APPENDIX 15

Hazard Identification and Risk Analysis

J.J.Richards & Sons Pty Ltd

Total Waste Management

Hazard Identification and Risk Assessment for

Liquid Waste Facility and Depot at 14 Rayben Street, Glendenning

February 2016

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1 Executive Summary

In order to meet future commercial and environmental demand, J.J. Richards & Sons Pty Ltd proposes to establish a Liquid Waste Facility at its existing depot site at 14 Rayben Street Glendenning. This Hazard Identification and Risk Assessment has been prepared as part of an Environmental Impact Statement (EIS) to support this development.

A Hazard Identification and Risk Assessment Workshop was held and has been used to identify potential hazardous situations and undertake a qualitative risk assessment. Attendees at this workshop were:

Name	Company	Position
Mick Nicholson	JJ Richards & Sons Pty Ltd	NSW Manager
Peter Hibbard	JJ Richards & Sons Pty Ltd	Production Development Manager
Kurt Whalen	JJ Richards & Sons Pty Ltd	General Counsel
Ray Duggan	Duggan & Hede Pty Ltd	Principal Engineer

This report has been structured to:

- Review the suitability of the site for the proposed activities (Section 3);
- Review salient compliance issues for the oil storage area with AS1940 The storage and handling of flammable and combustible liquids (Section 3);
- Prepare a Hazard Identification Word Diagram, including an assessment of potential off site consequences;
- Prepare a Risk Assessment of activities on the site;

In conclusion, the site is located within a long established industrial area. Major transport routes from the site to the M7 freeway are also through industrial areas. The closest housing is approximately 420 metres to the north. There is also a buffer of some 900 metres to the closest housing to the east and west of the site.

Organic materials handling and treatment will be undertaken within a fully enclosed building and oil storage and handing are within roofed areas. Appendix 3 of *Applying SEPP 33: Hazardous and Offensive Development Application Guidelines* does not identify liquid food and grease trap waste as potentially hazardous. The relevant EIS for this development concurs with this conclusion.

Equipment associated with the storage and handling of used oils will be designed to comply with AS1940. The major risk associated with the site involves the receipt of non-compliant used oil product ie with flash point <61^{o}C (flammable) and subjecting such to heat sources e.g. naked flames. Established procedures exist to deal with such occurrences.

As such, there will be minimal impacts from the site on adjoining land uses.

2 Introduction

2.1 Project Overview

2.1.1 Operations

The proposed Liquid Waste Facility will:

- Store and treat grease trap waste that is liquid waste (K110 type waste*) as defined in the POEO Act. This treatment will generally involve separating liquids from solids and discharging treated liquids as trade waste to Sydney Water's sewer system. The resultant solids or sludge will then be transported for beneficial reuse in the cultivation of feed crops on farms in the Sydney region;
- Store food waste that is liquid waste (K120 type waste*) as defined in the POEO Act for aggregation and transport for beneficial reuse in the cultivation of feed crops on farms in the Sydney region;
- Store used oil (J100 type waste*) – including mineral oils unfit for their original intended use, oil filters, transformer fluids (excluding PCB's), waste hydrocarbons for resource recovery, aggregation and transport to re-refining and other facilities for treatment and reuse;
- Store and treat industrial oily water (J120 type waste* - waste oil / hydrocarbons mixtures / emulsions in water). This treatment will generally involve separating used oils, hydrocarbons and solids and discharging treated liquids as trade waste to Sydney Water's sewer system. The resultant used oil will be stored for resource recovery, aggregation and transport to re-refining and other facilities for treatment;

The above asterisked waste types (J100, J120, K110 and K120) are based on the 'NEPM' Controlled Waste NEPM waste codes. NEPM is a National Environment Protection Measure made by the National Environment Protection Council (NEPC), a statutory body consisting of the environment ministers from each State and Territory, and the Commonwealth.

Liquid waste for the facility will be collected in tankers from premises throughout Sydney and transported to the proposed facility for storage, resource recovery, aggregation and possibly treatment.

Loading and unloading areas will have external bunding and inground sumps for adequate spill control.

The site is currently fenced and has established perimeter landscaping which provides effective visual screening to site infrastructure and activities (refer **Figure 4.2** and **Drawing RI456-D0-01**). There is an office and an industrial building in the south-western corner and a large expanse of concrete pavement in the eastern and northern parts of the site, which is used for vehicle parking and bin storage.

The existing industrial building will be demolished and some existing concrete pavement will be removed to allow for the construction of these works.

There will be no discharge of process liquids or sludges from the facility to the northern drainage channel or from the site, other than to sewer etc as described above.

2.1.2 Plant and Equipment

Equipment for unloading, treatment, storing and loading of K110 liquid grease trap and K120 food waste will be located within the Organic Waste Building. A summary of organic waste storage is provided below:

Material *1	Quantity	DG Class	Type of Store	Distance *2	Annual Road Movements	
					Number	Size
Liquid Grease Trap Waste	13 x 30 kL	NA	Bulk Steel Tank	>14m	1600 (in) 420 (out)	15 t (ave) 20 t (ave)
Liquid Food Waste	5 x 30 kL	NA	Bulk Steel Tank	>14m	1800 (in) 900 (out)	10 t (ave) 20 t (ave)
BOC Lime Slurry	30 kL	NA	Bulk Steel Tank	14m	4	26 t (ave)
Sodium Hydroxide (white caustic soda)	2000 L	8	1000 L IBC	>14m	12	2 t (ave)
Sodium Hypochlorite	400 L	8	200 L Drum	>14m	12	0.2 t (ave)
Ezi-Clean Blast-Off	60 L	8	20 L Pales	>14m	4	0.2 t (ave)

*1 SDSs of these are included in Appendix 8 of the EIS
*2 distance in metres from the boundary

Equipment for unloading, treatment, storing and loading of J100 used oil and J120 industrial oily water, will be located within the Used Oil Roof Structure. A summary of used oil and oily water storage is provided below:

Material *1	Quantity (tonnes)	DG Class	Type of Store	Distance *2	Annual Road Movements	
					Number	Size
Used Oil	4 x 40 t	C1	4 Steel Tanks to AS1692	12m	See below	See below
Used Oil	4 x 120 t	C1	4 Steel Tanks to AS1692 and AS1480	17m	1143 (in) 190 (out)	7 t (ave) 40 t (ave)
Oily Water	1 x 40 t	C1	1 Steel Tanks to AS1692 and AS1480	12m	See above	See above
Industrial Oily Water	2 x 60 t	C1	2 Steel Tanks to AS1692 and	23m	250 (in) 25 (out)	8 t (ave) 8 t (ave)

			AS1480			
Non Compliant Product (Used Oil / Industrial Oily Water)	1 x 20 t	3	1 self bunded steel tank to AS1692 and AS1480	14m from north boundary and 19m from east boundary	50 (in) 20 (out)	8 t (ave) 20 t (ave)

Grease Trap Waste Treatment

Typical plant and equipment proposed for the facility is presented as **Drawings RI456-D0-14** and **15** and in **Figures 4.10** to **4.13** and described below:

- Solids strainer;
- Vacuum pump;
- 2 x 30 kL Vacuum Tanks (Receival);
- 3 x 30 kL Vacuum Tanks (Process);
- 2 x 30 kL Vacuum Tanks (Process Water);
- 5 x 30 kL Vacuum Tanks (Sludge);
- 1 x 30 kL Vacuum Tanks (Lime);
- Carbon filter;
- Dissolved Air Flotation (DAF) unit*;
- DAF enclosure;
- Associated pipework and valves;

Key aspects of a Dissolved Air Flotation (DAF) unit (refer **Figure 4.12**) include:

- Feed water may be dosed with a coagulant (such as ferric chloride or aluminium sulfate) to flocculate the suspended matter;
- A portion of the clarified effluent water leaving the DAF tank is then pumped into a small pressure vessel (called the air drum) into which compressed air is also introduced. This results in saturating the pressurized effluent water with air;
- The air-saturated water stream is recycled to the front of the float tank and flows through a pressure reduction valve just as it enters the front of the float tank. This results in the air being released in the form of tiny bubbles;
- The bubbles adhere to the suspended matter, causing the suspended matter to float to the surface and form a froth layer which is then removed by a skimmer;
- The froth-free water exits the float tank as the clarified effluent from the DAF unit;

This includes provision for an additional 3 tanks for Process Water and Sludge in the future (refer Drawing RI456-D0-15). The total grease trap tank waste capacity will ultimately be 390 kL.

Liquid Food Waste Storage

Typical plant and equipment proposed for the food waste facility is presented as **Drawings RI456-D0-14** and **15** and in **Figure 4.13** and described below:

- Solids strainer;
- Vacuum pump;
- 5 x 30 kL Vacuum Tanks (Food Waste);
- Associated pipework and valves;

This includes provision for an additional two tanks for Food Waste in the future (refer Drawing RI456-D0-15). The total liquid food waste tank capacity will ultimately be 150 kL.

Used Oil Storage

Typical plant and equipment proposed for the used oil facility is presented as **Drawings RI456-D0-24** and **25** and in **Figures 4.15** and **4.16** and described below:

- Solids strainer;
- Vacuum pump;
- 3 x 40 kL Tanks (Receival);
- 1 x 40 kL Tanks (Oily Water);
- 4 x 120 kL Tanks (Storage);
- 1 x 20 kL Self Bunded Tank (Non-Compliant Product)
- Associated pipework and valves;

This includes provision for an additional tank for Used Oil Receival in the future (refer Drawing RI456-D0-25). The total used oil tank capacity will ultimately be 680 kL.

All Used Oil tanks and equipment will be constructed to comply with *AS1940 The storage and handling of flammable and combustible liquids*.

Industrial Oily Water Treatment

Typical plant and equipment proposed for the industrial oily water facility is presented as **Drawing RI456-D0-25** and described below:

- Strainer;

- Pumps;
- 2 x 60 kL Tank;
- Dissolved Air Flotation (DAF) unit*;
- Associated pipework and valves;

This tanks for will be provided in the future (refer Drawing RI456-D0-25). The total industrial oily water tank capacity will ultimately be 120 kL.

All Industrial Oily Water tanks and equipment will be constructed to comply with *AS1940 The storage and handling of flammable and combustible liquids*.

2.2 Methodology

A Hazard Identification and Risk Assessment Workshop was held and has been used to identify potential hazardous situations and undertake a qualitative risk assessment. Attendees at this workshop were:

Name	Company	Position
Mick Nicholson	JJ Richards & Sons Pty Ltd	NSW Manager
Peter Hibbard	JJ Richards & Sons Pty Ltd	Production Development Manager
Kurt Whalen	JJ Richards & Sons Pty Ltd	General Counsel
Ray Duggan	Duggan & Hede Pty Ltd	Principal Engineer

Preparation for and the conduct of the Hazard Identification and Risk Assessment Workshop was generally based on the following publications:

- Applying SEPP 33: Hazardous and Offensive Development Application Guidelines;
- Hazardous Industry Planning Advisory Papers (HIPAPs) - No. 1 – Emergency Planning, No. 3 – Risk Assessment Guidelines, No. 6 – Hazard Analysis and No. 8 - HAZOP Guidelines;

The Hazard Identification and Risk Assessment has been structured as follows:

- Initially, the development and its location were reviewed in relation to its suitability given known potential hazardous events, their causes and proposed mitigation measures as identified in the EIS and this assessment;
- A review of salient compliance issues for the oil storage area with AS1940 The storage and handling of flammable and combustible liquids (Section 3). The activities in this area were considered the major source of potential incidents;

- A list of potential hazards, causes, possible consequences and prevention measures was also developed (Section 4) as a Hazard Identification Word Diagram. As the potential hazardous events are located at a significant distance from other sensitive land users, the consequences of each potential hazardous event were estimated to determine if there is possible unacceptable off-site impacts;
- A Risk Assessment of activities on the site was also prepared (Section 6);

3 Site Suitability

Site suitability issues were initially addressed at the Hazard Identification and Risk Assessment Workshop (refer Section 2.2). These are summarised in Sections 3.1 to 3.5.

3.1 Location

The site is located at 14 Rayben Street Glendenning (refer **Figures 3.1** and **3.2**) and described as Lot 123 DP 870988 (formerly Lots 1-3 DP802117) Parish of Rooty Hill County of Cumberland (**Figure 3.3**) and has an area of 7,214 m^2.

The site is encumbered by a 2.5m wide drainage easement along part of the northern boundary of the site.

3.2 Tenure

The site has been owned by J.J. Richards & Sons Pty Ltd since 2007.

3.3 Site History

A development application was determined in November 1993 for a truck maintenance workshop, truck holding yard and ancillary offices on the site. This was then occupied by Stevensons Transport.

In July 1997, another development application was determined for an above ground diesel tank. This application was made by SA Gas Distributors Pty Ltd.

J.J. Richards purchased the site in 2007 and has continued to operate a truck maintenance workshop, truck holding yard and ancillary offices on the site. There are currently no fuelling operations on the site.

3.4 Adjoining Land Uses

Figure 3.2 is an aerial photo of the site and adjoining properties.

Land to the north of the site (across the drainage reserve) is industrial and warehousing.

The lot to the immediate west of the site is transport and warehousing complex, whilst the lot to the south-west of the site across the Rayben Street cul-de-sac is used for the storage of scaffolding.

J.J. Richards & Sons Pty Ltd also own and operate a maintenance workshop, truck holding yard and ancillary offices opposite this site at 7-11 Rayben Street.

Transpacific Industries operate a waste management facility to the immediate east of the site whilst Earthworks Australia (a demolition contractor) occupies the lot further to the east.

Warehousing and industrial activities are undertaken to the southeast on the opposite side of Rayben Street.

The closest housing is approximately 420 metres to the north. There is also a buffer of some 900 metres to the closest housing to the east and west of the site.

3.5 Existing Utilities and Services

The site is current serviced by:

- A 32mm water connection from a 150mm water main on the northern footpath of Rayben Street;
- A sewer connection to a Sydney Water sewer in the drainage reserve to the immediate north of the site;
- Electricity (from overhead supplies) in Rayben Street;
- Telstra services in Rayben Street;

A trade waste approval from Sydney Water will be required. Sydney Water confirmed on 30 April 2015 that the receiving sewer at the proposed Glendenning site has the capacity to accept the requested max 180 kL/day discharge, at a maximum instantaneous rate of 5 litres/second.

The proposed development will require a new 100mm fire service for the existing street water main.

3.6 Conclusions

The site is located within a long established industrial area. Major transport routes from the site to the M7 freeway are also through industrial areas.

The closest housing is approximately 420 metres to the north. There is also a buffer of some 900 metres to the closest housing to the east and west of the site.

Organic materials handling and treatment will be undertaken within a fully enclosed building and oil storage and handing are within roofed areas. Equipment associated with the storage and handling of used oils will be designed to comply with AS1940. The major risk associated with the site involves the receipt of non-compliant used

oil product ie with flash point <61^{o}C (flammable). Established procedures exist to deal with such occurrences.

As such, there will be minimal impacts from the site on adjoining land uses.

4 Oil Storage - AS1940 Compliance

AS1940 compliance issues were addressed at the Hazard Identification and Risk Assessment Workshop (refer Section 2.2). The oil storage area has been designed to comply with *AS1940 The storage and handling of flammable and combustible liquids*. Key AS1940 compliance issues are provided below:

AS1940 Clause			**Comment**
5.2.5		Roofs over tanks	
	(a)	All tanks to be vented above roof level	The design provides for this
	(c)	Vertical clearance of at least 2.5m between top of tank / landing and roof (if personnel are to work on top of the tank under normal operations)	The design provides for this clearance
	(d)	Separation distance based on aggregate volume of all tanks under the same roof; measured from edge of bund (unless roof is designed to burn or collapse in a fire)	The roof will be designed to collapse in a fire.
5.3.2		Fill points	
	(c)	Flammable liquid: Fill point in open air at least 2m from any opening into building and at least 3m from any ignition source	The design provides for this
	(d)	Combustible liquid: Outside. If it is inside. At least 2m from a building entrance usable by a tank vehicle.	The design provides for this
5.3.3		Liquid level indication	
		Monitor or gauge required; show safe fill capacity	The design provides for this
	(c)	Remote contents gauge or monitoring device and overfill alarm at fill point (if tank out of direct sight of person filling)	The design provides for this
5.4.4		Vent location	
	(b)	At least 4m above ground level	The design provides for this
	(d)	Vent pipe or overfill point terminate in view of filling operator; or high level alarm audible to filling operator	The design provides for this
5.7.2		Separation distances	
	(a)	To security fences and on-site protected places, Table 5.3	
		Flammables tank when not in Combustibles bund - Class 3 PG II (Measure from edge of bund IF under roof) - Lesser of tank diameter or 15m,	The design provides for this

		but at least 6m	
		Points for filling packages, drums, or tank vehicles (not the fill point into the storage) - 9 metres	The design provides for this
		Office buildings, warehouses, manufacturing, processing areas, workshops, amenities - Lesser of tank diameter or 15m, but at least 9m	The design provides for this
		Security fence - 9 metres	The design provides for this
		C1 when flammables tank not in Combustibles bund (Measure from edge of bund as tanks are under roof)	
		Points for filling packages, drums, or tank vehicles (not the fill point into the storage) - Lesser of tank diameter or 7.5m, but at least 3m	The design provides for this
		Office buildings, warehouses, manufacturing, processing areas, workshops, amenities - Lesser of tank diameter or 7.5m, but at least 3m	The design provides for this
		Security fence - Table 5.4 C1 - based on TOTAL capacity of tanks	The design provides for this
	(b)	To protected place beyond the site boundary, Table 5.4	
		Flammables tank when not in Combustibles bund - Class 3 PG II – 9m for 20 t	The design provides for this
		C1 when flammables tank not in Combustibles bund – 7.5m for 120 t	The design provides for this
5.7.3		Separation between tanks (flammable liquids)	
	(a)	All tanks ≤ 6m diameter: 1/3 diameter of largest tank or 1m (whichever is greater)	The design provides for this
	(b)	If one tank > 6m but both are ≤ 20m: at least 1/2 diameter of largest tank	n/a
	(c)	If tank > 20m diameter, at least 15m between it and any other tank	n/a
5.7.5		Separation between tanks (combustible liquids)	
	(a)	C1: Distance between two adjacent tanks = 1/6 of the sum of their diameters, or 1m, whichever is greater	The design provides for this
5.7.6		Horizontal tanks	
	(b)	Between horizontal tanks: at least 600mm. Between horizontal and vertical tanks: as for vertical tanks	n/a
5.7.7		For two tanks with products of	

		different flash-points (ie one flammable, one combustible)	
		Where two compounds are separated by a bund, each tank in each compound shall be considered separately in its relationship to each tank in the adjacent compound. In each case, the separation distance shall be that applicable to the liquid of the lower flash point actually present in either of the tanks under consideration.	The 20 kL Flammable (non-compliant) product tank is separated by 7m from tank farm
5.8.2		Bund capacity	
		Net capacity of at least the capacity of the largest tank + 20 minutes firewater. If two or more tanks are operated as a single unit, than capacity of unit should be used (ie the total capacity of the two or more tanks)	Approx. 300m3 capacity is provided. The largest tank capacity of 120kL plus 20mins x 0.020 kL/sec x 3600 sec/hr = 192 kL (or m3)
5.8.3		Bund design (crest locus limit)	
	(h)	Bund not inside crest locus limit, as per Figure 5.2	Additional cladding will be provided to tanks to ensure compliance – refer drawings
5.8.3		Bund design (flammable liquids)	
	(i)	Separation from top inside perimeter of bund: 4.5 m to protected places and on-site protected places	The design provides for this separation
5.9.2		Above-ground tanks with integral secondary containment	
	(h)	Spacing between adjacent tanks at least 600mm (or greater if required above)	The design provides for this separation
	(k)	Level indication must be visible to delivery operator	These will be provided
	(n)	Overfill protection: alarm and stop liquid flow	These will be provided
	(o)	Fill-point provided with spill containment at least 15L per fill point.	These will be provided
8.2.3		Where the fill point is within a building, the building shall be open on at least 3 sides where flammable liquids are stored, or 2 sides where C1 liquids are stored	
8.2.5		The design of a tank vehicle loading facility shall be such that vehicles are	

		positioned that that in an emergency, they can be driven or towed out without recourse to reversing	
8.2.6.2		The capacity of the spillage control system shall be the greater of – (a) The capacity of the largest compartment of any tank vehicle using the facility or 9000 L, whichever is less; or (b) The maximum volume of liquid that can be discharged from the two filling points having the greatest flow over 2 min;	2 x 5,000 L inground sumps, in addition to above ground storage within external bunds will be provided
11.6.1		Fire protection - product pumps	
		At least 1 x dry-powder fire extinguisher (at least 2A 60B(E), capacity of 9 kg) not less than 3m nor more than 10m from each risk being protected	These will be provided
11.6.2		Fire protection - manifolds and hose connection points	
		At least 1 x dry-powder fire extinguisher (at least 2A 60B(E), capacity of 9 kg) within 10m of hose connection point or manifold	These will be provided
11.7.4		Fire protection - tank vehicle delivery - flammable liquids	
		At least 1 x dry-powder fire extinguisher (at least 2A 60B(E), capacity of 9 kg) per unloading point (or grouped set of unloading points) with minimum of 2 x dry-powder fire extinguisher (at least 2A 60B(E), capacity of 9 kg) per installation	These will be provided
11.11.3		Outdoor tank - flammable liquids only - total capacity < 60m3	
		At least two extinguishers, one of foam (at least 2A 20B), one of powder (at least 2A 60B(E), capacity of 9 kg)	These will be provided
11.12		Outdoor tanks - combustible liquids only - total capacity 60-2000m3	
11.12.4	(a)	Hose-reel with foam-making equipment (comply with AS/NZS 1221 and AS 2441; foam-making branchpipe with pick-up tube capable of producing 27 L/min of foam solution at a minimum of 220 kPa for	These will be provided

		30 minutes) if water supply adequate; otherwise 2 x powder-type extinguishers (at least 2A 60B(E), capacity of 9 kg)	

5 Hazard Identification

Hazard identification was undertaken at the Hazard Identification and Risk Assessment Workshop (refer Section 2.2). A Hazard Identification Word Diagram developed form this workshop is provided below:

Facility/Event	Cause/Comment	Possible Results/ Consequences	Prevention/Detection
Impacts on residences	Fire	Damage	Closest residences are over 400m from the site
Impacts on residences	Odour, Noise	Discomfort to residents	Closest residences are over 400m from the site
Oil tank fire	Receipt of non-compliant used oil product ie with flash point <61^{o}C (flammable). Fire loads are likely to be from release of oil, e.g. hose failure, with subsequent ignition. Sources of ignition include hot work, smoking and lightning.	Propagation to a facility fire. Impact to people (radiant heat), property and the environment (products of combustion)	All inwards used oil loads are "flash tested"; if <61^{o}C, loads will be rejected or placed in "non-compliant" product tank (refer Attachment 2). Fire protection includes hydrants, hose reels and extinguishers.
Vehicle fire	Fuel / oil spill	Damage to the vehicle. Potential propagation to the combustible material processed and stored at the facility. Products of combustion emitted with the potential to impact people.	Vehicles included in the preventative maintenance program. Fully stocked spill kits to be available at the premises and located in key areas. Spills to be cleaned up immediately. The spill kit must immediately be replenished when used. Place "Out of service" tag on faulty or unsafe equipment. Fire protection includes hydrants, hose reels and

			extinguishers. Fire Brigade response also included in the emergency response plan. Fire protection equipment to be maintained as per the requirements of AS1851and AS1940
Aircraft crash	Pilot error Bad weather Plane fault	Propagation to a facility fire. Impact to people (aircraft impact and radiant heat), property and the environment (products of combustion).	As per aviation standards. The site is not under a busy flight path.
Flooding	Natural event involving significant rain fall	Potential for off-site environmental impact from spilled material being swept away in the flood	The existing site levels are over 0.5m above the Probable Maximum Flood as determined by Blacktown City Council.
Breach of security / sabotage	Disgruntled employee or intruder	Possible fire as per above	All visitors must report / sign-in to the office and be accompanied by site personnel at all times when on-site. Site security process / procedure clearly documented (e.g. security services). Security measures include fencing, security patrols, operator / driver vigilance.
Fire in the oil storage area	The building is constructed from predominately incombustible materials. Fire loads are likely to be from release of oil, e.g.	Pool fire, e.g. tank top fire, bund fire or fire around a vehicle. This can result in harm to people or property (from radiant heat) or the	All loading and storage equipment will comply with AS1940. Fully stocked spill kits to be available at the premises and

	hose failure, with subsequent ignition. Sources of ignition include hot work, smoking and lightning.	environment (from products of combustion and potentially contaminated fire water runoff).	located in key areas. Spills to be cleaned up immediately. The spill kit must immediately be replenished when used. Fire protection includes hydrants, hose reels and extinguishers. Fire Brigade response also included in the emergency response plan. Fire protection equipment to be maintained as per the requirements of AS1851 and AS1940. Permits to work for any hot work. No smoking permitted in the processing areas (signs to be installed).
Fire in the organics building.	The building is constructed from predominately incombustible materials. Fire loads are likely to be from vehicles. Sources of ignition include hot work, smoking and lightning.	This can result in harm to people or property (from radiant heat) or the environment (from products of combustion and potentially contaminated fire water runoff)	Fire protection includes hydrants, hose reels and extinguishers. Fire Brigade response also included in the emergency response plan. Fire protection equipment to be maintained as per the requirements of AS1851. Permits to work for any hot work. No smoking permitted in the processing areas (signs to be installed).

6 Risk Assessment

Risk assessment was also undertaken as part of the Hazard Identification and Risk Assessment Workshop (refer Section 2.2). As part of the Site Based Management Plan, a Risk Assessment Analysis has been prepared and is included as Attachment 1.

Attachment 2 also includes the following relevant Safe Work Instructions:

SWI-GEN-143-01	Tank Farm Loading-Unloading
SWI-GEN-169-04	Oil Collection Truck Unloading into Tank Farm
SWI-GEN-1304-01	Loading Oil Tanker From Tank Farm
SWI-GEN-1310-02	Flash Point Testing - Method A

Other relevant documentation will include:

AO	Executive Summary
SBMP 1.1-2	Table of Contents
SBMP 6.1-2	Risk Assessment Form
SBMP 6.1-5	Job Safety Environmental Analysis - JSEA
SDS-GEN-1301-01	JJR Fuel - Used Oil Burner Fuel
Section 10.1	Chemical Management
Section 10.3	Waste Management
Section 10.5	Spill Management
Section 10.6	Personal Protective Equipment
Section 10.8	Environmental Monitoring
Section 10.9-A	Dangerous Goods Transport
Section 10.9-B	Determining if Waste is Regulated, Prescribed or Hazardous
Section 10.9-C	Regulatory Bodies Licences and Permits
Section 10.13	Aboveground Petroleum Storage in Tanks
Section 10.14	Occupational Immunisation Program
Section 10.17A	Manual Handling
SWI-GEN-169-01	Oil Collection Truck Operations
SWI-GEN-169-02	Oil Truck Filter Cleaning
SWI-GEN-169-03	Oil Collection Truck Unloading to Trailer Compartment
SWI-GEN-1302-01	Unloading Oil Tanker Into Tank Farm
SWI-GEN-1302-02	Non-Compliant Load Isolation and Management
SWI-GEN-1303-01	Transferring and Filtering Oil
SWI-GEN-1303-02	Dewatering Oil Tanks
SWI-GEN-1310-01	Tanker and Tank Farm Sampling

7 References

Other Publications:

Applying SEPP 33: Hazardous and Offensive Development Application Guidelines

Hazardous Industry Planning Advisory Papers (HIPAPs)

No. 1 – Emergency Planning

No. 3 – Risk Assessment Guidelines

No. 6 – Hazard Analysis

No. 8 - HAZOP Guidelines

ATTACHMENT 1

Risk Assessment

SITE BASED MANAGEMENT PLAN

Forms

SBMP 6.1-2 | Risk Assessment Form

PLANT/ACTIVITY BEING ASSESSED: **Liquid Waste Facility** **DATE:1 February 2016**

HAZARD CODES TABLE

Highlight/circle relevant Hazard Codes for the plant/activity being assessed. Identified items are transferred to the Risk Assessment Form for assessment.

Workplace (W)		Vehicle (V)		Plant (P)		Process & Tasks (T)		People & HR (H)		Manual Handling (M)		Environment (E)		Materials & Dangerous Goods (D)	
W01	Access & egress	V01	Access & egress	P01	Elect equip	T01	Cleaning	H01	Behaviour	M01	Awkward posture	E01	Air pollution	D01	DG & Haz Subs
W02	Air quality	V02	Blockage	P02	Condition of Plant	T02	Compressed air	H02	Certification	M02	Bench Design	E02	Animals	D02	MSDS/Register
W03	Building structure	V03	Brakes / Tyres	P03	Controls on Plant	T03	Cutting	H03	Clothing	M03	Bending / twisting	E03	Ground condition	D03	Delivery / Transport
W04	Confined spaces	V04	Breakdown	P04	Damaged Plant	T04	Vibration	H04	Training	M04	Carrying, dragging	E04	Humidity	D04	Disposal process
W05	Electrical safety	V05	Cabin/Seat	P05	Electrical energy	T05	Stored energy	H05	Skills & competency	M05	Gripping	E05	Insects	D05	Elect accessories
W06	Emergency proc/equip.	V06	Motor & Transmission	P06	Structure/Body	T06	Excavation	H06	Communication	M06	Lifting & lowering	E06	Noise pollution	D06	Waste
W07	First Aid services	V07	Drugs & Alcohol	P07	Heat/Cold	T07	Falling objects	H07	Hair & jewellery	M07	Moving objects	E07	Plants / Flora	D07	Fire risk (flammables)
W08	Floor conditions	V08	Fatigue Management	P08	Lock-out provision	T08	Handling hot / cold	H08	Instruction	M08	Picking up, putting down	E08	Weather conditions	D08	Individual allergies
W09	Housekeeping	V09	Hydraulics	P09	Maintenance Program	T09	Hot work/Welding	H09	PPE Provision	M09	Pulling, pushing	E09	Storm water	D09	Instructions
W10	Lighting	V10	Kinetic Energy	P10	Mobile equipment	T10	Lack of instructions	H10	Ergonomics	M10	Reaching & stretching	E10	Sun exposure	D10	Packaging
W11	Signage / Site Rules	V11	Lights – All	P11	Moving parts/Nip point	T11	Obstruction/protrusion	H11	Storing, putting away	M11	Repetition	E11	Thermal conditions	D11	Spills containment
W12	Thermal comfort	V12	Mass Management	P12	Noise	T12	Pressure / vacuum	H12	Work layout	M12	Work Layout	E12	Waste control	D12	Storage facilities
W13	Traffic mgt	V13	Vehicle Accident	P13	Overhead elect lines	T13	Slips, trips & falls	H13	Infection/Disease	M13	Standing or seated			D13	Damaged Product
W14	Visibility	V14	Overhead elect lines	P14	Scaffolding	T14	Spills			M14	Stooping				
W15	Work at heights	V15	Registration & Plates							M15	Too – close, far, high, low				
W16	Work area/platform	V16	Emissions							M16	Weight, size, shape				

RISK CODES TABLE

List risk codes for each identified hazard on the Risk Assessment Form

A1	Heart Attack	A14	Burns	A27	Other diseases of the skin	B5	Spill / Leachate
A2	Seizure	A15	Injuries to nerves/spinal cord	A28	Hernia	B6	Noise
A3	Suffocation	A16	Poisoning & toxic effects	A29	Digestive system disease	B7	Contaminated load
A4	Fractures	A17	Effects of weather/exposure	A30	Infectious and parasitic disease	B8	Fire
A5	Dislocations	A18	Multiple injuries	A31	Respiratory system disease	B9	Explosion
A6	Sprains / Strains	A19	Damage to artificial aids	A32	Circulatory system disease	B10	Litter
A7	Head Injury / Concussion	A20	Skin irritation	A33	Cancers and chronic illness	B11	Overflow / run off
A8	Internal injury of chest, abdomen, pelvis	A21	Hearing Loss / Deafness	A34	Mental disorders	B12	Environment: Other
A9	Amputation	A22	Eye disorder / Blindness	A35	OHS: Other	C1	Vehicle/Plant/Structure damage
A10	Open wound	A23	Nervous system and sensory organs	B1	Dust	C2	3rd party damage
A11	Superficial (cut, scratch, abrasion)	A24	Disorder of muscles, tendons, tissues	B2	Odour	C3	Stock/productivity loss
A12	Crush	A25	Disorder of musculoskeletal	B3	Emissions / Fumes	C4	Regulatory Fine/Prosecution
A13	Foreign body in eye/ear	A26	Dermatitis & Eczema	B4	Waste	C5	Business: OtherK Whalen

PLANT OR ACTIVITY: Liquid Waste Facility	SITE/DEPOT: **14 Rayben St Glendenning NSW**
DATE OF ASSESSMENT: 1 February 2016 TIME:	CONTEXT: Normal Operations Design Stage Context of the RA could include Design, Manufacture, Installation, Operational or other processes.
ASSESSMENT TEAM: Must include a worker using the equipment or involved in the process. Names: *K Whalan; R Duggan; P Hibbard; M Nicholson.* Signatures:	RA-GEN-001-1 Site/Depot Risk Assessment – Generic : Issue 1 - 01.05.12 COMMENTS (if any): Sites may have other existing controls or may require "Additional Controls".

Hazard (What task / activity or part of plant can be considered hazardous?)		**Existing Controls** (What controls are currently in place to prevent harm?) (These controls must be taken into account when assessing risk)	**Risks** (What harm can arise from the hazard with existing controls in place?) (There may be more than one risk for each hazard)		**Risk Score** (Use most common scenario with Existing Controls in place)	**Q1.** Is Risk Score rated High to Extreme?	**Q2.** Any evidence of Near Misses or Incidents with Existing Controls in place?	**Q3.** Are additional controls required to control risk?	**Additional Controls** If Q1 to 3 answer YES, what additional controls should be considered? (Additional controls for Medium and Low risks may be considered if necessary.)	**Risk Score** (With proposed Additional Controls in place)	**Completion Date**
Code	**Actual Hazard Description**		**Code**	**Actual Risk Description**							
W01 W11 W13 W14	Lack of signage leads to unauthorised entry, poor traffic management *Can workers/visitors to site identify where reception is, speed limits, where to park, what PPE must be worn?*	*Parking bays* *Speed signs* *PPE use / signage* *Reception/direction signage* *Visitor Logbook / Tags* *Site inductions* *Traffic management plan* *Designated walkways* *Pedestrian exclusion zones*	A18 C1 C3	*Risks include pedestrians, vehicle or property incidents.* *Unauthorised access to offices/work areas.*							
W01 W10 W14	Poor lighting in carparks outside of daylight hours. *Hazards include trip and fall hazards, poor traffic management, lack of security*	*Lit parking bays/roadways.* *Walkways sealed (concrete/asphalt)* *GHI's identify trip hazards.* *No admittance outside of daylight hours.*	A6 A11 C1	*Pedestrian incidents.* *Vehicle/property damage.* *Theft*							

Hazard (What task / activity or part of plant can be considered hazardous?)		**Existing Controls** (What controls are currently in place to prevent harm?) (These controls must be taken into account when assessing risk)	**Risks** (What harm can arise from the hazard with existing controls in place?) (There may be more than one risk for each hazard)		**Risk Score** (Use most common scenario with Existing Controls in place)	**Q1.** Is Risk Score rated High to Extreme?	**Q2.** Any evidence of Near Misses or Incidents with Existing Controls in place?	**Q3.** Are additional controls required to control risk?	**Additional Controls** If Q1 to 3 answer YES, what additional controls should be considered? (Additional controls for Medium and Low risks may be considered if necessary.)	**Risk Score** (With proposed Additional Controls in place)	**Completion Date**
Code	**Actual Hazard Description**		**Code**	**Actual Risk Description**							
W01 W05	Overhead lines and awnings *Are there services or awnings overhead that pose a risk to high vehicles or tasks*	*Signage advising of lines* *Site inductions* *Physical barriers/low clearance markers* *Exclusion zones*	C1	*Loss of services.* *Property damage.* *Electrical incident*							
W01 W02 W09 E09	Poor housekeeping. *Includes litter, poor placement of waste/plant/ parts/bulk bin storage, blocked drains, pot holes and trip hazards, overgrown gardens or lawns, vermin*	*Regular site inspections* *GHI performed quarterly* *Hazard Log Book* *Site induction* *Pest control* *Grounds maintenance*	A4 A6	*Pedestrian incidents* *Stormwater back-up* *Environmental breach (spill, odour, dust).* *Vermin / Pests*							
W06 E09	Lack of emergency procedures *Emergency procedures not updated, no assembly points, no contact information, lack of Fire Fighting Equip (FFE).*	*Assembly point signage* *Evacuation plans* *Site induction* *Fire and Emergency Training* *Warden training* *Section 14.1 Emergency Planning* *Major spill management plan* *Emergency drills* *Regular FFE checks*	B5 B11 B8	*Lack of organisation during emergency.* *Workers/visitors at risk.* *Property damage* *Environmental risks*							
W03	Damaged building structures. *Are there damaged walls, windows, roof structures*	*Regular site inspections* *GHI performed quarterly* *Hazard Log Book*	C2	*Security risks* *Water damage* *Worker injury*							

Hazard (What task / activity or part of plant can be considered hazardous?)		**Existing Controls** (What controls are currently in place to prevent harm?) (These controls must be taken into account when assessing risk)	**Risks** (What harm can arise from the hazard with existing controls in place?) (There may be more than one risk for each hazard)		**Risk Score** (Use most common scenario with Existing Controls in place)	**Q1.** Is Risk Score rated High to Extreme?	**Q2.** Any evidence of Near Misses or Incidents with Existing Controls in place?	**Q3.** Are additional controls required to control risk?	**Additional Controls** If Q1 to 3 answer YES, what additional controls should be considered? (Additional controls for Medium and Low risks may be considered if necessary.)	**Risk Score** (With proposed Additional Controls in place)	**Completion Date**
Code	**Actual Hazard Description**		**Code**	**Actual Risk Description**							
W08	Slippery, damaged, uneven flooring *Identify floors, roads, parking areas, work areas that may pose a risk of trips and falls. What happens when surfaces are wet?*	*Non-slip flooring* *GHI performed quarterly* *Hazard Log Book* *Signage* *PPE (suitable footwear)*	A4 A6 A7	*Trips and falls* *Vehicle/property damage*							
W15	Roof / high point access *Are workers put at risk accessing roof or other high access points e.g. Lights, tanks etc.*	*Site induction* *High Risk Work Permit* *Use Elevated Work Platform, (EWP)/Boom to access* *Section 10.19 Work At Heights*	A4 A6 A7	*Falls from heights*							
H10 H12 M02	Poor work layout, poor ergonomics / Poor manual handling *Does the layout/floor plan of work stations or work areas put workers at risk of injury. Does layout result in poor posture/manual handling risk*	*Section 10.17b Workstation ergonomics* *Manual handling training* *Site inductions* *Mechanical manual handling aids*	A4 A6 A7	*Sprain / strain injuries from poor ergonomics*							

Hazard (What task / activity or part of plant can be considered hazardous?)		**Existing Controls** (What controls are currently in place to prevent harm?) (These controls must be taken into account when assessing risk)	**Risks** (What harm can arise from the hazard with existing controls in place?) (There may be more than one risk for each hazard)		**Risk Score** (Use most common scenario with Existing Controls in place)	**Q1.** Is Risk Score rated High to Extreme?	**Q2.** Any evidence of Near Misses or Incidents with Existing Controls in place?	**Q3.** Are additional controls required to control risk?	**Additional Controls** If Q1 to 3 answer YES, what additional controls should be considered? (Additional controls for Medium and Low risks may be considered if necessary.)	**Risk Score** (With proposed Additional Controls in place)	**Completion Date**
Code	**Actual Hazard Description**		**Code**	**Actual Risk Description**							
D01 D02 D03 M07 M16 W06	Incoming goods – Includes stationary, workshop consumables, fuel etc. *Do incoming goods pose a risk to workers or site? Are they dangerous goods? Do we have MSDS's? Does size, shape weight pose a manual handling risk? Are there storage provisions?*	*Mechanical manual handling aids* *Manual handling training* *Site inductions* *Chemwatch* *Bunding / Storage / Cabinets* *DG signage* *Section 14.1 Emergency Planning* *Approved supplier list* *Site licence* *Diesel stored in transtanks*	A6 A30 B3 B4 B5 B11	*Sprain / strain injuries from poor ergonomics* *Spills / Environmental risk* *Emergency situation* *Breach of legislation/Fines*							
H06	Lack of communication and consultation between management and workers *As part of the WH&S Act workers must be consulted on any changes to work process, plant or procedures. Consider frequency of meetings etc.*	*Team Briefs held at least quarterly.* *Management review.* *Notice boards* *Workplace Alerts*	A35 B12 C5	*Breach of legislation/Fines* *Decreased morale*							

Hazard (What task / activity or part of plant can be considered hazardous?)		**Existing Controls** (What controls are currently in place to prevent harm?) (These controls must be taken into account when assessing risk)	**Risks** (What harm can arise from the hazard with existing controls in place?) (There may be more than one risk for each hazard)		**Risk Score** (Use most common scenario with Existing Controls in place)	**Q1.** Is Risk Score rated High to Extreme?	**Q2.** Any evidence of Near Misses or Incidents with Existing Controls in place?	**Q3.** Are additional controls required to control risk?	**Additional Controls** If Q1 to 3 answer YES, what additional controls should be considered? (Additional controls for Medium and Low risks may be considered if necessary.)	**Risk Score** (With proposed Additional Controls in place)	**Completion Date**
Code	**Actual Hazard Description**		**Code**	**Actual Risk Description**							
P01 P05	Electrical equipment hazards *Are switchboards and electrical equipment managed to control risks*	*GHI performed quarterly* *Hazard Log Book* *Elect Test & Tag* *RCD testing* *Switchboards locked and/or live parts concealed.* *Out of Service/Do not use tags*	A35	*Electric shock* *Electrocution* *Fire* *Property damage* *Breach of legislation/Fines*							
E06	Site generated noise causes noise complaints / risk to workers. *Do activities pose a risk to workers hearing and/or noise nuisance to neighbours?* *What conditions are set for site licences?*	*Work within limits of licence conditions* *Noise assessment* *Risk assessment* *Noise barriers* *Hearing protection for workers*	A21 B6	*Breach of legislation/Fines* *Hearing loss*							
T01	Untreated wash waters released to stormwater. *Does the site have any areas where wash waters from trucks, sinks etc flow to stormwater drains?* *Is there a wash bay at the site with water treatment?*	*Induction and training* *Wash bay with water treatment* *Trade waste agreement for release to sewer.*	B5	*Licence breach/fine/shut down activity* *Environmental breach* *Site contamination*							

Hazard (What task / activity or part of plant can be considered hazardous?)		**Existing Controls** (What controls are currently in place to prevent harm?) (These controls must be taken into account when assessing risk)	**Risks** (What harm can arise from the hazard with existing controls in place?) (There may be more than one risk for each hazard)		**Risk Score** (Use most common scenario with Existing Controls in place)	**Q1.** Is Risk Score rated High to Extreme?	**Q2.** Any evidence of Near Misses or Incidents with Existing Controls in place?	**Q3.** Are additional controls required to control risk?	**Additional Controls** If Q1 to 3 answer YES, what additional controls should be considered? (Additional controls for Medium and Low risks may be considered if necessary.)	**Risk Score** (With proposed Additional Controls in place)	**Completion Date**
Code	**Actual Hazard Description**		**Code**	**Actual Risk Description**							
T09	Hot work *If hot work is completed on site is it done in a hot work area?* *Is a hot work permit used?* *Have areas been assessed for risk of fire/explosion?*	*Hot work permit* *Designated hot work areas* *Checks for flammables/ combustibles prior to commencing.* *Fire Fighting Equipment (FFE) Training*	B3 B8 B9	*Fire / explosion* *Burns* *Property/vehicle damage*							
E12	Site generated waste causes odour/vermin/hazard *Are site generated wastes managed effectively to prevent hazards*	*Waste kept in covered receptacle* *Regular removal to eliminate vermin/odour* *Noxious/reg wastes are stored and treated as per procedures*	B2 B4	*Vermin* *Odour* *Bacteria/infection*							
E12	Regulated Waste Acceptance/Storage	*Site licences & approvals - incl terms and conditions.* *Documentation (waste tracking & procedures).* *Infrastructure (tanks/ containment, bunding, roofing),*	B4 C4	*Licence breach/fine/shut down activity* *Environmental breach* *Site contamination*							
W01	Access & egress Spill containment **While checking level of tanks**	Trained and competent operators Use dedicated walkways 3 points of contact	B7 B11	Contaminated load Overflow/run off							

Hazard (What task / activity or part of plant can be considered hazardous?)		**Existing Controls** (What controls are currently in place to prevent harm?) (These controls must be taken into account when assessing risk)	**Risks** (What harm can arise from the hazard with existing controls in place?) (There may be more than one risk for each hazard)		**Risk Score** (Use most common scenario with Existing Controls in place)	**Q1.** Is Risk Score rated High to Extreme?	**Q2.** Any evidence of Near Misses or Incidents with Existing Controls in place?	**Q3.** Are additional controls required to control risk?	**Additional Controls** If Q1 to 3 answer YES, what additional controls should be considered? (Additional controls for Medium and Low risks may be considered if necessary.)	**Risk Score** (With proposed Additional Controls in place)	**Completion Date**
Code	**Actual Hazard Description**		**Code**	**Actual Risk Description**							
V01 P11 H09 T13 T14 M07	Access and egress Moving parts/nip points PPE provision Slips trips & falls Spills Moving objects **Load sampling of oil trucks**	Trained and competent operators Use dedicated walkways 3 points of contact Handrails must be raised Correct PPE Housekeeping Eyes on path Eyes on task	A6 A18 B3	Sprains/Strains Multiple injuries Emissions/fumes							
W02 H09 T13	Air quality PPE provision Slips, trips & falls **While testing oil sample**	Trained and competent operators Correct PPE Housekeeping Eyes on path Eyes on task	B11 B3 B7	Superficial (cut, scratch, abrasion) Emissions/fumes Contaminated load							
P02 P11 H09 M03 M04 M08 M16 D11	Conditions of plant Moving parts/nip points PPE provision Bending/twisting Carrying & dragging Picking up/putting down Weight size shape Spill containment **While connecting or disconnecting hoses**	Trained and competent operators Correct PPE Housekeeping Eyes on path Eyes on task Correct manual handling Spill kits/rags	A6 A18 B11	Sprains/Strains Multiple injuries Overflow/run off							

Hazard (What task / activity or part of plant can be considered hazardous?)		**Existing Controls** (What controls are currently in place to prevent harm?) (These controls must be taken into account when assessing risk)	**Risks** (What harm can arise from the hazard with existing controls in place?) (There may be more than one risk for each hazard)		**Risk Score** (Use most common scenario with Existing Controls in place)	**Q1.** Is Risk Score rated High to Extreme?	**Q2.** Any evidence of Near Misses or Incidents with Existing Controls in place?	**Q3.** Are additional controls required to control risk?	**Additional Controls** If Q1 to 3 answer YES, what additional controls should be considered? (Additional controls for Medium and Low risks may be considered if necessary.)	**Risk Score** (With proposed Additional Controls in place)	**Completion Date**
Code	**Actual Hazard Description**		**Code**	**Actual Risk Description**							
P11 H09 T13 T14 M09 M10 D11	Moving parts/nip points PPE provision Slips trips & falls Spills Pushing & pulling Reaching & stretching Spill containment **While loading, unloading vehicle & transferring from tank to tank**	Trained and competent operators Correct PPE Housekeeping Eyes on path Eyes on task Correct manual handling Spill kits/rags Emergency stops	A6 A18 B7 B11 C4	Sprains/Strains Multiple injuries Contaminated load Overflow/run off							
P11 T13 T14 H09 M06 M09 M10 D11	Moving parts/nip points Slips trips & falls Spills PPE provision Lifting & lowering Pushing & pulling Reaching & stretching Spill containment **Dewatering oil tanks/skimmer box**	Trained and competent operators Correct PPE Housekeeping Eyes on path Eyes on task Correct manual handling Spill kits/rags Emergency stops	A6 A18 B7 B11 C4	Sprains/Strains Multiple injuries Contaminated load Overflow/run off Regulatory fines or prosecution							

RISK ASSESSMENT TABLE

Risk Assessment Steps:

1. Establish context (plant or activity) ➔ 2. Identify hazards ➔ 3. Identify risks ➔ 4. List actions already in place ➔ 5. Assess risk ➔ 6. Are additional controls required ➔ 7. Implement additional controls ➔ Reassess risk ➔ 9. Monitor and review.

CONSEQUENCES (C)		INJURY	ENVIRONMENT	BUSINESS & REPUTATION	COMPLIANCE
5	Catastrophic	• Fatality or impairment • Permanent disability	• Remediation / Long term effects. • Possible conviction	• Risk of site closure. • National or international media coverage	• Possible major fines, • Prosecutions or conviction
4	Major	• Requires medical or repeat treatment • Results in a full shift or more of lost time off work	• Offsite release - No long term effects. • Breach of Licence. • Possibility of fine	• Loss of production for greater than one day. • Likely media attention local and state	• Breach of regulation, • Risk of fines & prosecution
3	Moderate	• Requires medical treatment including return to work plan & restricted duties. • Less than full shift lost time off work	• Breach of Environmental Procedures. • Release contained to JJ Richards site.	• Loss of production for less than one day. • External complaints. Some risk of media coverage	• Moderate breach of regulation; • Risk of fines
2	Minor	• Requires medical treatment but returns to work on full duties within 24 hours • First aid treatment	• Minimal Environmental impact / Minor breach. • Small release contained and managed.	• Loss of production for less than ½ a day. • Possibly of complaints, low risk of adverse publicity	• Minor breach of regulation, • Low risk of fine
1	Insignificant	• Self-treatment of injury • No injury	• No or minimal Environmental impact	• No impact to business. • Community will tolerate without complaints	• No or minimal breaches to regulations

LIKELIHOOD (L)		Likelihood Description	Frequency
A	Almost Certain	Expected to occur in most circumstances	Up to once a month
B	Likely	Will probably occur in most circumstances	>Once a month <Once in 6 month
C	Possible	Might occur at some time	>Once in 6 months <Once a year
D	Unlikely	Could occur at some time	>Once a year <Once in 5 years
E	Rare	May occur only in exceptional circumstance	>Once in 5 yrs <Once in 10 yrs

RISK TABLE

R = C x L	Insignificant 1	Minor 2	Moderate 3	Major 4	Catastrophic 5
A Almost certain	M11	H16	H20	E23	E25
B Likely	M7	M12	H17	H21	E24
C Possible	L4	M8	M13	H18	H22
D Unlikely	L2	L5	M9	M14	H19
E Rare	L1	L3	L6	M10	M15

Controls

When determining hazard controls, use the ***hierarchy of controls*** to determine appropriate action.

1. Eliminate **2.** Substitute **3.** Engineer out **4.*** Administrative controls **5.*** Personal protective equipment.

**Administrative and PPE controls should be considered as a last resort.*

ATTACHMENT 2

Safe Work Instructions

Personal Protective Equipment (PPE) issued: Long sleeved high visibility shirt and long pants or overalls, steel capped safety boots, safety glasses with side shields and oil or chemical resistant gloves.

Spill Kits (Refer SBMP Section 10.05) <only if applicable>

General Instructions <only if applicable>
DO NOT perform this process unless you have been trained in operation of the tank farm. It is required that only trained operators should undertake oil transfer operations without supervision by a competent and/or experienced operator.

Purpose

The purpose of this procedure is to provide Tank Farm Operators/Oil Truck Drivers with instructions on the process to follow when a truck arrives at a J.J. Richards Tank Farm with a Non-Compliant Load.

References
Other Associated Procedures/Documents/Forms:

- **A.** SBMP 10.05 Spill Management
- **B.** SBMP 10.06 PPE Assessment
- **C.** SWI-GEN-169-02 Basket Filter Cleaning – Oil Collection Truck
- **D.** FRM-GEN-1301-01 Waste Oil Receival and Dispatch Form
- **E.** SBMP 10.09-B Determining if waste is Regulated, Prescribed or Hazardous
- **F.** SWI-GEN-1310-02 Flash Point Testing Procedure
- **G.** SWI-GEN-1304-01 Loading Oil Tanker Procedure

Instruction Flowchart

TASK	ACTION	ALERT
Identifying if Load is Non-Compliant	▪ Compare sample's physical appearance and test results with expected criteria. ▪ If any of the criteria is unexpected or outside standard acceptance criteria, then continue with this procedure.	
Stop waste acceptance/ unloading procedures	▪ Cease any/all unloading procedures, do not complete any paperwork. ▪ Inform Driver, Site Manager/Supervisor and any other operators that there is an issue with the load.	
Secure load	▪ For tanker loads, close any open hatches, valves, vents and disconnect any hoses that had been opened or connected to unload the truck ▪ For drum loads, replace and gates or curtains that have been opened.	
Isolate the truck	▪ Request driver move the vehicle to a location on site where it will not obstruct other vehicles and can be safely parked whilst the contents of the load can be further assessed and directions can be given for unloading.	The nature of the load may dictate where the truck can or cannot be parked.
Assess the type of non-compliance	▪ Site manager / supervisor and unloading operator to discuss and confirm type of non-compliance. ▪ Non-Compliance could include; o Flammable Load o Waste not as described o High water content o Oil to thick (viscous) o High sludge content o Inappropriate storage vessel o pH outside expected range.	
Determine if non-compliant load can be unloaded or rejected.	• Compare load criteria with site capabilities and licence conditions. • Determine if truck is/was licenced and suitable for transport of this type of waste. • A risk assessment on unloading and/or accepting the non-compliant load must be completed.	Assistance is available via JJ Richards' IMS and Technical Staff.
If load is to be rejected	▪ Determine if the truck can legally transport the load offsite. ▪ If not, an alternate, licensed and safe, transport &	Truck and Company needs to hold appropriate Transport, Dangerous Goods and

TASK	ACTION	ALERT
	disposal option (including load transfer) needs to be sourced at transport company/customer's expense. ▪ Transport Company and Customer are to be informed of the reason for rejection. ▪ File note and sample to be kept for future reference. ↓	Environmental Licences.
If the load is to be accepted	▪ If the assessment of the risk, site capabilities and licences deem that the load can be accepted: o Determine where and how the load will be unloaded. o Ensure that the storage of any non-compliant load is clearly recorded on the stock take if stored in the tank farm or any drums/IBCs used to store the waste are clearly labelled with type of waste, source and any dangerous goods information required. o A file note and sample of the non-compliant load should be kept for future reference. ↓	Non-Compliant load may be able to be unloaded into an alternative tank, IBCs, drums etc. Non-Compliant load may need to be unloaded with a different pump or via gravity.
Investigate source of non-compliance	▪ An investigation into the source of the non-compliance should be undertaken. ▪ Discussions with sales representatives, customers and transporters should be undertaken to identify source and attempt to prevent reoccurrence. ▪ A VITS report should be completed following the investigation. Ongoing non-compliance may be escalated to a CAR.	A single source of the received load should be easy to identify, multiple sources (i.e. waste oil collection run) may be more difficult. Assistance is available via JJ Richards' IMS and Technical Staff

Purpose

The purpose of this procedure is to provide Tank Farm Operators/Oil Truck Drivers with instructions on the process to follow in unloading waste oil from oil collection trucks to a JJR Tank Farm.

Personal Protective Equipment (PPE)

Long sleeved high visibility shirt and long pants or overalls, steel capped safety boots, safety glasses with side shields and oil or chemical resistant gloves.

General Instruction

DO NOT perform this process unless you have been trained in operation of the tank farm. It is required that only trained operators should undertake oil transfer operations without supervision by a competent and/or experienced operator.

Maintenance Requirements

The following tasks must be performed daily:

1. Clean the Primary Filter on the unloading line.
2. Empty drip trays/buckets.
3. Check all flexible hoses for wear and replace if required.
4. Check all camlock fittings for wear, ensure that they still seal and check that rubber O-ring is in place and in good condition. This should include all reducing fittings and other adapters and that they are stored in the correct place.

References

Other Associated Procedures/Documents/Forms:

A. SBMP 10.05 Spill Management

B. SBMP 10.06 PPE Assessment

C. SWI-GEN-169-02 Basket Filter Cleaning – Oil Collection Truck

D. FRM-GEN-1301-01 Waste Oil Receival and Dispatch Form

E. SBMP 10.09-B Determining if waste is Regulated, Prescribed or Hazardous

F. SWI-GEN-1310-02 Flash Point Testing Procedure

G. SWI-GEN-1304-01 Loading Oil Tanker Procedure

H. SWI-GEN-1302-02 Non-Compliant Load (Isolation and Management) Procedure

Procedure Flowchart

TASK	ACTION	ALERT
Prepare tank farm and truck loading/ unloading area	▪ Identify nearest spill kit and ensure that it is appropriately stocked and readily accessible. ▪ Ensure that appropriate PPE is available and in good condition. ▪ Inspect tank farm pipework, pumps, valves, tanks and bunds for leaks. ▪ Check unloading hose and camlock adaptors are available and in good working condition (i.e. O-rings and locking handles). ▪ Ensure sampling equipment is available and in good working condition. ▪ Ensure other equipment is available and in good working order (i.e. sampling tube and buckets, rags etc.). ▪ Ensure that primary filter on unloading line is clean and in good working order. If necessary clean filter as per SWI-GEN-166-02 filter cleaning procedure. ▪ Check all valves in tank farm and ensure all valves are initially closed.	Spill kit should be fully stocked and stored within 25 metres of the loading/unloading area and clear of obstructions. **SWI-GEN-166-02**
Confirm destination tank for Oil	▪ Confirm with Driver the nature (Oil, Water, Coolant etc.) of the load and approximate volume. ▪ Check Tank Log sheet to determine suitable tank for receiving the load and available capacity. ▪ Use the sight gauge, dipstick or level indicators on receival tank and determine if there is a need to switch to another tank.	
Take Sample of Oil	▪ With the driver's assistance, collect representative samples of all compartments to be unloaded as per sampling procedure. ▪ Inspect samples (check for typical oil characteristics – colour, odour etc.) and analyse according to the sample analysis matrix and appropriate test methods. ▪ Compare test results with standard waste oil criteria. o If oil complies with these criteria, continue to unload load truck. o If oil does not comply with these criteria, immediately notify site supervisor/manager and proceed with "Non-Compliant Load (Isolation and Management) Procedure" unless directed otherwise. ▪ Ensure all test results are recorded on the FRM-GEN-1301-01 Waste Oil Receival and Dispatch Form.	Ensure fall protection rails are raised if the roof of the truck needs to be accessed. **FRM-GEN-1301-01**
Connect flexible hose from Tank Farm to truck	▪ Collect drip trays or buckets and place under points where hose connections/disconnections will be made, to collect any spills. ▪ Ensure flexible hose is connected at the tank farm/pump inlet with camlocks fully closed. ▪ With the assistance of the driver connect the flexible hose to the truck manifold (or compartment if no manifold) outlet. o Ensure all outlet valves on truck are closed.	

TASK	ACTION	ALERT
	o Remove end cap on truck outlet. o Connect any adapter to outlet fitting (e.g. reducer). o Connect hose to truck ensuring all locking handles are securely closed. ▪ Ensure PTO is NOT engaged to prevent spills.	
Open truck valve	▪ Open the valve on the truck compartment and manifold ensuring that the internal (emergency/foot) valves are open and compartment is vented by ensuring all hatches are open. ▪ Open valve on tank farm inlet and follow line to the filters opening valves as required.	Check camlocks connections for leaks.
Prime filter and pump (If required)	• Bleed the air out of the basket filter using the bleed valve on the top (into a bucket). When all the air is out of the filter, a steady stream of oil will flow out of the bleed valve, therefore it is full. • Shut the bleed valve.	
Open valves to destination tank	▪ Follow the unloading line from the filters to the unloading pump and then to destination tank opening each required valve. ▪ Open the valve on the destination tank.	
Turn on pump	▪ Confirm the flow direction on the transfer pump is "Forward" on the variable speed controller and select a speed using the controls on the panel. ▪ Switch on the transfer pump and commence transfer of oil. ▪ Contain and clean up leaks/spill immediately.	Check the entire unloading line for leaks. Check that the oil is actually transferring (and to correct tank) either by checking read-outs, sight gauges or dips.
Monitor filter/s	▪ Operator should check filter/s regularly for signs of blockage. ▪ Signs of blockage may be audible and/or visual and may include: o A change in the sound of the pumping equipment o Shuddering or shaking of the filters, pump or pipe work. o An increase in the differential pressure on the filters o No change in the volume of both the destination or source vessels. ▪ If a blockage of the filters occurs, immediately shut the inlet valves on the filters turn off the pump and shut the outlet valves of the filters. ▪ Clean filters as per the filter cleaning procedure. ▪ When filters are clean and reassembled, open inlet and outlet valves and restart pump and continue the filtration and transfer process.	
Change	▪ Monitor the compartment being unloaded.	Ensure fall protection

TASK	ACTION	ALERT
compartment on truck being unloaded	o If truck driver/second operator is available and on the top or the truck, the compartment should be monitored visually to determine when it is empty. o If only one operator is available, signs of the compartment being empty may be audible and/or visual and may include: • A change in the sound of the pumping equipment • Shuddering or shaking of the hose, filters, pump or pipe work • No change in the volume of both the destination or source vessels. • Unloading hose becomes lighter in weight. ▪ If all compartments being unloaded are not empty then change compartments. o If truck is manifolded: • Open valve to next full compartment and shut the valve on the empty compartment. o If truck is not manifolded: • Unhook the hose slowly from the tanker while the pump is still running. Immediately hold the end of the hose upright to allow an excess oil to flow down the line. • Close truck valve on empty compartment. • Remove the hose from the truck, holding the camlock fitting under the truck fitting to catch any residual oil. • Continue to hold the end of the hose that has been unhooked upright. This will assist in sucking remaining oil through the pipe network and minimising the potential for spillage of oil. • Once sufficient oil has drained from the hose, connect the hose to the valve of the next compartment to be unloaded and seek assistance from the driver in opening the valve to release oil from the next compartment. ▪ Check the sight glass or level indicator on the receival tank to verify that there is still sufficient capacity. ▪ Repeat this step as necessary until truck is empty.	rails are raised if accessing the rood of the truck. If there is any leakage of oil under pressure, fully close valves and investigate problem.
Disconnect hose from truck	▪ When the final compartment is empty, allow the pump to continue to run for about 30 seconds. ▪ Unhook the hose slowly from the tanker while the pump is still running. ▪ Close all truck valves on compartments and manifold. ▪ Remove the hose from the truck, holding the camlock fitting under the truck fitting to catch any residual oil. ▪ Hold the end of the hose that has been unhooked upright. This will assist in sucking remaining oil through the pipe network and minimising the potential for spillage of oil. ▪ Once oil has drained from the hose (audible change in pump sound) hang hose, ready for next truck.	Operator or Driver should visually check the top of truck to ensure truck is empty prior to disconnecting hose. If there is any leakage of oil under pressure, fully close camlocks and investigate problem
Turn off pump	▪ Turn off unloading pump.	

TASK	ACTION	ALERT
Close all remaining valves used in unloading	▪ Close all valves used in the unloading operation, including the valve on the receival tank. ▪ Cap unloading hose. ▪ Check for leaks or spillage and clean up immediately.	Clean up any oil leaks or spillage using absorbent pads and wiping all oily surfaces clean.
Record all details of unloading and complete Waste Tracking	▪ Record all transfer details on the FRM-GEN-1301-01 Waste Oil Receival and Dispatch Form. ▪ Complete DEHP Regulated Waste Transport Certificate as per WP-GEN-164 Completion of EPA Waste Tracking Documentation QLD.	

Purpose

The purpose of this procedure is to provide Tank Farm Operators/Oil Truck Drivers with instructions on the process to follow in loading waste oil or processed fuel oil from JJ Richards Tank Farm into an oil transport vehicle.

Personal Protective Equipment (PPE)

Long sleeved high visibility shirt and long pants or Overalls, steel capped safety boots, safety glasses with side shields and Oil or Chemical resistant gloves.

General Instruction

DO NOT perform this process unless you have been trained in operation of the tank farm. It is required that only trained operators should undertake oil transfer operations without supervision by a competent and/or experienced operator

Maintenance Requirements

The following tasks must be performed daily:

1. Clean the Primary Filter on the unloading line.
2. Empty drip trays/buckets.
3. Check all flexible hoses for wear and replace if required.
4. Check all camlock fittings for wear, ensure that they still seal and check that rubber O-ring is in place and in good condition. This should include all reducing fittings and other adapters and that they are stored in the correct place.

References

Other Associated Procedures/Documents/Forms:

A. SBMP 10.05 Spill Management
B. SBMP 10.06 PPE Assessment
C. SWI-GEN-169-02 Basket Filter Cleaning – Oil Collection Truck
D. FRM-GEN-1301-01 Waste Oil Receival and Dispatch Form
E. SBMP 10.09-B Determining if waste is Regulated, Prescribed or Hazardous
F. SWI-GEN-1310-02 Flash Point Testing Procedure
G. SWI-GEN-1304-01 Loading Oil Tanker Procedure

Instruction Flowchart

TASK	ACTION	ALERT
Prepare Tank Farm and Truck Loading/ Unloading Area	▪ Identify nearest spill kit and ensure that it is appropriately stocked and readily accessible. ▪ Ensure that appropriate PPE is available and in good condition. ▪ Inspect tank farm pipework, pumps, valves, tanks and bunds for leaks. ▪ Check unloading hose and camlock adaptors are available and in good working condition (i.e. O-rings and locking handles). ▪ Ensure sampling equipment is available and in good working condition. ▪ Ensure other equipment is available and in good working order (i.e. sampling tube and buckets, rags etc.) ▪ Ensure that primary filter on unloading line is clean and in good working order. If necessary clean filter as per SWI-GEN-166.02 Filter Cleaning procedure. ▪ Check all valves in tank farm and ensure all valves are initially closed.	Spill kit should fully stocked and stored within 25 metres of the loading/unloading area and clear of obstructions
Confirm Dispatch Tank to Supply Customer	▪ Confirm with Office/Order the type, volume and quality of the Oil to be loaded (Filtration, Water Content etc.). ▪ Check Tank Stocktake to determine suitable tank for dispatching the load from and available stock. ▪ Ensure dispatch tank has sufficient stock using sight gauge, dipstick or level indicators. ▪ Confirm with Truck Driver the volume to be loaded and volume to be loaded into each compartment.	If Site/ Office (paperwork) and Driver's volumes to be loaded differ, check with site manager regarding volume required. Driver should advise operator on compartment load plan to ensure compliance with load limits
Prepare Truck for Loading	▪ With the assistance of the truck driver, open all hatches on the truck for compartments being loaded. ▪ Check that the inside of the compartments are clean and empty (suitable for loading).	If truck is not clean, inform site manager/ supervisor and await direction
Determine Sampling Method of Oil being Dispatched	▪ Determine appropriate method of sampling oil being dispatched (refer to SWI-GEN-1310-01 Tanker or Tank Farm Sampling Procedure). ▪ Collect sample and analyse as per Sample Analysis Matrix. ▪ Retain sample for reference purposes,	
Connect Flexible Hose From Tank Farm to Truck	▪ Collect drip trays or buckets and place under points where connections/disconnections will be made, to collect any spills. ▪ Ensure flexible hose is connected at the tank farm/pump outlet with camlocks fully closed. ▪ With the assistance of the driver connect the flexible hose to the truck manifold (or compartment if no manifold) outlet. ▪ Ensure all outlet valves on truck are closed. ▪ Remove end cap on truck outlet. ▪ Connect any adapter to outlet fitting (eg reducer).	

TASK	ACTION	ALERT
	▪ Connect hose to truck ensuring all locking handles are securely closed.	
Open Valves from Dispatch Tank	▪ Open valve on the dispatch tank. ▪ Follow the loading line from the dispatch tank via the loading pump and filters, if required, to the tank farm outlet, opening each required valve.	
Open Truck Valve	▪ Open the valve on the truck compartment and manifold (if truck is manifolded) ensuring that the internal (emergency or foot) valves are open and compartment is vented by opening the hatch/s.	Check camlocks connections for leaks. Note Dip Caps are not suitable for venting while loading as oil may be released through the cap due to air being displaced.
Prime Filter and Pump (If Required)	▪ Bleed the air out of the basket filter using the bleed valve on the top (into a bucket). When all the air is out of the filter, a steady stream of oil will flow out of the bleed valve, therefore it is full. ▪ Shut the bleed valve.	
Turn On Pump	▪ Confirm the flow direction on the transfer pump is "Forward" on the variable speed controller and select a speed using controls on the panel. ▪ Switch on the transfer pump and commence transfer of oil ▪ If leak or spill is observed turn off pump using emergency shut off process.	Check the entire loading line for leaks. Check that the oil is actually transferring (and from correct tank) either by checking read-outs, sight gauges or dips.
Monitor Filter/s	▪ Operator should check filter/s regularly for signs of blockage. ▪ Signs of blockage may be audible and/or visual and may include: o A change in the sound of the pumping equipment o Shuddering or shaking of the filters, pump or pipe work o An increase in the differential pressure on the filters o No change in the volume of both the destination and source vessels. ▪ If a blockage of the filters occurs, immediately shut the inlet valves on the filters turn off the pump and shut the outlet valves of the filters. ▪ Clean filters as per the filter cleaning procedure (*see* SWI-GEN-1303-01 Transferring and Filtering of Oil within Tank Farm). ▪ When filters are clean and reassembled, open inlet and outlet valves and restart pump and continue the filtration and transfer process.	SWI-GEN-1303-01
Monitor	▪ The truck driver/second operator should be on the top of	When driver is on top of vehicle, all fall restraint

TASK	ACTION	ALERT
Volume Loaded onto Truck	the truck, to determine the volume in the compartment. ▪ Driver should periodically check the dip of the compartment and when the required volume to be loaded into the compartment is reached should inform the loading operator to change compartments.	systems must be engaged.
Change Compartment on Truck being Loaded	▪ When the driver informs the loading operator that the compartment is full. ▪ If all required volume has not been loaded then change compartments. o If truck is manifolded: • Open valve to next empty compartment (as directed by the driver) and • Shut the valve on the full compartment. o If truck is not manifolded: • Turn off pump • Close valve at the truck • Switch pump direction to reverse • Turn pump on • Unhook the hose slowly from the tanker while the pump is still running • Remove the hose from the truck, holding the camlock fitting under the truck fitting to catch any residual oil • Hold the end of the hose that has been unhooked upright. This will assist in sucking remaining oil through the pipe network and minimising the potential for spillage of oil • Connect the hose to the next compartment ensuring all locking handles are securely closed • Open truck valve on next empty compartment and on the loading point • Start the pump and check hose for leaks • Cap the open inlet on the truck. ▪ Check the sight glass/level indicator on the dispatch tank to verify that there is still sufficient volume to load the truck. ▪ Repeat this step as necessary until has been loaded with the require volume.	If there is any leakage of oil under pressure, fully close camlocks and investigate problem.
Turn off Pump	▪ Once required volume has been loaded on to the truck. ▪ Switch pump off.	
Disconnect Hose from Truck	▪ Close valves on the truck. ▪ Reverse the pump. ▪ Unhook the hose slowly from the tanker, holding the camlock up so as not to spill oil and allow oil to drain back through pump. ▪ Close Valve on tank farm outlet, stop the pump, cap the end of the hose and hang/store hose ready for next use.	

TASK	ACTION	ALERT
Close All Remaining Valves Used in Unloading	▪ Close all other valves used in the loading operation, including the valve on the dispatch tank. ▪ Check for leaks or spillage and clean up immediately.	Clean up any oil leaks or spillage using absorbent pads and wiping all oily surfaces clean.
Record all Details of Unloading and Complete Waste Tracking	▪ **For All Outgoing Loads (Waste Oil or Fuel Oil)**, record details of load on the JJR Dispatch and Receival Docket. ▪ **For Loads Being Transferred as Waste Oil**, complete Regulated Waste Transport Certificate as per SBMP 10.09-B Determining if waste is Regulated, Prescribed or Hazardous.	Ensure that the Pink and Green Dockets are retained and that the White, Yellow and Blue copies are retained by the driver.

Flash Point Test Method A: Flash or No Flash at a Specific Temperature (e.g. 61°C)

Purpose

This test method is to be used to determine:

a. Whether a waste material (waste oil or other wastes) is classified as a "Class 3" Flammable Liquid as defined in the Australian Dangerous Goods Code 7th Edition (ADG7) i.e. flashpoint lower than 60.5°C; and
b. Whether a waste material does or does not flash at a specified temperature when using a "Setaflash – Series 3 Plus" flashpoint tester or equivalent small-scale closed cup flashpoint apparatus.

This test method can be used on waste oils, fuels, solvents, paints and any other liquid/sludge wastes with a flashpoint between 0 (ambient) and 300°C that can be drawn up a 2ml glass syringe.

Recommended Apparatus / Equipment Required

a. Setaflash - Series 3 Plus flashpoint tester or equivalent small-scale closed cup flashpoint apparatus.
b. Glass Syringe – 2ml (± 0.1ml) capacity.
c. Sample Bottles/Containers – 50ml or greater.

Reagents and/or Consumables Required

a. LPG or Butane.
b. Ice/water – for rapid cooling of sample cup.
c. Reference Solution (if required).

Samples and Sampling

Samples are to be as representative as possible and collected as per the Oil Sampling Procedure SWI-GEN-1310-01.

Sample size for this test method is 2ml for flashpoints up to 100°C and 4ml for flashpoints >100°C.

A minimum of 50ml of a representative sample from the bulk source should be collected and stored in a clean, tightly closed sample bottle made of a suitable/compatible material for the type of liquid being sampled.

Samples should fill or almost fill the bottle being used to prevent loss of volatile components from sample.

Excessive opening of the sample may result in loss of volatile components and give an erroneously high result.

Set Up and Preparing Test Apparatus for use

a. All test apparatus should be inspected before use to ensure it is in good working condition. Any electrical cables should be in good condition and test and tag should be current.
b. Test apparatus should be set up out of direct sunlight and any breeze to aid in observing and controlling the test flame and temperature.
c. Read and follow manufacturer's instructions regarding care, use, maintenance and servicing of the apparatus.

Personal Protective Equipment (PPE)

Long sleeved high visibility shirt, long pants, steel capped safety boots, safety glasses with side shields and chemical resistant gloves Laboratory Coat (optional).

General Instruction

DO NOT perform this test method unless you have been trained in use of this apparatus.

References

a. ASTM D3278-96
b. Setaflash Series 3 Plus – User Manual

Flash Point Test Method A: Flash or No Flash at a Specific Temperature (e.g. 61°C)

Instruction Flowchart

TASK	ACTION	ALERT
Ensure Sample Cup is Clean and Ready to Commence Test	▪ Unlock and open sample cup lid using "lid lock". (See diagram 1). ▪ Check that "O Ring" is in place. ▪ Inspect sample cup, lid and slide to ensure they are clean and free of contaminates. o If not, clean with rag or absorbent paper towel/tissue. The use of a suitable solvent (acetone, white spirits or mineral turpentine) can be used to assist in cleaning if required. ▪ Close and Lock Lid.	**Caution**: Sample cup and surrounds may be hot if recently used for test. If a solvent is used, ensure that the cleaned areas are dry and vented to be free of flammable vapours prior to performing test.
↓		
Select and Set Target Temperature.	▪ If not already on, switch power on at wall and/or on instrument (see diagram 2). ▪ Press and hold down the set temperature button (left hand button, see diagram 1) until warning beep is heard and display changes to "Set Temperature". Then release button. ▪ Adjust the temperature using the control knob (see diagram 1) until the target temperature is displayed. ▪ Release control knob for 4 seconds to save the target temperature.	Target Temperature is 61°C for determining if a sample is flammable according to ADG7. Clockwise increases temperature, counter-clockwise decreases temperature. Cup will now start to heat up to target temperature.
↓		
Allow Sample Cup to Heat Up and Stabilise at Target Temperature	▪ When target temperature is reached a warning beep will sound and the display will change to "Ready."	**Caution:** Sample cup and surrounds may be hot.
↓		
Prepare and Inject Sample	▪ Shake sample bottle to ensure a homogeneous sample. ▪ Remove lid and draw 2ml of sample into the glass syringe. ▪ Inject sample into cup via the filler orifice on flashpoint. Apparatus (see diagram 1) by completely depressing the plunger on the syringe. ▪ Then securely close lid on sample bottle.	Ensure lid on sample bottle securely closed prior to shaking sample. Ensure syringe is clean and dry. Do not inject sample with the pilot or test flame lit.
↓		
Start Timer	▪ Press the timer button (see diagram 1) on flashpoint apparatus ▪ A countdown will show on the display.	Timer will be set at 1min for <110oC and 2min for >110oC
↓		
Switch on Gas and Light Pilot and Test Flames	▪ Switch on gas supply. ▪ Light the pilot and test flames (see diagram 1) ▪ Adjust the test flame with pinch valve (see diagram 1) to approximately 4mm.	Test flame guide is stamped on the shutter plate. Do not walk away with the gas on to the pilot light.
↓		

Flash Point Test Method A: Flash or No Flash at a Specific Temperature (e.g. 61°C)

TASK	ACTION	ALERT
Apply Test Flame to Sample	▪ When countdown reaches "0" seconds a warning beep will sound. ▪ Slide shutter handle at an even pace fully open and closed over a period of approximately 2.5 – 3 seconds. ▪ Observe the sample for a "flash" as the flame is applied.	After timer beeps, check that temperature is stable at target temperature before testing. The Setaflash Series 3 Plus apparatus has an automated flash detector and will report a detected flash on the display.
Record the Result	▪ Record the result, "Flash" or "No Flash" at the selected temperature (eg No Flash at 61°C).	
Shut Down Apparatus	▪ Turn off gas supply to the pilot and test flames. ▪ Turn off power to test apparatus.	
Clean sample Cup and Prepare Apparatus for Next Sample	▪ Unlock and open sample cup lid. (See diagram 1) ▪ Clean with rag or absorbent paper towel/tissue. The use of a suitable solvent (acetone, white spirits or mineral turpentine) can be used to assist in cleaning if required. ▪ Close and Lock Lid. ▪ Clean the syringe ready for the next test by flushing 2-3 times with a suitable solvent, discarding the solvent between each flush, then allowing the syringe to air dry with the plunger removed.	**Caution**: Sample cup and surrounds may be hot if recently used for test If a solvent is used ensure that the cleaned areas are dry and vented to be free of flammable vapours prior to performing test.

Diagram 1

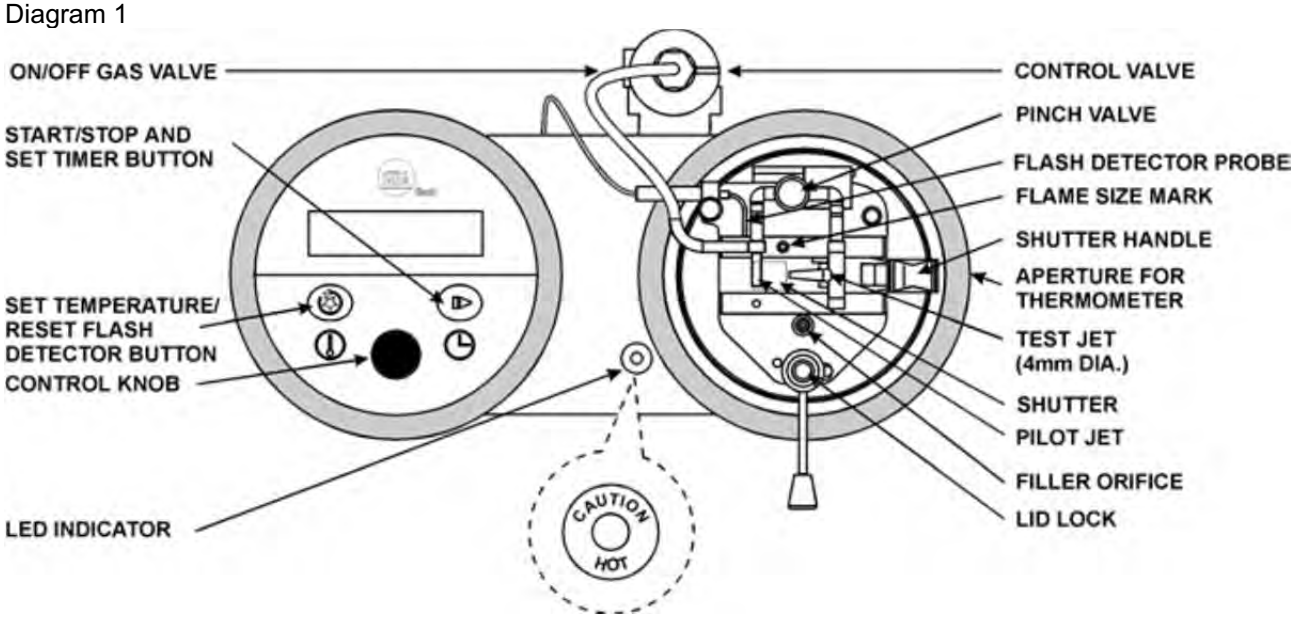

Diagram 2

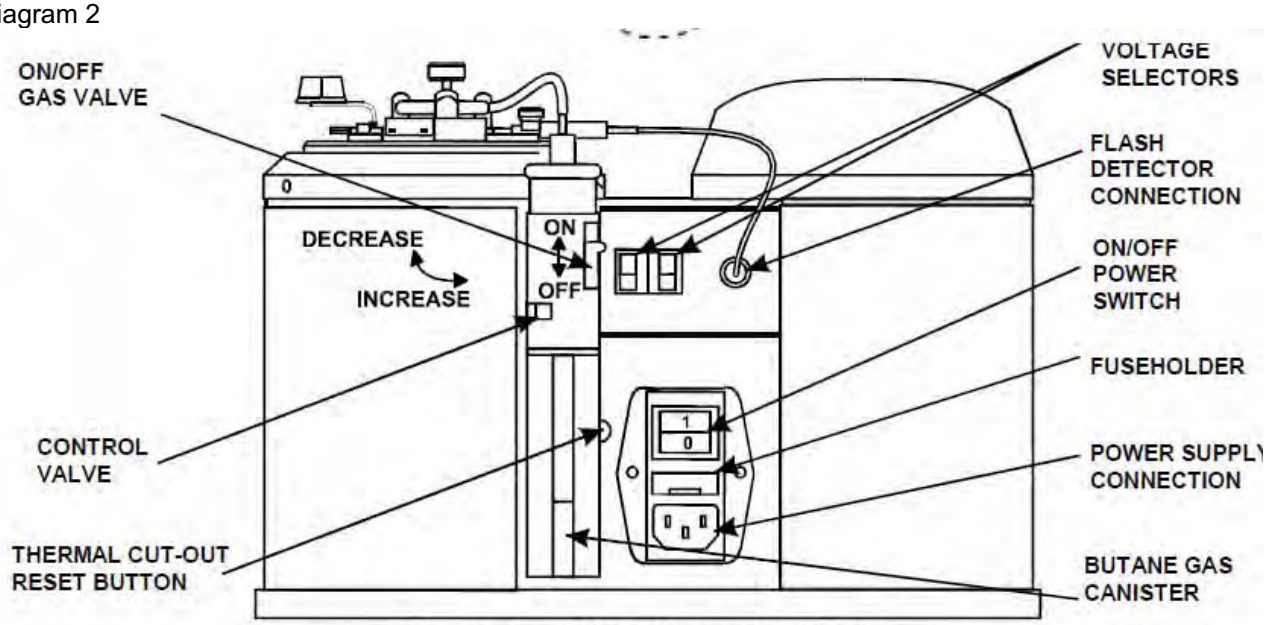

Figure 2 Main Component Parts

Personal Protective Equipment (PPE) Issue for Yardman (see SBMP Section 10.06)
The operator must wear rubber gloves when operating the Tank Farm.

Spill Kit (see SBMP Section 10.05)

General Instruction
Always advise Tank Farm Operator of your arrival and what you unloading.
Always flush sight glass before use, use the high pressure hose.
Always ensure Liquid Waste to be loaded can be disposed of at designated disposal facility, check with operations is unsure.

Purpose
The purpose of this procedure is to give tanker operators/drivers a step by step safe instruction on unloading and unloading liquid waste products in to and from the JJR liquid waste storage facility

Note:
Ensure all defective equipment is reported immediately to site manager
- Do not use faulty equipment (leaky hoses, fittings etc.)
- Clean up all spills immediately
- Ensure site is left clean

Procedure Flowchart

TASK	ACTION	ALERT
Unloading Tankers on site	1. Drive vehicle in to bunded area. 2. Connect 4”hose from plant inlet pipe to discharge fitting on truck (ensure cam lock connections are secure *both ends*). 3. Open venting valve on vehicle to be unloaded. 4. Check sight glass on receiving tank to ensure there is adequate space for load to be discharged (if insufficient space is available refer to GS2). 5. Ensure water for pump is turned on. 6. Switch vacuum pump control to vacuum. 7. Turn vacuum pump on. 8. Wait for vacuum pressure to reach 48-50 kpa. 9. Open inlet valve on receiver tank. 10. Open valve on tanker. 11. Monitor sight glass on receiver tank to ensure overfilling does not occur. 12. Fill receiver tank to 50mm below top of tank (this ensures adequate time to shut off vacuum) If more room is required refer to GS2. 13. Once tanker is empty close discharge valve. 14. Suck air through 4”hose to clear line. 15. Disconnect 4” hose 16. Close valve on receiver tank. 17. Clean and hose off area after unloading. 18. Use whiteboard to indicate available volume in receiver tank for following drivers.	

TASK	ACTION	ALERT
Transferring product from Receiver Tank to Tank Farm	1. Set Vacuum pump to pressure setting. 2. Set receiver tank valve to discharge. 3. Always ensure “C” valve is shut. 4. If discharging from bottom “A” and ”B” are to be open. 5. Open valve on nominated tank to fill. 6. Switch on pump. 7. Once tank is full or nominated amount has been decanted close the valve and switch off pump. 8. Put receiver tank valve back to vacuum. 9. Set vacuum pump to vacuum.	
Loading	1. Plug power cord from tank farm into power outlet on B-Double trailer that is to be filled. 2. Connect 4” hose to trailer and open main valves and compartment valve(s) that are to be filled. 3. Open vent cap on trailer. 4. Open valves on tank/s at tank farm that are to be emptied. 5. Open valve ‘A’ and ‘C’ at tank farm. 6. turn switch on control panel to ‘Load’. 7. Turn on load pump at control panel. 8. Fill compartment/s to the required level using sight glass. 9. Once compartment/s have reached the required level, close compartment valve(s). 10. Turn off load pump and put switch back to ‘Vacuum’. 11. Close valve ‘A’ and open valve ‘B’ (B and C open). 12. Start vacuum pump. 13. Suck air through 4” hose to clear line. 14. Disconnect 4” inch hose 15. Close valve ‘B’ and ‘C’. 16. Clean and hose off area after loading.	