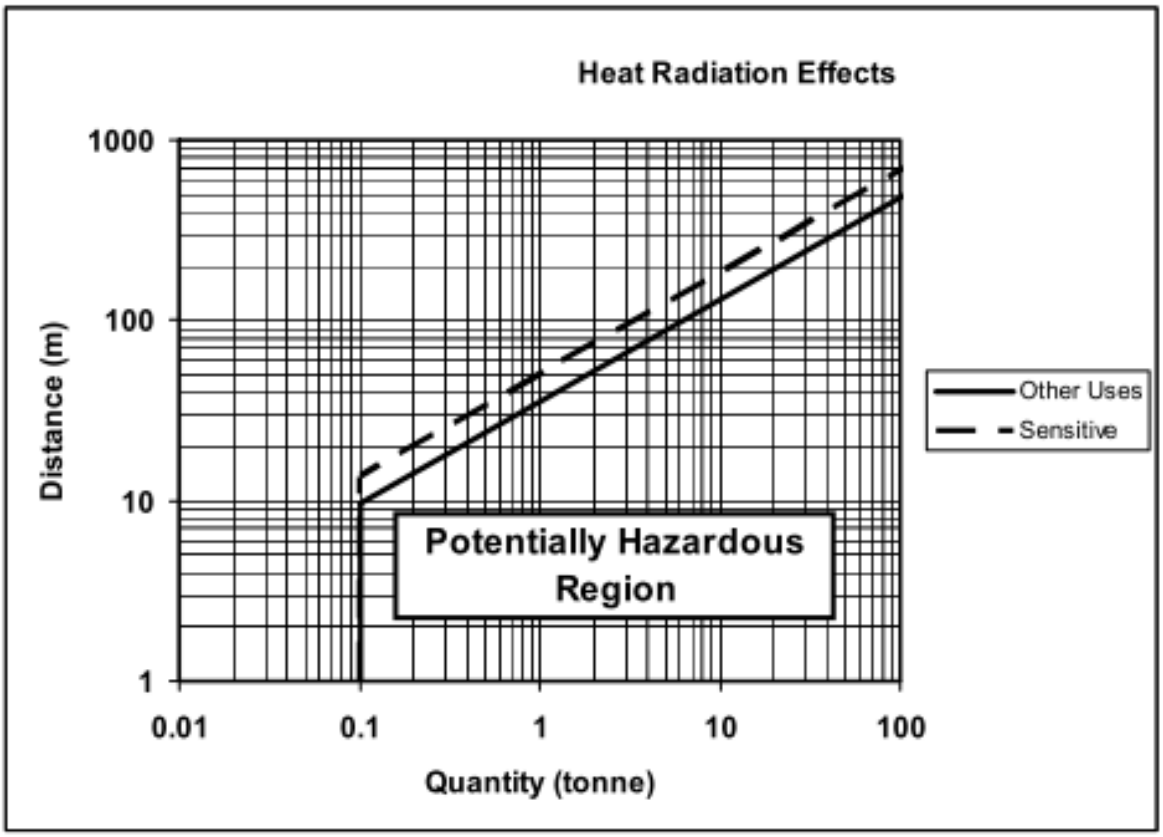

Figure 3-1: Class 2.1 Pressurised Gases

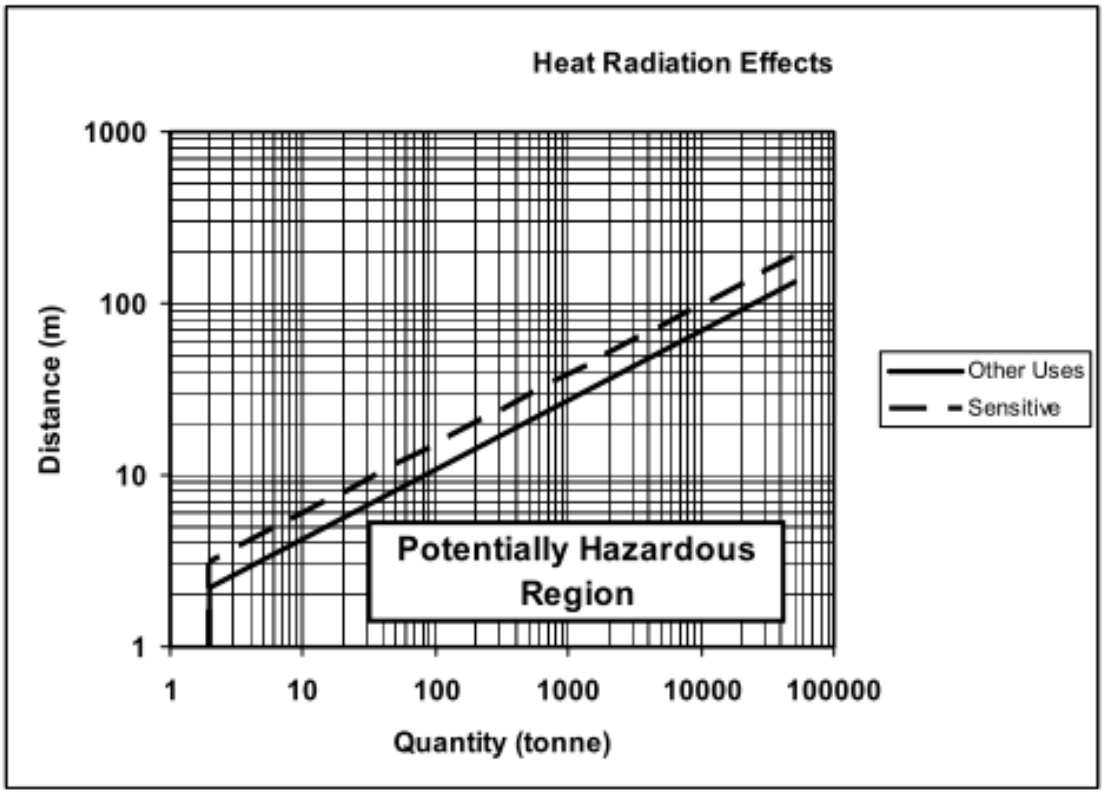

Figure 3-2: Class 3 PGI Flammable Liquids

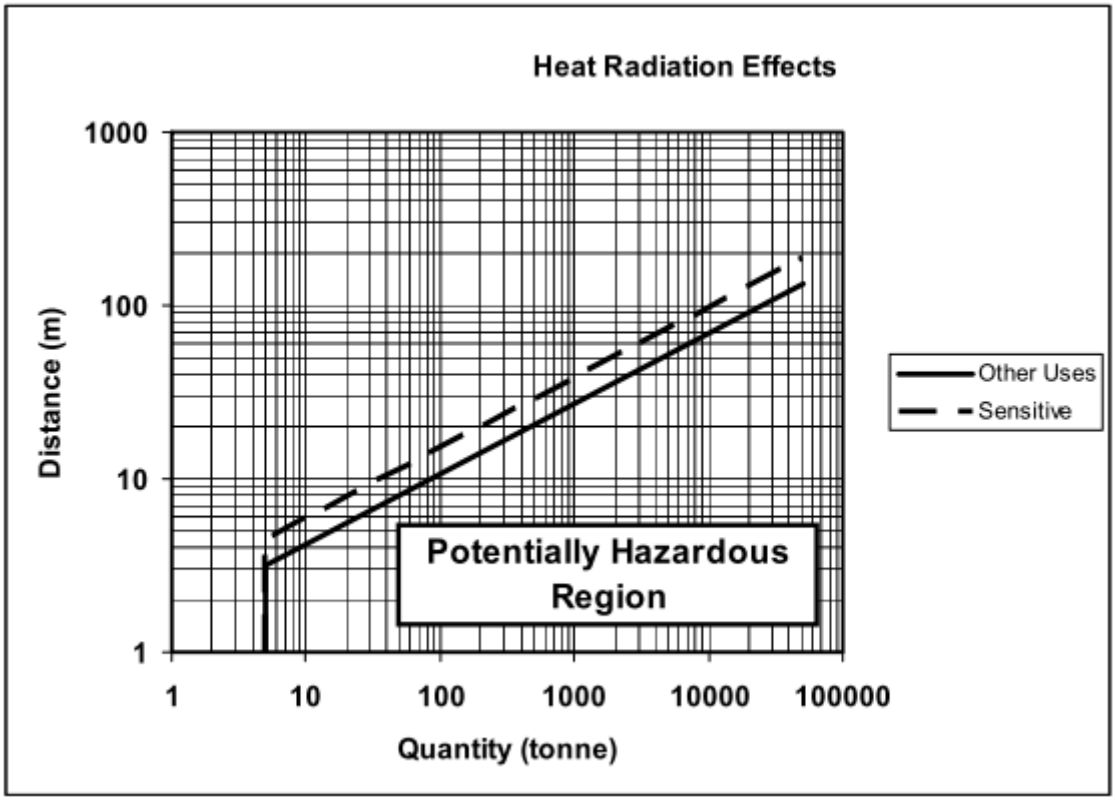

Figure 3-3: Class 3 PGII and PGIII Flammable Liquids

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

Figure 3-4: General Screening Threshold Quantities

3.2 Proposed Storage Details

The maximum quantities of the various classes of DGs that are to be stored at the facility, are shown in **Table 3-2**. The DGs will be stored in the SEB as shown in **Figure 3-5**, with a more detailed DG layout location depicted in **Figure 3-6**.

Table 3-2: DG Classes and Maximum Quantities Stored

CLASS	DESCRIPTION	PG	QUANTITY
2.1	12 G size cylinders (hydrogen, acetylene, LPG, hydrogen/inert mixtures) plus assorted smaller sizes	-	<100 kg
2.2	Not subject to SEPP33		
2.3	6 G size cylinders plus assorted smaller sizes (carbon monoxide, ammonia – D size x 1)	-	<500 kg anhydrous ammonia <1000 kg chlorine and sulphur dioxide <100 kg liquefied gas <100 kg other poisonous gases
3	Flammable Liquids Store 1	II & III	PGII: <4000 kg PGIII: <100 kg
3	Flammable Liquids Store 2	I, II & III	PGI: 250 kg PGII: 100 kg PGIII: 35 kg
4	Flammable Solids	I, II & III	All <20 kg
5	Oxidising Substances	I, II & III	Class 5.1 & 5.2 (all PG): <250 kg
6.1	Toxic Substances	I, II & III	PGI: <25 kg PGII & PGIII: <2000 kg
6.2	Infectious Substances	-	<250 kg
9	Not subject to SEPP33		

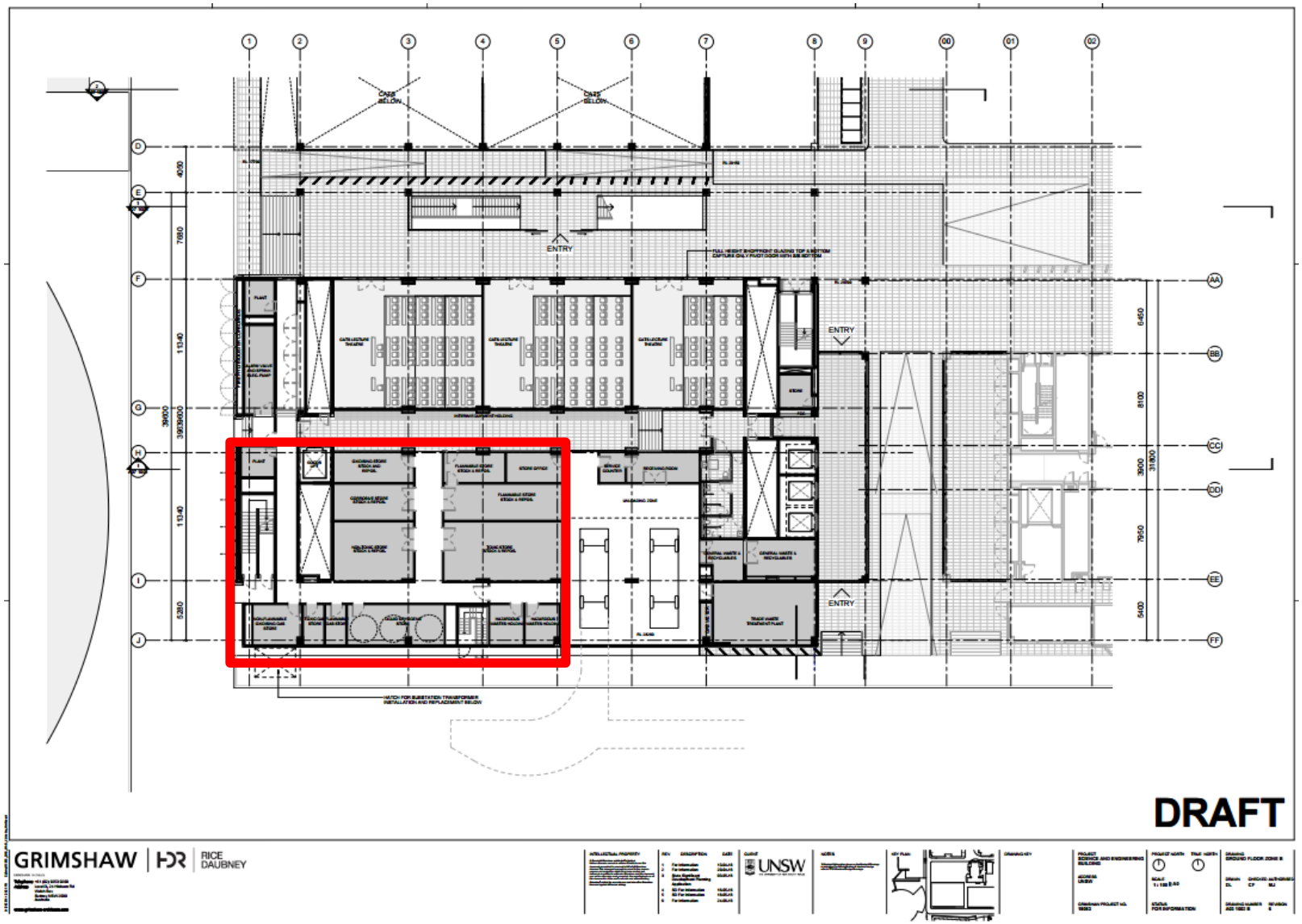

Figure 3-5: Floor Plan - Ground Floor

Figure 3-6: DG Storage Locations

2.2 Classification of Stored Products

The ADG provides a list of materials which are classified as DGs under the requirements of the code. The goods to be stored at the SEB are classified as DGs by the ADG; hence, it is subject to the assessment requirements of SEPP 33.

2.3 Application of State Environmental Planning Policy No.33 – Hazadous and Offensive Developments

State Environmental Planning Policy No.33 – Hazadous and Offensive Developments (SEPP33) has been developed under the 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 is minimised.

The policy includes a guideline that assists government and industry alike in determining whether SEPP33 applies to a specific development. The guideline, “Applying SEPP33 - Hazardous and Offensive Developments” 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, SEPP33 applies and a Preliminary Hazard Analysis (PHA) is required, followed by a series of hazard analysis studies stipulated by the DPI in the conditions of consent.

Threshold limits for the application of SEPP 33 are presented in **Table 3-3** along with maximum DG quantities that will be stored at the SEB at UNSW.

It should be noted that in “Applying SEPP33 - Hazardous and Offensive Developments”, it states that *if dangerous goods of a given class but varying packing groups are stored in the same general area, assume the total of that class is present as the most hazardous packing group (for example, if 3PGI and 3PGII are present, add these together and assume the equivalent total is of 3PGI)*. For

this reason, it is recommended that the 200 kgs of Class PGI DGs in the Flammable Liquids Store 1 (Flammable Store) are stored in the Flammable Liquids Store 2 (Non-toxic store).

Given this relocation, the Table shows that threshold quantities are not exceeded at the Facility; hence, SEPP 33 does not apply to the building, as all DGs are under the screening threshold.

Table 3-3: Quantities Stored and SEPP33 Threshold

CLASS	DESCRIPTION	PG	QUANTITY STORED	SEPP33 THRESHOLD	DOES SEPP33 APPLY?
2.1	12 G size cylinders (hydrogen, acetylene, hydrogen/inert mixtures)	-	<100 kg	100 kg	No
2.1	LPG		20	10 tonnes	No
2.2	Not subject to SEPP33				
2.3	6 G size cylinders plus assorted smaller sizes (carbon monoxide, ammonia – D size x 1)	-	<500 kg anhydrous ammonia <1000 kg chlorine and sulphur dioxide <100 kg liquefied gas <100 kg other poisonous gases	5000 kg anhydrous ammonia 1000 kg chlorine and sulphur dioxide 100 kg liquefied gas 100 kg other poisonous gases	No No No No
3	Flammable Liquids Store 1	II & III	PGII: <4000 kg PGIII: <100 kg	PG II & III: 5000 kg	No
3	Flammable Liquids Store 2	I, II & III	PGI: 250 kg PGII: 100 kg PGIII: 35 kg	PGI: 2000 kg PG II & III: 5000 kg inclusive of Flammable Liquids Store 1	No
4	Flammable Solids	I, II & III	All <20 kg	1000 kg	No
5	Oxidising Substances	I, II & III	Class 5.1 & 5.2 (all PG): <250 kg	5000 kg	No
6.1	Toxic Substances	I, II & III	PGI: <25 kg PGII & PGIII: <2000 kg	PGI: 500 kg PGII & PGIII: 2500 kg	No
6.2	Infectious Substances	-	<250 kg	500 kg	No
8	Corrosives	I, II & III	<4000 kg	5000 kg	No
9	Not subject to SEPP33				

4. CONCLUSION

A review of the quantities of DGs stored at the proposed SEB at UNSW was conducted and compared to the threshold quantities outlined in Applying SEPP33. The results of this analysis indicates that the threshold quantitites for the DGs to be stored are not exceeded; hence, SEPP 33 does not apply to the project. As the facility is not classified as potentially hazardous no further assessment is required.