FAIRFIELD CITY COUNCIL

# STATE ENVIRONMENT PLANNING POLICY (SEPP) 33- PRELIMINARY SCREENING AND HAZARD ASSESSMENT

## FAIRFIELD SUSTAINABLE RESOURCE CENTRE EXPANSION

MAY 2020

wsp

Question today
*Imagine tomorrow*
Create for the future

# State Environment Planning Policy (SEPP) 33- Preliminary Screening and Hazard Assessment
# Fairfield Sustainable Resource Centre Expansion

Fairfield City Council

WSP
Level 27, 680 George Street
Sydney NSW 2000
GPO Box 5394
Sydney NSW 2001

Tel: +61 2 9272 5100
Fax: +61 2 9272 5101
wsp.com

| REV | DATE | DETAILS |
|---|---|---|
| B | 13 May 2020 | Updated for re-issued SEARS |

| | NAME | DATE | SIGNATURE |
|---|---|---|---|
| Prepared by: | Venky Narayanaswamy | 6 November 2018 | p.p. |
| Updated by: | Nathan Redfern, COH ChOHSP CChem Technical Executive, EHS | 12 May 2020 | |
| Approved by: | Amy Valentine | 13 May 2020 | |

# TABLE OF CONTENTS

# 1 INTRODUCTION

Fairfield City Council covers 102 km$^2$ in the south-western Sydney metropolitan area and serves approximately 205,000 residents. The Fairfield Sustainable Resource Centre (SRC) is a Council-operated recycling centre which accepts waste building material comprising terracotta, brick, concrete and asphalt and supplies aggregate, sand, topsoil and crushed concrete for construction and landscaping. The SRC has been in operation since 1997 and processes more than 180,000 tonnes of material per year.

It is understood that the Council intends to expand the SRC into an area covering approximately 2 hectares (ha) to the east of the currently licensed SRC area, including constructing a road (Canal Road) between the current facility and the proposed expansion by filling in a gully (located on Lot 100 in Deposited Plan (DP) 1220637).

It is understood that the purpose of the work is to confirm inventory and types of dangerous goods that will be stored and handled on-site during the proposed expansion works and undertake a preliminary risk screening and, if required, a preliminary hazard analysis (PHA) in accordance with NSW State Environmental Planning Policy No. 33 – Hazardous and Offensive Development (SEPP 33) criteria.

The proposed expansion works on-site is subject to the *Work Health and Safety Regulation 2017* (NSW) and the *Work Health and Safety Act 2011* (NSW). It is noted that the proposed expansion works is the holder of a variation to NSW environment protection licence, requiring the SRC to assess for waste management, air and noise pollution, soil and water pollution impacts. The proposed expansion is required to fulfil Secretary's Environmental Assessment Requirements (SEARs – SSD 8184) by the NSW Department of Planning (reissued on 6 May 2019).

Since the 1980s, the New South Wales Department of Planning has adopted an integrated assessment process for safety assurance of development proposals that are potentially hazardous.

The current facility and the proposed expansion of SRC will be storing and handling 10,000 litres of diesel (Class C1/ Category 4 Class 3 liquid), a combustible liquid. As diesel fuel is not listed on the SEPP 33 screening threshold, *Work Health and Safety Regulation 2017* (NSW), Chapter 7 Hazardous Chemicals) manifest quantity - notification threshold (maximum of 100,000 litres), is applied.

The proposed SRC expansion works is of a low risk hazardous and/or offensive operation because there are no dangerous goods other than 10,000 litres of diesel fuel (C1 or Category 4 Flammable Liquid) currently stored and handled on-site. Other potential pollution impacts are addressed as part of Environmental Impact Statement (EIS) required under the SEARs and variation of the site Environment Protection Authority (EPA) licences.

# 2 SCOPE OF REPORT

## 2.1 SEPP 33

This Preliminary Risk Screening assessment forms part of the supporting documentation for the Development Application (DA) for the Proposal in accordance with Secretary's Environmental Assessment Requirements (SEARs), re-issued in May 2019, which required the following in relation to Land Use Safety:

> *A preliminary risk screening completed in accordance with Applying SEPP 33 - Hazardous and Offensive Development Application Guidelines (DoP 2011). Should the screening indicate that the development is "potentially hazardous", a Preliminary Hazard Analysis (PHA) must be prepared in accordance with Hazardous Industry Planning Advisory Paper No. 6 - Guidelines for Hazard Analysis (DoP, 2011). The PHA should estimate the cumulative risks from the existing and proposed development.*

The purpose of this report is to provide a screening assessment of the hazards associated with the storage of dangerous goods on the site in accordance with SEPP 33. The purpose of the initial SEPP 33 risk screening is to exclude from more detailed studies those developments which do not pose significant risk.

Where SEPP 33 identifies a development as potentially hazardous and/or offensive, developments are required to undertake a PHA to determine the level of risk to people, property and the environment at the proposed location and in the presence of controls.

If the risk levels exceed the criteria of acceptability and/or if the controls are assessed as inadequate, or unable to be readily controlled, then the development is classified as 'hazardous industry'. Where it is unable to prevent offensive impacts on the surrounding land users, the development is classified as 'offensive industry'. Both of these classifications may not be permissible within industrial zones in NSW.

A development may also be considered potentially hazardous with respect to the transport of dangerous goods. A proposed development may be potentially hazardous if the number of generated traffic movements (for significant quantities of hazardous materials entering or leaving the site) is above the cumulative annual or peak weekly vehicle movements. Table 2 in the document *Applying SEPP 33: Hazardous and Offensive Development Application* (Department of Urban Affairs and Planning (DUAP; now Department of Planning and Environment), 1994) and Guidelines (NSW Planning) 2011, outlines the screening thresholds for transportation.

This report presents information on hazardous materials, flammable substances, and compressed or liquefied gases proposed to be stored or handled in the Development Site, including on site or transported to or from the site, including any associated risk issues.

This report forms part of an Environmental Impact Statement which will be submitted to the Department of Planning and Environment as a State Significant Development.

# 3 SURROUNDING LANE USES AND ZONING

Under the provision of the *Fairfield Local Environmental Plan 2013* (LEP), the Development Site is zoned IN1 General Industrial as is the land surrounding the site (see Figure 1). The proposed site use is as a recycling centre and internal roadway.

The surroundings are characterised by a mix of industrial developments including factories, automotive servicing, quarrying, recreational sports fields, hardware and general supplies, manufacturing and warehousing (refer to Table 1). The industrial nature of the surrounding developments means they would not be considered as sensitive in the way that an office, school or hospital would be. The nearest residential receivers are located 1.13 km to the south-east. Measurement are taken from the centre of the existing building on site.

Table 3.1 Neighbouring properties and land uses

| DIRECTION | DISTANCE (APPROX) | OPERATION | USE OF LAND |
|---|---|---|---|
| West | 111 m | Steel and wood manufacturing, | Industrial |
| South | 132 m | Manufacturing, driving school | Industrial |
| North | 763 m | Boral Quarries | Quarrying |
| East | 938 m<br>1.12 km | Gipps Road Sporting Complex<br>Manufacturing, vehicle repair | Recreational<br>Industrial |
| North-east | 829 m<br>*1.15 km* | Transgrid Substation<br>*Housing (Chifley Street, Wetherill Park)* | Infrastructure<br>*Residential* |
| South-east | 291m<br>*1.13 km* | Laboratories, manufacturing<br>*Housing (Munro Street, Greystanes)* | Industrial<br>*Residential* |
| South-west | 162 m | Metromix Concrete Batching Plant | Industrial |
| North-west | 150 m | Sterilisation/recycling processor | Industrial |

# 4 PRELIMINARY RISK SCREENING

## 4.1 OVERVIEW

Preliminary risk screening of the proposed development is required under SEPP 33 to determine the need for a PHA. The preliminary screening assesses the storage of specific dangerous goods classes that have the potential for significant off-site effects. Specifically, the assessment involves the identification of classes and quantities of all dangerous goods to be used, stored or produced on site with respect to storage depot locations as well as transported to and from the site.

## 4.2 DANGEROUS GOODS STORAGE

The proposed inventory of dangerous goods (DG) in accordance with the Australian Code for the Transport of Dangerous Goods by Road and Rail (ADG Code) is provided in Table 2 below. The information contained in the table compares the total storage quantity of the required dangerous goods classes against the storage screening threshold in Table 3, and Figure 9 of Applying SEPP 33 (DUAP (1994), and updated guidelines, NSW Planning, 2011). The dangerous goods to be stored on the site were grouped into their respective ADG classes. If more than one packaging group was present in an ADG class, it was assumed that the total amount for that class was the more hazardous packing group.

Table 4.1 Dangerous goods classes in storage (current and proposed)

| SUBSTANCE | HAZARD CLASS | PACKING GROUP | TOTAL STORAGE ON SITE | INCREASE ON SITE | THRESHOLD QUANTITY | SEPP 33 THRESHOLD FINDING |
|---|---|---|---|---|---|---|
| Diesel | 3* | III* | 10,000 L (tank) | 0 L | Not applicable if stored separately | BELOW |

*Diesel is a class C1 combustible liquid and considered to be not potentially hazardous if stored in a separate bund or within a storage area where it is the only combustible liquid present.

The current and proposed dangerous goods planned to be stored on site are below the screening thresholds or are not applicable and therefore not considered potentially hazardous.

## 4.3 DANGEROUS GOODS TRANSPORT

In applying SEPP 33 a proposed development may be deemed potentially hazardous if the numbers of generated traffic movements for significant quantities of dangerous goods entering and leaving the site, are above the cumulative vehicle movements shown in Table 2 of the SEPP 33 guideline. The levels of maximum proposed movements at the site per week are provided below in Table 3. Note that the annual levels directly reflect the weekly vehicle movements.

Table 4.2 Dangerous goods vehicle movements (current and proposed)

| SUBSTANCE | ADG CLASS | MAXIMUM DGS VEHICLE MOVEMENTS (PER WEEK) | SEPP 33 THRESHOLD VEHICLE MOVEMENTS (PER WEEK) | SEPP 33 THRESHOLD MINIMUM QUANTITIES (PER LOAD) | LOAD TYPE (RELEVANT TO FACILITY) | SEPP 33 THRESHOLD LEVEL FINDINGS |
|---|---|---|---|---|---|---|
| Diesel | N/A | <1 | N/A | N/A | Bulk (tank) | BELOW |

The site needs are substantially below any SEPP 33 thresholds on both load quantity and weekly movement thresholds.

Note: Diesel is not a dangerous good for the purposes of transport (AU02 - ADGC 3.3.3) however for reporting purposes vehicle movements will be ≤1 per week.

# 5 CONCLUSIONS

## 5.1 RISK MITIGATION MEASURES (DEVELOPMENT)

The following risk mitigation measures are recommended:

- Storage and handling of diesel fuel on-site – compliant with dangerous goods storage and handling requirements (refer to Appendix A for a detailed risk assessment)
- Exposure to dust: respiratory protection for construction and operation workers
- Exposure to hazardous materials such as lead and asbestos, respirable/inhalable lead and other dusts – hazardous materials survey register will be prepared by the construction and demolition contractors, baseline occupational hygiene monitoring and appropriate respiratory protection for workers during demolition and construction and water spraying to control off-site migration of dusts as required
- Off-site migration of soil and groundwater pollutants – construction environmental management plan will adequately address contamination risks
- Appropriate air quality, noise and vibration and waste management mitigation and control measures to be identified and implemented as part of the EIS.

## 5.2 FINDINGS

The proposed expansion of SRC by the Fairfield City Council does not trigger SEPP 33 threshold criteria for potentially hazardous industry with regards to the type and quantity of dangerous goods being stored and handled during the expansion works or transport of dangerous goods to and from site. Therefore, the proposed expansion does not require a PHA to be undertaken.

The proposed expansion of SRC will continue to store and handle 10,000 litres of diesel (Class C1/Category 4 Class 3 liquid), a combustible liquid. As diesel fuel is not listed on the SEPP 33 screening threshold, *Work Health and Safety Regulation 2017* (Chapter 7 Hazardous Chemicals) manifest quantity - notification threshold (maximum of 100,000 L) is applied. The site currently holds 10,000 L is this is not expected to change for the new development.

The proposed SRC expansion works is of a low risk hazardous and/or offensive operation because there are no dangerous goods other than the existing 10,000 L of diesel fuel (C1 or Category 4 Flammable Liquid) stored and handled on-site and other potential pollution impacts are addressed as part of the EIS required under the SEARs and variation of the site EPA licences.

The proposed SRC expansion may fall under potentially offensive category due to emissions to air, water and soil/wastes if uncontrolled, however this is outside the SEPP 33 reporting requirement. For developments identified as 'potentially offensive industry', the minimum test for such developments is meeting the requirements for licensing by the NSW EPA or other relevant authority, which is being achieved by providing an EIS to meet SEARs requirements.

Therefore, a qualitative hazard and risk assessment has been undertaken and presented in Appendix B and the residual risks are demonstrated to be as low as reasonably practicable (ALARP).

The risk assessment process is intended to be continuous, carried forward throughout the different phases of the Project. This preliminary risk assessment has provided a framework for further detailed hazard identification and risk analysis, evaluation and treatment.

# 6 LIMITATIONS

PERMITTED PURPOSE

This Report is provided by WSP for the purpose described in the Agreement and no responsibility is accepted by WSP for the use of the Report in whole or in part, for any other purpose (Permitted Purpose).

QUALIFICATIONS AND ASSUMPTIONS

The services undertaken by WSP in preparing this Report were limited to those specifically detailed in the Report and are subject to the scope, qualifications, assumptions and limitations set out in the Report or otherwise communicated to the Client. Except as otherwise stated in the Report and to the extent that statements, opinions, facts, conclusion and / or recommendations in the Report (Conclusions) are based in whole or in part on information provided by the Client and other parties identified in the report (Information), those Conclusions are based on assumptions by WSP of the reliability, adequacy, accuracy and completeness of the Information and have not been verified. WSP accepts no responsibility for the Information. WSP has prepared the Report without regard to any special interest of any person other than the Client when undertaking the services described in the Agreement or in preparing the Report.

USE AND RELIANCE

This Report should be read in its entirety and must not be copied, distributed or referred to in part only. The Report must not be reproduced without the written approval of WSP. WSP will not be responsible for interpretations or conclusions drawn by the reader. This Report (or sections of the Report) should not be used as part of a specification for a project or for incorporation into any other document without the prior agreement of WSP. WSP is not (and will not be) obliged to provide an update of this Report to include any event, circumstance, revised Information or any matter coming to WSP's attention after the date of this Report. Data reported and Conclusions drawn are based solely on information made available to WSP at the time of preparing the Report. The passage of time; unexpected variations in ground conditions; manifestations of latent conditions; or the impact of future events (including (without limitation) changes in policy, legislation, guidelines, scientific knowledge; and changes in interpretation of policy by statutory authorities); may require further investigation or subsequent re-evaluation of the Conclusions. This Report can only be relied upon for the Permitted Purpose and may not be relied upon for any other purpose. The Report does not purport to recommend or induce a decision to make (or not make) any purchase, disposal, investment, divestment, financial commitment or otherwise. It is the responsibility of the Client to accept (if the Client so chooses) any Conclusions contained within the Report and implement them in an appropriate, suitable and timely manner. In the absence of express written consent of WSP, no responsibility is accepted by WSP for the use of the Report in whole or in part by any party other than the Client for any purpose whatsoever. Without the express written consent of WSP, any use which a third party makes of this Report or any reliance on (or decisions to be made) based on this Report is at the sole risk of those third parties without recourse to WSP. Third parties should make their own enquiries and obtain independent advice in relation to any matter dealt with or Conclusions expressed in the Report.

DISCLAIMER

No warranty, undertaking or guarantee whether expressed or implied, is made with respect to the data reported or the Conclusions drawn. To the fullest extent permitted at law, WSP, its related bodies corporate and its officers, employees and agents assumes no responsibility and will not be liable to any third party for, or in relation to any losses, damages or expenses (including any indirect, consequential or punitive losses or damages or any amounts for loss of profit, loss of revenue, loss of opportunity to earn profit, loss of production, loss of contract, increased operational costs, loss of business opportunity, site depredation costs, business interruption or economic loss) of any kind whatsoever, suffered on incurred by a third party.

The scope of services did not include any assessment of the title to nor ownership of the properties, buildings and structures referred to in the report, nor the application or interpretation of laws in the jurisdiction in which those properties, buildings and structures are located.

WSP have qualitatively assessed the hazards and control measures based on the information provided by remediation consultants and specialist studies in relation to storage and handling of dangerous goods for the proposed expansion works at Fairfield SRC. Please note that the report and findings are not a substitute for full compliance with Australian Standards and Codes of Practice. Fairfield SRC as the owner and operator of the facility shall ensure that they maintain their duty of care and consult the relevant legislation and guidelines. Should the remediation conditions or treatment volumes change, the contents and findings in the report shall be reviewed, and the risks associated with any change assessed and controlled.

# BIBLIOGRAPHY

NSW Work Health and Safety Regulation, 2017

Commonwealth Government, 2018, Australian Code for the Transport of Dangerous Goods by Road and Rail (ADG Number 7.6).

Department of Urban Affairs & Planning, 1994, State Environmental Planning Policy No.33- Hazardous and Offensive Development, New South Wales Government.

Planning NSW, 2011, Guidelines in Applying SEPP 33, New South Wales Government.

Planning NSW, 2011 Risk Criteria for Land Use Safety Planning – Hazardous Industry Planning Advisory Paper No 4, New South Wales Government

Planning NSW, 2011 Hazard Analysis – Hazardous Industry Planning Advisory Paper No 6, New South Wales Government

# APPENDIX A

## RISK ASSESSMENT – DIESEL STORAGE AND HANDLING

# A1 DIESEL HANDLING AND STORAGE

| Risk Assessment Details | | | |
|---|---|---|---|
| **ChemAlert Colour Rating:** | Amber | | |
| **Sub-Category, if necessary:** (e.g. aerosols, paints, solvents, adhesives…) | Combustible Liquid C1, Category 4 Flammable Liquid as per Globally Harmonised System (GHS) Classification | | |
| **Product Name(s):** | | **Work Activity:** (list typical work activities associated with each product name) | **Location of Fairfield SRC Expansion Site** |
| **Diesel Fuel - Automotive Diesel Oil** | | Two Above Ground Storage Tanks - each 5,000 Litres fill capacity - total 10,000 Litres | Corner of Hassall Street and Widemere Road, Wetherill Park, New South Wales 2164 |
| **Date of Assessment:** | 20 October 2017 | | |
| **Assessor(s):** | Name: V. Narayanaswamy | Position: Associate, WSP Australia Pty Ltd | |
| | Name: Nathan Redfern | Position: Technical Executive, EHS (2020 revision) | |
| **Committee or HSR Review:** | Name: Mr Ross Smith | Position: Manager Waste and Sustainability at Fairfield City Council | |

| **Chemical Details** (retrieved from SDS) | | |
|---|---|---|
| **Chemical State:** | **Liquid** | *Note: consider how the chemical is going to be used, in what work environment, what kind of processes will it be exposed to (heat, pressure), will smaller volumes reduce the risk, what kind of tooling and equipment will be nearby, what kind of outside elements may be exposed to the chemical…* |
| **Dangerous Good:** | **Yes** | |
| **Flammable:** | **Yes** | |
| **Toxic to the Environment:** | **Yes** | |
| **Carcinogen:** | **Yes** | |
| **Stability:** | **Yes** | If no, explain: Stable under normal conditions of storage and handling. |
| **Reactivity:** | **Yes** | If yes, explain: Reacts with incompatible materials such as organic peroxides and strong oxidising agents |
| **Hazardous Reactions:** | **Yes** | If yes, explain: Reacts with incompatible materials such as organic peroxides and strong oxidising agents to produce toxic and irritating gases such as sulphur dioxide, oxides of nitrogen, and suffocating gases such as carbon monoxide and carbon dioxide |
| **Conditions to Avoid:** | **Yes** | If yes, explain: Avoid heat, sparks, open flames and other ignition sources. |
| **Incompatible Materials:** | **Yes** | If yes, explain: Strong Oxidising Agents |
| **Hazardous Decomposition:** | **Yes** | If yes, explain: Under fire conditions this product may emit toxic and/or irritating fumes, smoke and gases including carbon monoxide, carbon dioxide and oxides of nitrogen. |

| **Ref** | **TASK** | **Initial Risk Assessment** | **IDENTIFIED CONTROL(S)** | **Residual Risk Assessment** |
|---|---|---|---|---|

| | | HEALTH & SAFETY RISKS AND ENVIRONMENTAL IMPACTS | Likelihood | Consequence | Risk Rating | | Likelihood | Consequence | Risk Level |
|---|---|---|---|---|---|---|---|---|---|
| *1* | ***Storage (new and waste material)*** | ***Release of diesel vapours from the vent, flanges, seals, etc. due to exposure to high ambient temperatures during summer days*** | **4. Probable** | **2. Minor** | **Medium** | *Keep the tanks under a roof, or under a shade avoiding direct sunlight*<br>*Hazardous Area Classification for Electrical Equipment in and around the diesel storage; Flange or/Valve wrappings; Routine Inspection and Maintenance; Locating the height of the vents higher enough in the open environment for quicker dispersion and dilution of vapours.* | **2. Unlikely** | **2. Minor** | **Low** |
| | | ***Fire due to ignition of combustibles near the tanks due to hot works or due to other ignition sources such as electrical sparks, etc.*** | **4. Probable** | **3. Moderate** | **High** | *Vegetation clearing around 3-5 m from the tanks; Segregation from combustibles comply with AS 1940; Approved storage tanks with 1 powder/foam type extinguisher for each storage tank; Permit to Work system for Hot Works; Hazardous Area Classification or Electrical Equipment in and around the diesel storage; Lightning protection for the tanks; Earthing of the tanks and the pipework to prevent static discharges; Warning Signs for No-Smoking and No Open Flames within 3m from the tanks.* | **1. Rare** | **3. Moderate** | **Medium** |
| | | Spills, leaks, and accidental releases | **3. Possible** | **2. Minor** | **Medium** | *Self bunded diesel tank; OR concrete bunding comply with AS 1940; double walled pipework OR pipework within the bunded area/spill collection tray* | **2. Unlikely** | **2. Minor** | **Low** |
| | | Inadequate Segregation of Diesel Tanks from incompatible | **4. Probable** | **2. Minor** | **Medium** | *Clearance distance of 3 m surrounding the diesel storage* | **2. Unlikely** | **2. Minor** | **Low** |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | materials and other combustible materials | | | | *tanks; clearing of vegetation around the tanks* | | | |
| | Stability of diesel due to tanks subjected to abnormal storage conditions | **3. Possible** | **2. Minor** | **Medium** | *Routine Inspection and Testing; Emergency Response Procedures; Trained Staff and Fuel Suppliers* | **2. Unlikely** | **2. Minor** | **Low** |
| | Vehicular impact on the tanks | **4. Probable** | **2. Minor** | **Medium** | *Bollards around the tanks; one-way loading vehicle entry and exit (no reversing of vehicles on-site); restricted motor vehicle access near the tanks* | **2. Unlikely** | **2. Minor** | **Low** |
| | Ignition sources in hazardous areas | **4. Probable** | **2. Minor** | **Medium** | *Placarding and warning signage; Hazardous Area Classification in accordance with AS/NZS 60079.10.1; All electrical equipment in hazardous zones rated; No smoking and open flames area; Hot Work Permit system; Restricted Access* | **2. Unlikely** | **2. Minor** | **Low** |
| | Inadequate design, build, maintenance and location of the two above ground diesel storage tanks | **4. Probable** | **2. Minor** | **Medium** | *AS 1940 compliant tanks - design and installation; API 653 compliant tanks inspection and maintenance regime* | **2. Unlikely** | **2. Minor** | **Low** |
| | Poorly designed and installed pipework | **3. Possible** | **2. Minor** | **Medium** | *AS 1940 compliant tanks' pipework - design and installation; API 570/ASME B31.1 compliant pipework inspection and maintenance regime* | **2. Unlikely** | **2. Minor** | **Low** |
| | Inadequate separation distance from on-site and off-site protected places | **4. Probable** | **2. Minor** | **Medium** | *Minimum separation distance of 3 m to other stores/offices on-site and property boundary* | **2. Unlikely** | **2. Minor** | **Low** |
| | Inadequate lighting causing impairment of sight and vision | **4. Probable** | **2. Minor** | **Medium** | *Day time operations; Portable lights (intrinsically safe) for inspection and testing crew at night time* | **2. Unlikely** | **2. Minor** | **Low** |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Inadequate access and egress space around the tanks | **4. Probable** | **2. Minor** | **Medium** | *Above ground tanks located in open space under the shed. Plenty of space to move around; dedicated walkways and emergency exit pathways* | **2. Unlikely** | **2. Minor** | **Low** |
| | | Lack of dangerous goods labels, warning signs | **4. Probable** | **2. Minor** | **Medium** | *Placarding and warning signage to comply with NSW WHS Regulation 2011; No smoking and no naked flames signage Hot Work Permit system; Restricted Access* | **2. Unlikely** | **2. Minor** | **Low** |
| | | Lack of preparedness for dangerous goods related emergencies | **4. Probable** | **2. Minor** | **Medium** | *Site Emergency Response Plan; Trained Staff; Emergency Mock Drills and Exercises; Usage of Fire Protection Equipment Training* | **2. Unlikely** | **2. Minor** | **Low** |
| | | Dangerous goods incidents | **4. Probable** | **3. Moderate** | **High** | *FCC-SRC Dangerous Goods and Hazardous Chemicals Incidents Investigation and Reporting and Corrective Actions Procedure; Near Miss Reporting; Dangerous Goods/Hazardous Chemicals Safety Observation; Routine DG/HAZ Chem audits and inspections* | **2. Unlikely** | **3. Moderate** | **Medium** |
| | | Unsecured sites - risk of vandalism | **4. Probable** | **2. Minor** | **Medium** | *Secured site with restricted access; trained staff; site security and emergency response plan* | **2. Unlikely** | **2. Minor** | **Low** |
| ***2*** | ***Decanting (accessing material transferring from larger to smaller container before use)*** | ***Inhaling vapours (Inhalation of product vapours may cause irritation of the nose, throat and respiratory system)*** | **4. Probable** | **2. Minor** | **Medium** | *Tanks located in an open naturally ventilated area, Face Mask and Full Face Air Respirator. Trained Staff. Decanting or diesel transfer with appropriate mechanical equipment (no manual handling allowed)* | **2. Unlikely** | **2. Minor** | **Low** |
| | | ***Explosion*** | **3. Possible** | **3. Moderate** | **Medium** | *Earthing of pipework, and appliances, decant away from naked flame/spark, hazardous area protected equipment* | **1. Rare** | **3. Moderate** | **Medium** |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Skin contact | **3. Possible** | **3. Moderate** | **Medium** | Appropriate PPE with long sleeve shirts and pants, impervious gloves (nitrile, viton), safety goggles, respiratory protection; Safety Shower and Eye Wash; Safe Operating Procedures; on the job training for raising awareness on hazards due to chemicals. | **2. Unlikely** | **3. Moderate** | **Medium** |
| | | Static electric charges accumulation | **5. Almost certain** | **3. Moderate** | **High** | Anti-static additives to diesel; earthing and bonding of nozzles and containers whilst decanting; decanting in metal containers that are earthed. | **2. Unlikely** | **3. Moderate** | **Medium** |
| | | | | | | | | | |
| ***3*** | ***Use (mixing, method of application, and environment, for example: workshop, warehouse, confined space, outside)*** | ***Chemical burn (not applicable) - Repeated exposure may cause skin dryness and cracking and may lead to dermatitis.*** | **3. Possible** | **3. Moderate** | **Medium** | *Use in small amounts, nitrile viton gloves, face-shield, over-alls.* | **2. Unlikely** | **3. Moderate** | **Medium** |
| | | ***Injection (not applicable)*** | **3. Possible** | **3. Moderate** | **Medium** | *Application tool with no sharp edges/points, cover sharp surfaces, wear cut and chemical-resistant gloves of suitable rating* | **2. Unlikely** | **3. Moderate** | **Medium** |
| | | Ingestion (May be fatal if swallowed and enters airways. Small amounts of liquid aspirated into the respiratory system during ingestion or from vomiting may cause severe pulmonary injury that may lead to death. May cause irritation to the mouth, throat, oesophagus and stomach with symptoms of nausea, abdominal discomfort, vomiting and diarrhoea.) | **3. Possible** | **5. Catastrophic** | **Extreme** | Appropriate PPE (face-shield/mask), On-site SOS, No manual handling (mechanical decanting or transfer); Operator Awareness and Training; On-site First Aid and Cardio Pulmonary Resuscitation (CPR) Trained emergency responders | **2. Unlikely** | **3. Moderate** | **Medium** |
| | | | | | | | | | |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **4** | ***Clean-Up (collection of wasted material and transporting for disposal)*** | ***Slips and falls*** | **3. Possible** | **3. Moderate** | **Medium** | *Clean as you go, use small amounts, barricade areas, safety shoes with oil/slip resistant soles.* | **2. Unlikely** | **3. Moderate** | **Medium** |
| | | ***Pollution*** | **4. Probable** | **3. Moderate** | **High** | *Housekeeping, limit to indoor environment, spill containment, spill kits to clean up minor and major spills; barriers/filters.* | **2. Unlikely** | **3. Moderate** | **Medium** |
| | | | | | | | | | |
| **5** | ***Disposal (proper disposal in waste container, for example: drum, bin, tank)*** | ***Chemical reaction*** | **3. Possible** | **4. Major** | **High** | *ChemAlert reports, SDS review, training/instruction, segregation barriers, appropriate PPEs* | **2. Unlikely** | **4. Major** | **Medium** |
| | | ***Spill - loss of primary containment during fuel transfer or tank loading due to rupture of hoses, pipe burst/leaks, tank leaks*** | **4. Probable** | **2. Minor** | **Medium** | *Disposal using funnels, pump system with hose, fill indicator, secondary containment tray, self bunded tanks, double walled pipes and collection tray underneath hoses, dry-break coupling; tanker loading area secondary contained with a sump for collecting spills; Large spills: full body suit of chemical resistant, antistatic material is recommended.* | **2. Unlikely** | **2. Minor** | **Low** |
| | | Uncleared decommissioned tanks and pipework | **4. Probable** | **2. Minor** | **Medium** | Tanks decommissioning plan to comply with FCC-SRC/ standards (AS 1940/API standard minimal); Empty Container Warning Labels and Instructions | **2. Unlikely** | **2. Minor** | **Low** |
| | | | | | | | | | |
| **6** | ***Transport*** | ***Chemical reaction*** | **3. Possible** | **2. Minor** | **Medium** | *ChemAlert reports, proper hazardous waste labelling/containment, transportation to and from site by a licenced and registered contractor.* | **2. Unlikely** | **2. Minor** | **Low** |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | ***Spill - transfer points for diesel; transportation of diesel*** | **3. Possible** | **3. Moderate** | **Medium** | *Transportation to and from site by a licenced and registered contractor, spill kits available on site and with transporter. Camlock (dry break) coupling for the transfer points; supervised loading operation; dangerous goods safety trained and accredited driver; transport emergency response plan; Small spills: normal antistatic work clothes are usually adequate. Large spills: full body suit of chemical resistant, antistatic material is recommended.* | **1. Rare** | **3. Moderate** | **Medium** |