HAZARD ANALYSIS REPORT

For

KLEKIES PTY LTD

At

81 - 85 CHRISTIE STREET

St MARYS

N.S.W.

Prepared by:-M.J.S. Dangerous Goods Solutions

Authorised by:- **Brian Eggleton**

Date:- **August 2006**

TABLE of CONTENTS

1.	**Executive Summary**	**Page 3**
2.	**Findings and Recommendations**	**Page 4**
3.	**Site Description**	**Page 5**
4.	**Location**	**Page 6**
5.	**Process**	**Page 6**
6.	**Hazardous Material**	**Page 7**
7.	**Hazard Identification**	**Page 7-11**
8.	**Consequence Analysis**	**Page 11**
9.	**Estimation of the Likelihood Of a Hazardous Events**	**Page 11**
10.	**Presentation of Risk Result**	**Page 12**
11.	**Risk Assessment**	**Page 12**
12.	**Conclusion**	**Page 13**
13.	**Appendixes**	**Page 14**
14.	**Fire Safety Study**	**Page 15-26**

1. Executive Summary and Recommendations

Purpose and Scope of the Hazard Analysis

The purpose of this HAZARD ANALYSIS is to show that although the Klekies Pty Ltd proposal exceeds the thresholds set down by a SEPP 33, the proposed development will meet and satisfy the local government concerns of it being a major hazardous site.

The Hazard Analysis has been prepared by Matt Sawtell Principal of MJS DANGEROUS GOODS SOLUTIONS an accredited dangerous goods consultant with AIDGC.

A SEPP 33 was prepared for Klekies Pty Ltd, this clearly showed that the only part of the operation, preformed at Klekies Pty Ltd that exceeded the thresholds set out in a SEPP 33 was in relation to vehicle movements.

The goods being carried into and out of the site are CLASS 9 UN 3082 “Environmentally Hazards Substance, Liquids, N.O.S.”. The goods are non dangerous except and are not considered a threat except to the environment, that is if they were to be spilt into any water course. There is no watercourse adjacent to the site.

The Scope of this Hazard Analysis is to show that all conceivable hazards have been examined and the possibility of these goods entering the environment is unlikely.

The approach used is a tried and true approach utilizing Risk Analysis techniques to work through and over come and any for seen risks that might occur during the operation and occupation of the site by Klekies Pty Ltd.

A fire safety study has been done and is detailed in section on the site and this clearly shows that Klekies Pty Ltd has taken everything into account in the construction and proposed operation of this facility.

2. Findings and Recommendations

The fire safety study has identified all of the products being stored in the tank farm along with the hazards that may pose a threat during the operation of the facility.

In relation to the possibility of spills we found that Klekies Pty Ltd have taken all possible scenarios into consideration and have mitigated them altogether.

Traffic flows in and out of the site have been analysed, and our recommendations will reduce the likelihood of any traffic accidents.

We would recommend this project go ahead, as it has been presented to us.

Yours faithfully,
MJS Dangerous Goods Solutions

Matt Sawtell
Principal

3. Site Description

The site is located on Christie St, St Marys in an Industrial suburb of Penrith City Council. Klekies Pty Ltd will occupy the rear of 81 – 85 Christie Street St Marys.

There are two other industrial units on the site, and the activities of these are independent and will not affect the operation of Klekies Pty Ltd.

The Klekies tank farm operation will be separated from the other two by a chain wire boundary dividing fence. The site has its own fire fighting hydrants, and plenty of room for truck movements.

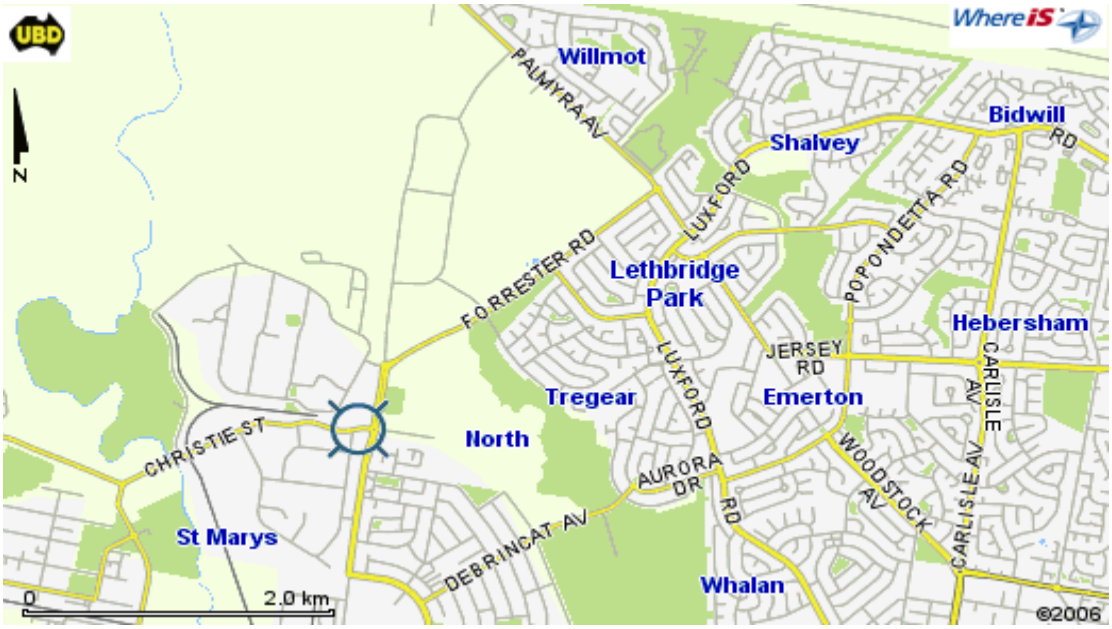
A fully bunded tank farm is to be built 3 metres from the North Western boundary of the site. The adjacent land is vacant and is a disused railway spur line siding.

The site will be used as a collection point for black oil, recycled engine oils and waste transformer oils.

Trucks of 6,000 to 12,000 litres capacity collect the used black oil from Klekies customers in the Sydney Metropolitan Area and pump the oil into the storage tanks contained and positioned within the fully bunded area. The tanks will store different grades of used oils, hence the number of tanks in the tank farm.

The stored oil will be transferred from the tank farm into B-Double trucks and transported to the manufacturing plant located in Wagga Wagga for processing.

A location map supplied by UBD maps is attached to show the surrounding roads etc.



The location of the site on Christie St is above the “s” in Christie St.

4. Location.

South creek is four hundred meters to the West of the site and does not present any threat to the operation of the site by Klekies Pty Ltd. If a flood were to occur, the concrete bund will protect the tanks from the flood waters.

The vacant land behind the site does not present any threat other than the possibility of a fire, with this in mind a clear barrier of some 1.7 metres will be left from the boundary fence before the bund wall and then the first tank shall be another 1 meter off the internal side of the bund wall.

The neighbouring land to the east of the site has a concrete manufacturing plant on it, and this will not present any problems to the process being carried out by Klekies Pty Ltd.

There should be 5 people working at the site at any one time, and the site will be locked during non working hours.

The Fire Safety Study which is attached to the end of this report in section 14 covers these types of requirements in greater detail.

5. Process.

The process being carried out by Klekies Pty Ltd is as follows.

The tank farm is completely bunded and the tanks are to store different types of used oil or more commonly know as “Black Oil”.

The black oil is collected from all over Sydney in 6,000 to 12,000 litre trucks and brought onto site where it is pumped into the tanks within the tank farm.

The largest tank will contain 120,000 litres of black oil and the rest of the tanks will hold 55,000 litres of product.

A heat transfer boiler will be used to separate water and other contaminants form some of the black oil collected. These contaminants will be transferred to some of the other tanks and disposed of correctly.

B-Double trucks will come onto site and transfer product from the tanks within the tank farm into there compartments on the trucks for transport down to the processing plant located in Wagga Wagga.

The SEPP 33 included with this report indicates the number of truck movements for the site is 1,456 on a yearly basis.

6. Hazardous Materials.

The black oil is classed as Non Hazardous, it is a CLASS 9 UN3082 "ENVIRONMENTALLY HAZARDOUS SUBSTANCE LIQUID, N.O.S."

It is only hazardous to the environment, it is non dangerous or likely to burn except in an extreme temperature fire, that is a fire with a temperature exceeding the flash point of the stored product.

7. Hazard Identification List [HIL].

The hazards that have been identified are list below

A. Fire

B. Spills

C. Truck Movements

D. Explosions

E. Floods

F. Neighboring Sites

G. Malicious Acts

H. Operations

A. FIRE.

A fire safety study for the site has been completed and is contained in section 14 of this report.

B. SPILLS.

The threat of a spill is a major consideration for the construction of this facility. The Australian Standard AS 1940-2002 "The Storage and Handling of Flammable and Combustible Liquids" has been the guideline for the tank farm construction and operation.

SPILLS. (continued)

The bund around the tank farm is the main line of defense against spillage and contamination of the environment in the operation of Klekies Pty Ltd. The bund has been designed to hold some 560,000 litres of liquid, this is well above the requirements set at 10% of capacity detailed in ***AS 1940-2002. clause 5.8.2 Capacity.***

"The net capacity of a compound shall be at least the capacity of the largest tank. The capacity of on – site containment shall be increased to include the output of any fire water over a 20 min period. If two or more tanks are operated as a single unit, then the capacity of all such tanks shall be used when calculating the capacity of the compound."

The largest tank is 120,000 litres capacity and the size of the compound will allow for over 4 hours of fire water to be pumped.

The bunded area will be constructed with a concrete floor slopping towards a sump which will allow the removal of any spilt product. This spilt product will be pumped into one of the holding tanks inside the bund and then disposed of in a correct and proper manner.

A bunded area will also be constructed around the area in which the delivery trucks will sit while discharging there loads into the tank farm. This bunded area will be covered to stop rain water from entering the system, and the system will be able to handle approximately 10,000 litres, which will be 60% more capacity than that of the individual compartments on the collection truck. It will also be 20% more than the compartments on the trucks being used to move the product to the processing plant in Wagga Wagga.

The transfer pumps used to pump the product from the trucks to the tanks and vice versa are located inside the bund; if they spring a leak then the spill will be contained by the bund.

The tank farm bunding and the truck standing transfer bunding will cope with any spills and will contain them. No product will or should escape off the site.

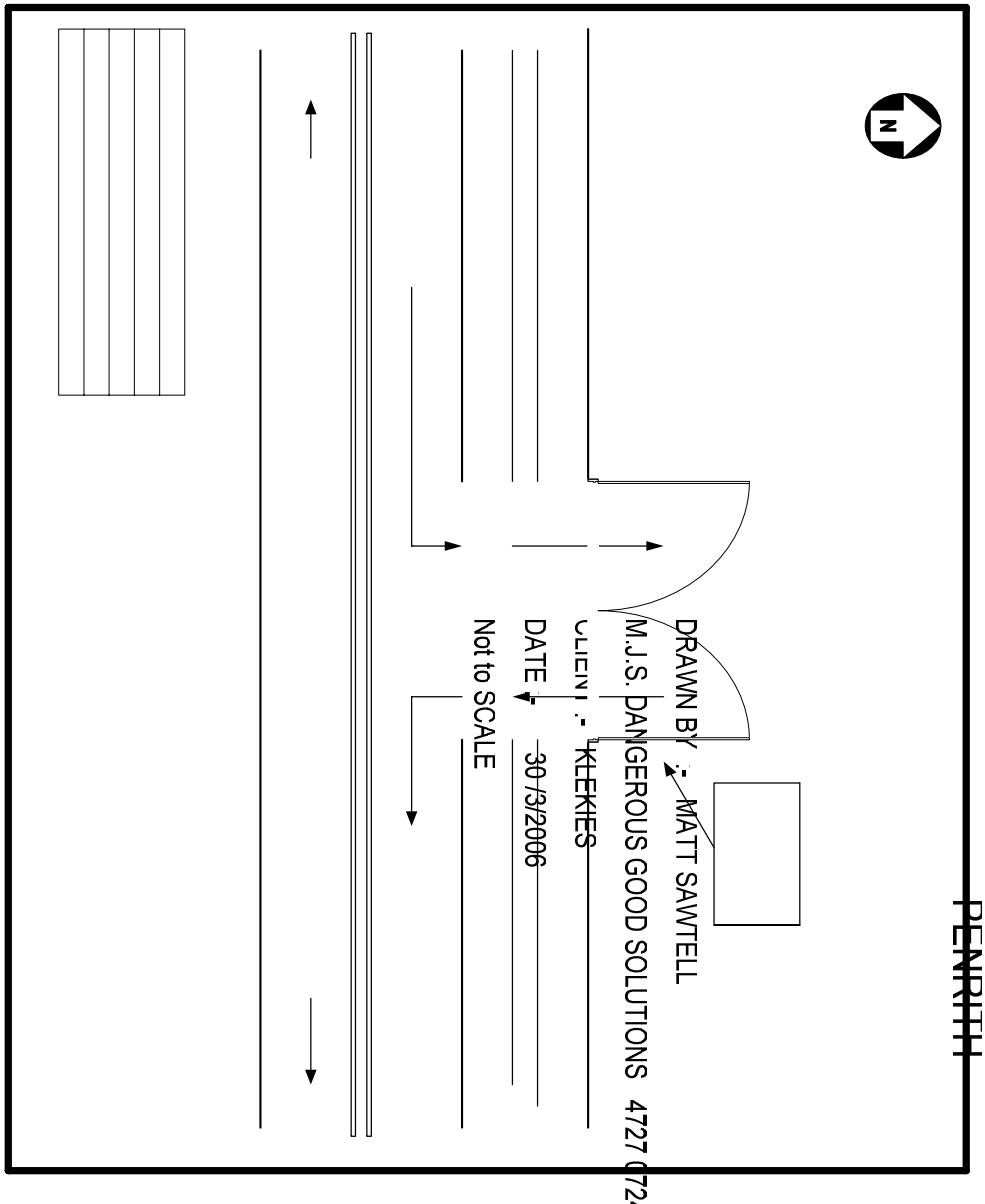
Around the site four spill kits will be located just to cover the possibility of a small spill should one occur. The spill kits will be sign posted and all staff will be trained to operate them correctly.

C. TRUCK MOVEMENTS.

The trucks entering and leaving the site are to enter from the West, and leave the site towards the East.

These instructions are written into the Safety Manual for the site, which every employ shall read and sign. They will also be given to every contractor on a purchase order before they enter the site.

A sketch map of the correct way to enter and exit the site follows.



The proposed truck movements will reduce the possibility of a vehicle accident involving Klekies trucks turning across Christie Street, and will allow the Klekies drivers a better view of the oncoming traffic.

D. EXPLOSIONS.

There is nothing on the site that could explode; the workshop may contain tools, compressors or gas cylinders which have not been taken into consideration in this assessment.

Any explosion would not cause any real problem to the site. The products being stored in the tank farm do not have the right characteristics to cause an explosion; it would take an intervention from another force with temperatures over 100 degrees C over a long period of time to create a fire.

E. FLOODING.

South Creek is approximately 400 meters to the West of the site. A levee bank between South Creek and the site would keep the water away from the site in normal flood conditions. Even if the levee bank does not stop the rising water the bund will protect the tank farm from flood water.

The bund wall is 600 mm high, and will be higher than the Flood level determined by Penrith City Council and shown in the proposed storm water concept plan from Kneebone Beretta and Hall attached to the EIS. The tanks themselves are 2.7 meters in diameter and are 800 mm above the tank farm floor.

The tanks will not move and float away as they will be bolted to the foundations.

F. NEIGHBOURING SITES.

The site to the South of the proposed site is already in use with two manufacturing businesses operating; both of these sites do not pose any problems to the proposed Klekies tank farm site

The sites to the West and North are vacant land and only fire is a threat which is covered in the fire safety study in Section 14.

The site to the East is a concrete plant which does not cause any problems to the proposed Klekies tank farm site.

G. MALICOUS ACTS.

The possibility of a malicious act is real, and the site has been constructed to cover such a contingency.

The capacity of the bunded tank farm is over 560,000 litres, even if all the tanks were full and the product allowed to escape the bund would still contain the entire product.

The total capacity of the all the tanks is 540,000 litres and no product would be able to enter the environment.

H. OPERATIONS.

The likelihood of a mishap at the Klekies tank farm is minimal due to the controls that have been implemented both in the design of the tank farm and the day-to-day operational procedures and methods employed.

Safety Manuals have been produced for every operation that happens during the working hours, and the staff, are fully aware of these, and of the material safety data sheets on the products that they handle everyday.

8. Consequence Analysis

The Consequence Analysis has been done as the last section of this report. During the preparation of the Hazard Identification List the 'worst case scenarios' have been assumed and the possibility of any other incidents that may happen is very unlikely.

The possibility of any harm to the local population is extremely unlikely, the product is not harmful to anything except the environment, and the controls to keep it away from the environment have been developed and put into place.

9. Estimation of the likelihood of Hazardous Events.

The control of the product escaping into the environment via the tank farm will not happen because of the controls put in place with the construction of the bund wall around the tank farm.

The only likelihood of a Hazardous Event occurring would be during the movements trucks in and out of the site.

The likelihood of a truck accident entering and exiting the location is real, which is why Klekies Pty Ltd has implemented the following traffic movement recommendations.

Trucks are to enter the site from a Westerly direction along Christie St and turn left into the site, proceed to the truck loading or unloading area, then return to Christie St and turn left onto Christie St leaving in a Easterly direction.

A sign stating the correct way to exit the site shall be placed on the left hand side of the gate way leading out of the site.

This should reduce the possibility of a truck turning across Christie St into the path on a coming vehicle.

10. Presentation of Risk Results

The risk results presented in this report have been prepared based on all possible occurrences that might happen during the operational hours of Klekies Pty Ltd.

The qualitative and quantitative criteria risk to people has been assessed and deemed to be extremely low.

The product being handled is not harmful to anything except the environment, and if it does escape, then it will be controlled and managed because of the design controls of this facility will stop the product from entering the environment.

The product will not explode, it will not burn with out extreme heat from temperatures well in excess of the used oil flashpoint.

A flood is not a threat, the only possible risk to people would be an accident of a truck arriving or leaving the site, hence the rules for truck movements.

11. Risk Assessment

All risk have been assessed and expanded upon through out this report, and once again the only real risk to people is the risk of an accident with a truck entering or leaving the site.

This problem has been address and the correct action has been taken to rectify and reduce the possibility of an accident.

12. Conclusion

This proposed development for Klekies at 81 to 85 Christie St, St Marys does not present any threat nor is it in anyway harmful to the people in and around the site.

The product that Klekies Pty Ltd handles is only harmful to the environment. The controls that Klekies Pty Ltd are putting in place will reduce the likelihood of exposure of this product to the environment.

We cannot see any reason why this project should not go ahead.

Yours faithfully,
MJS Dangerous Goods Solutions

Matt Sawtell
Principal

13. Appendixes

The following material was used in reference to the report.

Australian Standard	AS 1940-2002	"The Storage and Handling of Flammable and Combustible Liquids"
Australian dangerous Goods Code		Volume II
Guidelines for Hazard Analysis		Hazardous Industry planning Advisory Paper No 6
Applying SEPP 33		Hazardous and Offensive Development Application Guidelines
Protection of the Environment Operations Act 1997		

This report was compiled by Matt Sawtell:- Accredited Dangerous Goods Consultant, and member of Australasian Institute of Dangerous Goods Consultants, and Brian Eggleton, Business development Manager Southern Oil Refineries.

Matt has over twenty five years experience with the fuel industry and Brian has over thirty years experience with oil recovery systems.

Fire Safety Study

For

KLEKIES Pty Ltd

Proposed Tank Farm

Class 9 Products
UN 3082

Environmentally Hazardous Substances, Liquid, N.O.S.

At

81 to 85 Christie St

St Marys

2760

N.S.W.

Table of Contents

1.	Summary of Main Findings & Recommendations	page 16
2.	Scope of Report	page 16
3.	Description of Facility	page 16
4.	Hazards Identified	page 17
5.	Consequences of Incidents	page 18
6.	Fire Prevention Strategies/Measures	page 20
7.	Details of Detection and Protection	page 22
8.	Drawings of Fire Services Layout	page 24
9.	First Aid Fire Protection Arrangements and Equipment	page 25
10.	Site Location Sketch	page 25
11	Site Layout Diagram	page 25
12.	Proposed Manifest & Appropriate MSDA	page 25
References		page 26
Appendix		page 26

1. Summary of Main Findings & Recommendations.

It is proposed that a tank farm be installed at 81 to 85 Christie St, St Marys. The farm will be constructed to Australian Standard AS 1940-2002 "The Storage and Handling of Flammable and Combustible Liquids". The tank farm shall comprise 6 x 55,000 litres on ground storage tanks 1 x 120,000 litres on ground storage tank and 2 x 45,000 litres vertical storage tanks.

The materials are Class 9 products and they need to be stored in a secure and safe way. The proposed construction of this tank farm complies with the relevant Australian Standards and other site safeguards, sufficiently reducing the risks to a manageable level.

2. Scope of Report.

This report is being prepared to support a Development Application being submitted to The Department of Planning and Penrith City Council. It shall also be an initiative of the Company's safety upgrade.

3. Description of Facility.

The site is located at lot No 132 in DP 31912 known as 81 to 85 Christie St, St Marys N.S.W.

The site consists of a brick and corrugated iron building along with a concrete factory and a corrugated shed. To the North of this shed will be the location of the tank farm.

A 2 m high chain wire security fence surrounds the site. There is one set of double gates to the property for entrance and exit from Christie St and another set of entry and exit into the tank farm. To the front of the property is a landscaped area which contains the fire supply piping, this is located on your right as you enter.

A warehouse office block shall be built on the southern site boundary fence. It shall be 30m x 15m and constructed in metal cladding with some precast concrete panels and a metal deck roof.

The tank farm shall be located some 15 meters to the west of the warehouse office block and shall be constructed to comply with Australian Standard AS 1940-2002.

3. Description of Facility (continued)

The tank farm is designed to handle B- Double tankers, and the design calls for a bunded loading and unloading area designed to be able to handle a spill of 8,000 litres from the largest compartment of any of the trucks.

The company will collect, store and ship enough Class 9 product on a daily basis to have 25 x 8 ton truck movements and 3 x 42 ton truck movements per week.

(a) Accessibility

During working hours, good access is provided with the gate to the tank farm open and the office being manned.

After hours access will be via the front gate to the complex.

A fire hydrant is located within the bunded area of the tank farm and another located half way down the site close to the fence line on the Western boundary.

A hydrant is located directly across from the entrance exit to the site and another located between the front two buildings.

4. Hazards Identified.

The hazardous Goods involved in the proposed storage are classified as Class 9, Environmentally Hazardous Substances liquid, N.O.S.

The materials consist of: -

Un Number	Chemical Name	DG Classification	Quantity
UN 3082	Reused Oil	Class 9	480,000 L

Great Danger	Packaging Group 1	(PG 1)
Medium Danger	Packaging Group 11	(PG11)
Minor Danger	Packaging Group 111	(PG111)

The goods to be stored at Klekies have no PG group, and therefore don't present any fire risk to person or property.

5. Consequences of Incidents.

(a) Likelihood of a major hazardous incident

The likelihood of a fire happening at the Klekies property is minimal due to the controls that have been implemented both in the design of the storage Depot and the day-to-day operational methods employed.

(b) Fire Scenarios

i. Adjacent fire

The most likely scenario for a fire to affect the Depot would be for a fire to start in or on adjacent land. The point that has to be remembered is that the product being stored is only classed as hazardous to the environment it does not easily burn and would require a fire of 100 degrees or more to ignite the product being stored in the tanks.

The tank farm is located at the rear of the property and an abandoned railway line is directly to the rear and on the North Western side of the site, beyond the railway land is the Dunheved Golf Course.

The bund wall for the tank farm is set back 1.7 meters off the North Western boundary and the actual location of the closest tank to the inside of the bund wall on that side is some metres away . The tank located on the Eastern side of the tank farm is approximately 50 meters from the Eastern boundary. This distance should be plenty to cope with a grass fire.

A fire from the brick and corrugated building on the Western side of the site would have approximately 15 meters to travel before it came into contact with the closest storage tank and the concrete building fire would have approximately 40 meters to travel. This distance should be plenty to cope with a fire.

ii Tank farm fire

For a fire were to start in or at the tank farm, the following causes need to be taken into consideration.

Electrical Wiring causing the fire:-
This is not possible as all electrical wiring inside the bunded area is designed and installed to meet AS 3000 Standard as per AS1940 – 2002.

Handling equipment causing the fire:-

All handling equipment to be used within the bunded area is to be intrinsically safe.

(b) Fire Scenarios (continued)

Arson causing the fire:-

This is not likely as the product being stored is Class 9 Non Hazardous material, only a fire above 100 degrees would ignite the product.

The tank farm is an open area comprising of some 932 square metres and has a bund wall constructed completely around the area.

There is a hydrant located on the southern eastern corner of the area.

The bunded area will contain 560,000 litres of fire water. If the fire fighting equipment supplied 2,280 litres of water per minute, then the bunded area will take 4.10 hours to fill with fire fighting water. The largest tank in the bunded area contains 120,000 litres of Class 9 product. This product does not have a PG number thus the product is not likely to catch fire.

The adjoining factory wall is built of precast concrete and should remain unaffected other than by smoke.

Smoke from a fire would be thick and acrid but not toxic, as a precaution nearby downwind residents should be evacuated.

Signs adjacent to the Depot will advise the Fire Brigade of types of chemicals involved in the fire, as will information transmitted to the Fire Brigade from WorkCover Stored Chemical Information Database (SCID) whilst the fire appliances drive to the fire.

The majority of any contaminated firewater is contained within the bunded area for pumping out and legal disposal. Some firewater may access the storm water drain in the forecourt, when it is safe to do so a sand dam would be built around the storm water grate. Damage from such a scenario would be limited to the Depot and immediate surrounding area.

(c) Harm to persons

The possibility of a person falling from the elevated walk way is very unlikely, even though the walk way is built to the relevant standards it is still possible for someone to fall down. The possibility of someone starting a fire because they fell down is extremely remote. The tanks are constructed to the standards, the product being stored has an extremely high flash point and no naked lights are allowed on site.

Ventilation is good and the chance of being overcome by fumes is small. A safety shower bay is close by and there are no close ignition sources.

6. Fire Prevention Strategies / Measures.

The main hazards associated with the storage of flammable and combustible materials would be the introduction of uncontrolled ignition sources and access to Restricted Areas by unauthorized personnel.

a. Potential & Control of Ignition sources

When loading or unloading any vehicle the engine must be switched off and must not be started whilst in the hazardous zone. The vehicle must stay outside any delineated hazardous zone.

No active or potential ignition source shall be introduced into a restricted area without written authorization. Portable electric equipment shall not be taken into a hazardous zone unless approved for use in such a zone or authorised by a Work Permit note.

All known ignition sources such as power outlets and light switches that don't meet AS 3000 Standard will be removed to a distance of three metres to the tank farm.

i. Engines

Only a compression ignition engine designed and certified to comply with AS2359 to operate in a hazardous zone may operate in a certified zone.

A compression ignition engine that doesn't comply with AS2359 shall not be operated in any hazardous zone and a spark ignition engine shall not be operated in any hazardous zone unless approved by a duly authorized hotwork permit issued in accordance with AS 1940-2002 and AS 1674.1.

Lawn mowers, trimmers, chainsaws and the like are spark ignition engines and in regard to the tank farm, shall not be started or run.

b. Static Electricity

The tanks within the tank farm shall be earthed. Earth straps shall be used in all product transfer operations as per the operation manual issued to all staff and contracting staff.

Earthing and bonding conductors for dissipating static will be robust able to withstand all mechanical /corrosive influences likely to occur in normal use. They will be attached by soldering, off site prewelding or suitable screwed terminations. Chains shall not be used.

The conductors shall be checked at regular intervals to ensure their electrical continuity.

c. Wearing Apparel (and footwear)

It is recommended that persons working in hazardous locations and liable to attain a charge in their normal work processes do not wear metal articles such as metal watchbands or bracelets. Finger rings are the only exception to this rule.

Care should also be shown in the choice of clothing. Clothing of synthetic fibres is prone to generation and accumulation of static unless regularly treated with antistatic solutions.

Static discharges are liable to emanate from such untreated clothing when worn loose fitting on the body, and from tight-fitting clothing as it is removed from contact with the skin.

Clothing of synthetic fibres or other non-conducting materials are not recommended in areas where flammable/explosive materials are present.

Unsuitable materials include the following:

(i) Nylon.

(ii) Pure wool and wool blends (unless antistatic).

(iii) Polyvinyl materials-especially if coated with a nylon base.

Clothing manufactured from the following materials is suitable:

(i) Cotton.

(ii) Polyester 50 percent and cotton 50 percent blend.

(iii) Polyester 65 percent and viscose 35 percent blend. (These are not recommended because of the tendency to cause injuries by melting in the event of a fire.)

Conducting footwear is recommended for use in areas where there is no risk of electric shock from supply mains. In order to ensure that the footwear is definitely conducting, the resistance shall not exceed 150 k W.

Leather-soled footwear may not always be sufficiently conducting to give protection against build-up of static. Care should always be taken to ensure that the antistatic or conducting properties of footwear are not impaired, e.g. by ageing or the formation of insulating layers such as oil or wax on the sole. The likelihood of the latter occurrence may increase if the footwear is worn outside the danger area. It is therefore recommended that the resistance of footwear be tested at regular intervals.

d. Depot Security

Strict procedures shall be established by Klekies Pty Ltd for the control of entry to any restricted area and the prevention of unauthorized access to the facility will be strictly controlled.

All tanks in the tank farm are kept closed unless in use for filling, measuring or emptying. No de-canting takes place in the Depot.

As a Zone 2 area (AS2430-1) the Depot is a Restricted Area and access to the Depot is to be by Authorised Personnel Only.

At all times the tank farm is unattended, it shall be kept closed and locked. By restricting access to trained personnel only, the hazards associated with uncontrolled access are avoided.

The Site Safety Manual outlines the Daily Fire Prevention Duties of the appointed Site Warden including:

- Housekeeping
- Combustible rubbish
- Ignition Sources
- Exit Lights
- Exit doors and hardware in good condition
- Exit routes unobstructed
- Fire Exits and Hose Reels accessible and ready for use

7. Details of Detection and Protection.

Ignition sources have been eliminated as a credible risk by means of:

- separation distances,
- the control of access,
- the control of on-site procedures and activities
- good housekeeping keeping the site clear of combustables.

The fire alarm system will comply with AS 1670 and AS1603.5.

Hardwired (flame proofed) smoke detectors will be fitted to the office and warehouse areas. The alarm will activate an audible alarm and a flashing light in the front of the building. The alarm systems will be capable of being manually activated at clearly identified positions.

7. Details of Detection and Protection (continued)

The warning signal of the alarm system shall be sufficiently distinguishable from other signals to permit ready recognition, and shall be clearly audible throughout the installation.

The power supply for the alarm system shall be independent of the main electricity isolating switch for the area and have a battery backup attached.

a. Physical Damage

Physical damage arises mainly from vehicles - most commonly damage occurring when trucks are arriving and departing. The solutions to this potential threat are:

- impact protection,
- the choice of a safe location,
- appropriate signage.

An accidental on-site fire is dealt with by preventative measures and procedures.

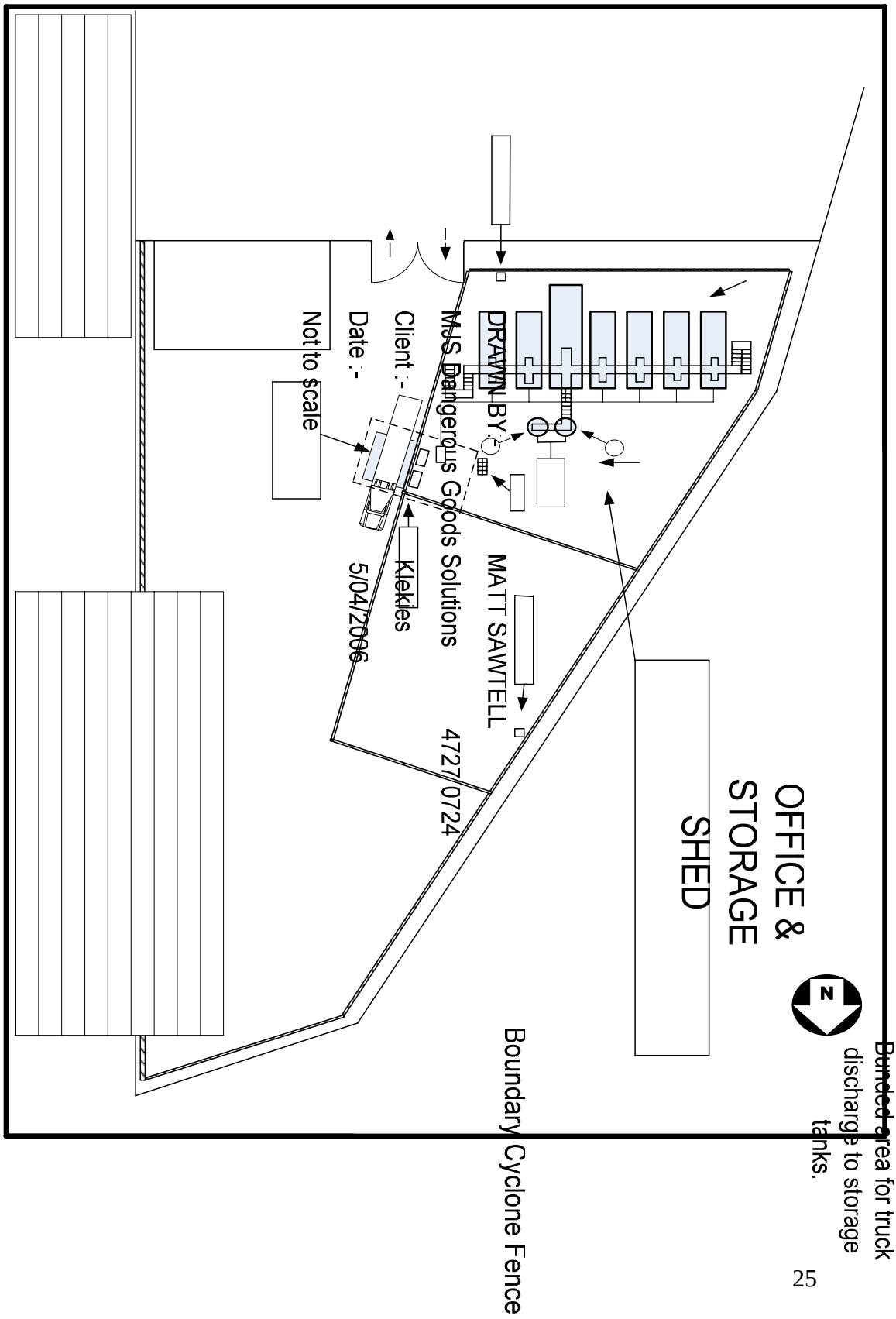
Liquid spills at the Depot, are prevented from becoming a major hazard by bunding of the Depot, containment bunding in the warehouse, grading of surfaces, and other spillage controls.

Spill Kits will be positioned at strategic locations adjacent to the Depot and the areas where the material is loaded or unloaded to vehicles.

The proposed construction of a complying bund to the tank farm and other site safeguards to be undertaken sufficiently reduces the risks to a manageable level.

8. Drawings of Fire Services Layout

As per attached drawing of Fire Services Layout Plan



9. First Aid Fire Protection Arrangements and Equipment

Site-specific safety manuals are available dealing with:

- storage and handling of flammable and combustible materials
- emergency action plans including first response fire fighting
- site evacuation.

Key staff will undergo specific training for first response procedures.

All staff involved in the handling of dangerous goods will be made aware of the workplace hazards by referral to the site safety manuals and current Material Safety Data Sheets, which will be kept on site. All necessary signage for identification will be in place as specified by consultants.

As detailed on the site plan, the installation of fire extinguishers, hose reels and street hydrants are clearly marked.

Additional fire extinguishers will be installed in accordance with Regulation AS1940-2002 Section 11.4 and Table 11.1

Adjacent to the tank farm will be 2 x 9kg 2A60 B (E) dry chemical fire extinguishers, and 2 x 9kg, 2A 20B foam extinguishers.

Access to the extinguishers will be kept clear at all times, a yellow line will be marked on the ground to delineate a no storage area in front of the extinguishers and the two existing Hose Reels in the warehouse area.

All fire extinguishers are maintained under an arranged contract.

An emergency services cabinet will be securely placed at the site main entrance, it will contain all relevant information about any Dangerous Goods stored on site. A key will be supplied to St Marys Fire Brigade.

10. Site Location Sketch

As per attached site location plan on page 27.

11. Site Layout Diagram

As per attached site layout diagram on page 27.

12. Proposed Manifest & Appropriate Material Safety Data Sheet

Product manifest, site plans, services, appropriate material safety data sheets and other relevant material will be kept in the emergency services cabinet adjacent to the main entrance, these will be updated regularly.

References:

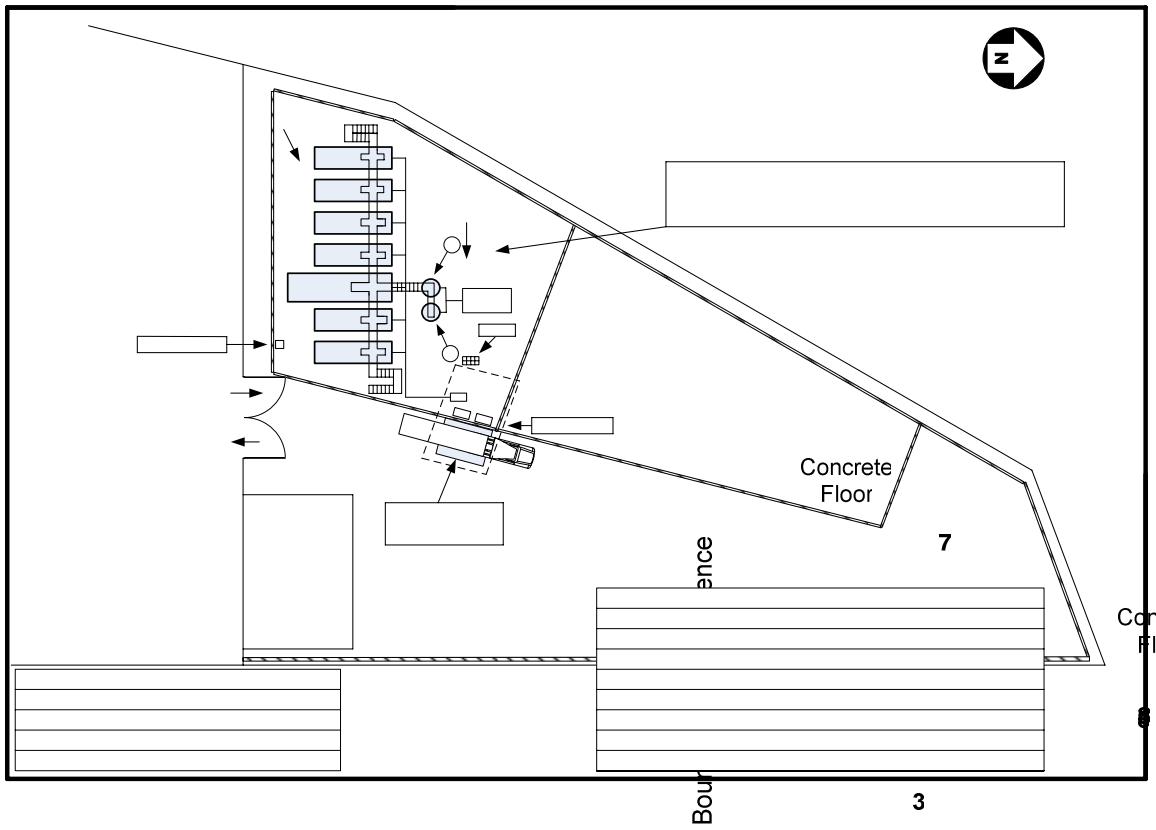
- DUAP Hazardous Industry Planning Advisory Paper - Fire
- DUAP Hazardous Industry Planning Advisory Paper - Construction
- Material Safety Data Sheets for the relevant products.
- Dangerous Goods (General) Regulation 1999 under the Dangerous Goods Act 1975
- Australian Dangerous Goods Code, Sixth Edition 1998.
- AS 1940-2002 "The storage and handling of flammable and combustible liquids".
- AS/NZS 1020-95 The control of undesirable static electricity
- AS2419 Fire hydrants installations
- AS2430 Classification of hazardous areas Part 1: Explosive gas atmospheres
- AS 3765-90 Clothing for protection against hazardous chemicals
- Australian Institute of Petroleum, Guidelines for Emergency Plans – 9

APPENDIX

Fire fighting media installed at Klekies 81-85 Christie St, St Marys

EXTINGUISHING AGENT	DEVICE	EFFECT	APPLICATION
Water	Hose reel	Cooling	Small To Large Fires Cooling Exposed Surfaces
Foam	Portable Extinguisher	Smothering Cooling	Flammable liquid Fires
Dry Chemical	Portable Extinguisher	Smothering	Small to Large Fires

SITE PLAN



SITE PL
KLEKIES P
81-85 CHRI
St MAR
N.S.W

Boundary Cyclone

Line of c

nded area for truck
scharge to storage
tanks

ndary Cyclone Fence

SITE LOCATION

The site is located just above the letter t in Christie St.

MJS Dangerous Goods Solutions 4727 0724
Client - Klekies
Date - 5/04/2006
Not to scale