



**REGIONAL HAZARDOUS WASTE
WORKING PARTY**

**GUIDELINES FOR THE SITING,
CONSTRUCTION AND USE OF
SHORT TERM HAZARDOUS
WASTE STORAGE FACILITIES**

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1 INTRODUCTION

The Canterbury Hazardous Waste Management Strategy (the Strategy) was released in May 2001. The implementation of the Strategy is the responsibility of the Hazardous Waste Working Party (HWWP), which includes representatives from Environment Canterbury and the Territorial Local Authorities (TLAs) in Canterbury.

As part of the Canterbury Hazardous Waste Management Strategy, the HWWP wants to provide information to the TLAs on the siting, construction and management of facilities for the short-term storage of hazardous wastes at transfer stations or resource recovery parks (TS/RRPs).

Environment Waikato has prepared a guidance document for Local Authorities involved in the collection of hazardous waste entitled *Collecting Hazardous Waste - A Guideline for Local Authorities* (Environment Waikato, 1996). Since this document was prepared there have been a number of new developments that impact on hazardous waste management in New Zealand, such as:

- The hazardous substances provisions of the Hazardous Substances and New Organisms Act 1996 (HSNO Act) coming into force.
- Publication of the Centre for Advanced Engineering (CAE) document *Management of Hazardous Waste* (CAE, 2000).
- Release of *NZS 8409:1999 Code of Practice for the Management of Agrichemicals* (which superseded NZS8409:1995 Agrichemical Users Code of Practice).
- Publication of the *Guidelines for the Management and Handling of Used Oil* (MfE/OSH 2000).

Tonkin and Taylor Ltd (T&T) has been engaged by the Canterbury councils to prepare an updated guideline document on the siting, construction and use of a short-term hazardous waste storage facility for use by TLAs in the Canterbury region based on the Environment Waikato report.

This report has been prepared in accordance with the Contract for Services dated 2 May 2002 and included in Appendix A.

2 QUANTITIES AND TYPES OF WASTES

2.1 Waste Quantities

It is very difficult to predict the quantity of hazardous waste that will be received at a Transfer Station/Resource Recovery Park (TS/RRP). There is a range of factors influencing waste quantities, such as:

- The extent and penetration of public education
- Whether there have been any previous collections
- Local population and travel distances

The quantity of domestic hazardous waste expected to be present within each district has been estimated by assuming a 1-2% level of hazardous waste in the general waste stream (Opus, 1997).

Another estimate of domestic hazardous waste quantities has been carried out using data from hazardous waste collections in other regions (T&T, 2002). This is based on a campaign approach (such as a HazMobile or advertised collection day) and assumes a 2% response rate from the local population and an average quantity of 20kg per participant. It is assumed that people will travel around 15km to dispose of their household hazardous waste. The number of households in the catchment for each collection site has been estimated from the 2001 census of occupied dwellings. Banks Peninsula District Council and Waimakariri District Council have provided their own data on the number of households served by the Transfer Stations.

The results of these two approaches to estimating the likely annual quantity of hazardous wastes are summarised in the following table.

Table 2.1 Estimate of Domestic Hazardous Waste Quantities

District	Collection Site	Number of Households	Domestic Hazardous Waste (Tonnes/Year)	
			T&T, 2001	CRC, 1997
Ashburton	Ashburton RRP	6,931	2.8	5
Banks Peninsula	Lyttelton Service Centre	1542	0.6	
	Akaroa Service Centre	935	0.4	2
Christchurch	Styx Mill RRC	41100	16.5	21
	Metro Place RRC	41100	16.5	21
	Parkhouse Rd RRC	41100	16.5	21
Hurunui	Amberley (Hurunui Recycling)	870	0.3	2
Kaikoura	Kaikoura RRC	970	0.4	1
Mackenzie	Twizel T/S	543	0.2	1.5
	Fairlie T/S	322	0.1	
	Tekapo T/S	150	0.1	
Selwyn		8376	3.4	5
Timaru	Timaru (Redruth TS)	3060	1.2	10
	Geraldine TS	2117	0.8	
Waimakariri	Rangiora Service Centre	10470	4.2	6.5
	Oxford TS	1510	0.6	
Waimate	Waimate TS	1575	0.6	1.5
TOTAL			65.1	96.5

For comparison, TLAs were asked to report the domestic hazardous waste quantities received at TS/RRPs (T&T, 2001). Christchurch City Council (which runs the only advertised drop-off facilities in the region) reported receiving about 6 Tonnes per year at each of the RRP's in the City (a total of 18 Tonnes per year). The Kaikoura RRP reported receiving about 0.5 Tonnes per year.

2.2 Composition of Domestic Hazardous Waste

The composition of domestic hazardous waste is also variable depending on the nature of the local community (e.g. urban versus rural) and other collection programmes in place, for example separate waste oil or agrichemical collections. It

is also likely to be influenced by the nature of advertising material, for example, the specific materials listed on publicity mail-outs.

The composition of domestic hazardous waste collected in Auckland (North Shore and Albany), Taranaki and Hamilton has been analysed to determine the range of likely composition of domestic hazardous wastes collected in Canterbury (T&T, 2002). The urban collections gathered proportionally more paints, and the rural collections proportionally more agrichemicals. Overall the results can be summarised in the following table.

Table 2.2 Estimated Composition of Domestic Hazardous Waste

Waste Type	Waste Composition (%)
Waste Oil	13 - 40
Household chemicals	5 – 11
Paints	14 – 50
Agrichemicals	5 – 50
Batteries	6 – 15
Other	0 - 5

3 LEGISLATIVE FRAMEWORK AND REQUIREMENTS

3.1 Introduction

There is a range of legislation relevant to the construction, siting and use of short-term hazardous waste storage facilities. Recent changes in legislation include the Hazardous Substances and New Organisms Act 1996 (HSNO Act) and associated Regulations and the Land Transport Rule: Dangerous Goods 1999.

The following checklist identifies the key issues that must be addressed if a facility is to achieve compliance with existing legislation.

3.2 Hazardous Substances and New Organisms Act 1996

3.2.1 General

The principal piece of legislation dealing with hazardous substances is the Hazardous Substances and New Organisms Act 1996 (HSNO Act) and accompanying Regulations, which came into force on 2nd July 2001. The hazardous substances part of the HSNO Act replaces the following previous legislation:

- the Explosives Act 1957
- the Dangerous Goods Act 1974
- the Toxic Substances Act 1979
- the Pesticides Act 1979 (with minor exceptions)

From 2nd July 2001, the controls on all substances that were lawfully in New Zealand (under the repealed legislation) remain unchanged under the Transitional Provisions until the substances are transferred to the main part of the Act (or the Transitional Provisions expire). The transferral process for all substances currently legally in New Zealand is expected to take up to 5 years.

All hazardous substances will be classified in accordance with their hazardous properties under the HSNO Classification system, which is similar, but not identical to, the UN Dangerous Goods classification system. A summary of the HSNO Classification system is set out in Appendix B.

In most cases, compliance with the repealed legislation will also mean compliance with the controls under the HSNO Act. However HSNO may place some additional controls, such as:

- Competency of handlers for very hazardous substances
- Tracking of extremely hazardous substances
- Emergency management
- Disposal

3.2.2 Hazardous Wastes and the HSNO Act

Under the HSNO Act, approvals from the Environmental Risk management Authority (ERMA) are required only for hazardous substances that have been manufactured in New Zealand or imported into New Zealand. A hazardous substance (or mixture of hazardous substances) that is a waste because it is “surplus to requirements” – for example old paint or agricultural chemicals – will be subject to the controls set by ERMA for that hazardous substance.

Approvals will not be required from ERMA for hazardous substances that have been produced as by-products of processes in New Zealand and that are wastes – for example process residues and sludges. However, the generation of such wastes is likely to feature in the weighing of risks, costs and benefits of the manufacture or use of the hazardous substances and controls may be imposed to address the adverse effects of the by-products. For example, ERMA may set controls on the disposal of waste oil as part of the HSNO lifecycle controls for oil.

Some of the wastes that may be received will be waste hazardous substances, while others will not be strictly covered by the HSNO Act, however they may have similar hazard characteristics and should be managed as if they were hazardous substances.

3.2.3 Hazardous Substances Regulations

Does the facility need to be established as a Hazardous Substance Location?

A “hazardous substance location” must be established if the quantity of flammable substances (Class 2, 3 and 4) exceeds the thresholds set out in the Hazardous Substances (Classes 1 to 5 Controls) Regulations.

Where a hazardous substances location is required, the person in charge must:

- Notify the responsible enforcement authority of the locality and capacity of the hazardous substance location;
- Where relevant, ensure that the substances will be under the control of an approved handler and that any container/building used to hold the substances is secured;
- Ensure that any test certification requirements are met;
- Ensure that a site plan is available for inspection;
- Where required, establish and manage a hazardous atmosphere zone.

Does the facility require a Test Certificate?

A short-term storage facility is likely to exceed the quantity thresholds to require a test certificate. For example, the storage of a combined quantity of more than 100 Litres of flammable liquids such as petrol, solvents or oil-based paint (Class 3.1 A, B or C) would activate the hazardous atmosphere zone requirements and a test certificate would be required.

Is there a requirement for an Approved Handler?

Where the quantities of certain types of hazardous substances exceed the quantity thresholds specified in the regulations, they must be under the control of an

Approved Handler or secured to a specified standard. An Approved Handler is a person who holds a test certificate that certifies that they meet the competency requirements specified in the Hazardous Substances (Personnel Qualifications) Regulations. It is likely that, at times, the facility will trigger the Approved Handler requirements (for example, the requirement will be triggered by many toxic or ecotoxic substances, such as certain agrichemicals).

A person who is not an Approved Handler may handle these hazardous wastes if:

- An Approved Handler is present at the place where the substance is being handled;
- The Approved Handler has provided guidance to the person in respect of the handling; and
- The Approved Handler is available at all times to provide assistance, if necessary, to the person while the substance is being handled by the person
- The Approved Handler could be a person who is not on the site at all times, however the Approved Handler would need to be on site whenever wastes are being handled.

What level of Emergency Management applies?

The Emergency Management Regulations provide for three levels of emergency management. The requirements for the higher levels include those required for the lower levels.

A short-term storage facility is likely to exceed the quantity thresholds to require a Level 3 Emergency Management (for example more than 100 Litres class 6.1A, B or C, which will include many agrichemicals). Level 3 emergency management is the highest levels of emergency management and includes requirements for the preparation of an emergency response plan, secondary containment and signage.

What degree of Tracking will be required?

Tracking is required for all highly hazardous substances except for corrosive substances. The record must meet the location and presentation requirements for documentation given in the Identification Regulations. That is, it must be accessible within 10 minutes and meet the performance standards for comprehensibility and clarity. The record must also be kept for a period of 12 months after the substance has been transferred to someone else. If substance is discharged into the environment or otherwise used or disposed of the record must be kept for 3 years.

The information to be recorded for tracked substances while they are on site is:

- The identity of the Approved Handler, if relevant
- The unequivocal identification of the tracked substance
- The total amount of the tracked substance that is under the control of the approved handler at any one time, i.e. as quantities of substances enter and leave the person's control, the record shall be updated.
- The location of the substance

When a tracked substance is transferred to the control of another person, the person transferring the substance shall record the following information:

- The unequivocal identification and amount of the substance transferred
- The address of the place and the identity of the approved handler to whom the substance is passed and the position of that approved handler within their organisation
- The date on which the transfer occurred

Before transferring a tracked substance from one place to another, the person in charge of the place where the substance is present, must receive confirmation that:

- There is an approved handler at the other place who holds a (current) relevant test certificate and who is prepared to accept responsibility for the substance
- If required, the other place has a test certificate for the amount and hazard
- Classification of the substance
- Any place where the substance is to be held during transit complies with the
- Requirements of the Emergency Management Regulations and, where relevant, the transit depot requirements specified in the Classes 1 to 5 Controls Regulations.

Are there any requirements under the Disposal Regulations?

There is a range of controls on the disposal of hazardous substances. If a TLA is undertaking disposal of hazardous wastes, for example by disposal to their own landfills or sewage treatment system, they will need to be aware of the disposal regulations and also the Tolerable Exposure Limits, Workplace Exposure Standards and Environmental Exposure Limits set for toxic and ecotoxic substances. In most cases, hazardous wastes collected at TS/RRPs are likely to be transferred to a waste contractor for disposal.

3.3 Resource Management Act 1991

Does the facility require land use consents?

Check the provisions of the District and Regional Plans and existing resource consents and/or Designation. If these do not permit the storage of hazardous wastes on site in the quantities required, a land use consent or Alteration to the Designation will be required.

A preliminary review of conditions on the Designations and district plan rules as they relate to management of hazardous substances at the Transfer Stations in the Canterbury Region has indicated that handling and storage of hazardous waste is generally a permitted activity, subject to performance standards (T&T, 2001). Permitted activity status can be confirmed by requesting a Certificate of Compliance from the relevant local authority.

Does the facility require consent for discharges to air, land or water?

Discharge consent will be required from ECan if there are any discharges to air, water or land. For example, a resource consent will be required for discharges of stormwater that may potentially contain contaminants if this discharge is not to a reticulated stormwater system. Resource consents for facilities where hazardous substances are stored will generally contain conditions to minimise the potential for contamination of land or water, or in instances, discharges of vapours or odour to air, impervious surfaces for liquids.

Have contingency plans for emergencies been prepared and implemented?

If during an emergency event, a discharge escapes the facility, you may be subject to the enforcement provisions of the Resource Management Act or other legislation. It is essential that you have plans in place to prevent adverse environmental effects from emergency events.

Do these plans satisfy the concerns of the territorial and regional authorities?

Contact the relevant TLA and Regional Council staff.

3.4 Building Act 1991

This Act outlines performance requirements for construction of buildings.

Does the building require a building permit?

Contact the Building Inspector at the local authority.

Does the building comply with the New Zealand Building Code?

The Approved Document for New Zealand Building Code Hazardous Substances and Processes Clause F3 of the New Zealand Building Code includes specific performance requirements for hazardous goods storage facilities. Contact the Building Inspector at the local authority.

3.5 Local Government Act 1974

Is the collection of hazardous waste part of your waste management strategy?

Territorial Local Authorities are required to develop waste management strategies.

Can the private sector offer the service more effectively?

Does your local authority have any by-laws that might affect the management of the facility?

Trade waste by-laws and stormwater by-laws may affect how facilities are sighted or managed.

3.6 Health and Safety in Employment Act 1992

The Health and Safety in Employment Act 1992 (HSE Act) requires that persons in charge of a place of work must take all practicable steps to ensure the health and safety of employees, contractors and members of the public. In Canterbury, the TLAs generally contract out the operation of the transfer stations. Both the TLAs and contractors have responsibilities under the HSE Act. The following figure illustrates the relationships between councils and contractors for health and safety.

Even though the operation of the facility may be contracted out, the TLA has obligations under the HSE Act to its own employees when they are at the facility. Therefore the TLA must:

- Have a health and safety policy in place
- Ensure staff are aware of the organisations policies and their responsibilities
- Identify all significant hazards in the workplace
- Take steps to eliminate, isolate or minimise identified hazards and document them
- Provide personal protective equipment
- Ensure that staff have received relevant training
- Provide supervision to ensure that requirements are carried out
- Ensure that emergency procedures are in place and clearly documented
- Have reporting procedures in place for accidents and near misses

The council must also ensure that contractors have the necessary controls in place to prevent harm to their own employees and any subcontractors. The council must ensure that contractors:

- Demonstrate they have a good hazard identification system in place
- Demonstrate that staff are adequately trained
- Ensure that personal protective equipment is used
- Follow all instructions regarding health and safety
- Report all accidents and near-misses
- Ensure that their actions do not put themselves or others at risk

The council must also take all practicable steps to ensure that there is no harm to members of the public using the facility.

3.7 Land Transport Act 1998

Does all transport of hazardous wastes comply with the Land Transport Rule?

The Land Transport Rule: Dangerous Goods 1999 (Rule 45001) has been prepared in accordance with Section 152 of the Land Transport Act 1998. The Land Transport Rule: Dangerous Goods 1999 sets out the requirements for the safe carriage of dangerous goods on land in New Zealand. The rule covers packaging, identification and documentation of dangerous goods; the segregation of incompatible goods; transport procedures; and the training and responsibilities for those involved in the transport of dangerous goods.

NZS 5433:1999 *Transport of Dangerous Goods on Land* sets out the technical requirements for the transport of dangerous goods on land. Parts of NZS 5433:1999 have been incorporated by reference in the Land Transport Rule: Dangerous Goods 1999. There is also other technical material that is provided as an indication of good practice.

The Rule for example, places responsibility for compliance with the driver of the vehicle, as well as the loader of the vehicle, who may not be the driver, and the dispatcher (or consignor) of the goods.

3.8 Health Act 1956

Does your local authority have any by-laws that might effect the management of the facility?

Local authorities may have by-laws for the control of noxious substances or offensive trades.

4 FACILITY SITING AND CONSTRUCTION

4.1 Introduction

The scope of this section is to provide recommended generic designs for both small and medium-sized hazardous waste storage facilities.

The size and type of collection facility needs to reflect the likely quantities, classes of waste collected. The proposed design assumes that the sites will use good management practices, including:

- Removing highly dangerous or reactive materials from the site as quickly as possible;
- Minimising the quantities of waste stored at the site by ensuring regular waste pick-ups. As a general rule, it is considered that the store should be emptied approximately once per month, although this could be extended up to as much as six months if waste volumes are very small (less than 100kg).

For the purposes of this report, short-term hazardous waste storage facilities can be classified according to the maximum quantity of waste that can be stored, as shown in the following table.

Table 4.1 Classification of Short-Term Hazardous Waste Storage Facilities

Hazardous Waste Storage Facility	Maximum Quantity of Waste (kg)
Small	500
Medium	1000

4.2 Siting

As a general principle, storage buildings should be sited so that the risk of contamination of people, crops, animals and the environment is minimised.

The building should:

- Be at least 15-20 metres from any source of ignition (fire, workshops, furnace, etc)
- Be at least 5 metres from any other building, boundary or deemed road.
- Be sited so that fumes are not carried into sensitive environments.
- Have easy access for vehicles and emergency services
- Be away from vehicle thoroughfares and protected with bollards

A suitable waste reception area must be located close to the store. This can be designated as the area in front of the store so long as the area is paved and there

are adequate provisions for containing any spills (i.e. consider gradients and location of stormwater grates).

It is recommended that a pre-placement assessment including photographic record be conducted. This will give an indication of the pre-construction state of the proposed site.

On removal/decommissioning it may be necessary for a simple environmental investigation be conducted. The scale of investigation will be dependent on the scale of the operation and whether any incidents or spills occurred on the site.

4.3 Facility Construction

4.3.1 Construction Materials

The Hazardous Substances (Classes 1 to 5 Controls) Regulations provide for a number of controls for hazardous substance locations in order to reduce the likelihood of unintended ignition of Class 2, 3 or 4 substances, including:

- Requirements for fire resistant walls and separation distances from ignition sources
- Safety requirements for electrical equipment (construction, design, earthing)

In addition, the New Zealand Building Code provides “Acceptable Solutions” as a means of complying with the Building Act 1991. These are contained in the Approved Document F3 “Hazardous Substances and Processes”.

The recommended generic design meets the following criteria:

- Be constructed of non- combustible materials (concrete)
- No windows
- An impermeable membrane/coating on the floor to contain spills
- All surfaces painted or sealed to avoid contamination
- Door opens outwards
- No electrical fitting (note if electrical fittings are required for any reason, these should be intrinsically safe)

4.3.2 Environmental Protection

To protect the neighbouring environment the building must:

- Have internal bunding sufficient to hold 110% of the contents of the largest container
- Have an impermeable concrete floor (implies a suitable surface coating).
- Have a bund around the external access (a small nib wall)
- Be as far away as practicable from any stormwater grates
- Have an emergency spill kit

4.3.3 Ventilation

For health and safety reasons the building must have adequate ventilation.

- Static venting using high and low level vents. Vents must be covered with 0.5mm nominal aperture brass-wire gauze where within 1.5 m of the ground.
- Forced air extraction is not required.

4.3.4 Security

The facility must be adequately secured against break-ins and accidental access. Security should include:

- Installation of an intruder alarm monitored by a security firm
- Regular security patrols
- Lockable door

4.3.5 Fire/Spill Protection

The following issues will need to be considered:

- Clearly identify stormwater drains
- Fire extinguishers (dry powder or CO₂)
- Water at adequate volume and pressure within reach of the facility
- Location of evacuation points
- Spill response equipment (refer Appendix L)

4.3.6 Signage

Signage at the gate of the site should include:

- Hours of operation
- Contact telephone numbers of key staff and emergency services
- HAZCHEM signage (4WE Code)
- Prohibited wastes

Signage on the outside of the storage shed should include:

- Sign on front door restricting access due to the dangerous nature of chemicals store therein.
- HAZCHEM sign on door (4WE Code)
- "NO SMOKING" sign
- Labels indicating which storage bay for which chemical class

Signage in the immediate vicinity of the storage shed should include:

- Instructions for depositing waste including a statement that it is prohibited to drop-off unattended wastes

- Location of first aid kit, fire extinguisher, emergency equipment and evacuation points
- Location of safety shower/eyewash station

4.3.7 Personal Protection

The following facilities are required at the site:

- Separate storage areas for emergency equipment and PPE
- Separate change area, toilets and washroom
- An eyewash station in or close to the store (note that if it is a bottle, sterile water must be changed weekly)

4.4 Waste Oil Storage

4.4.1 Introduction

Waste oil storage facilities should be designed and managed in accordance with the Guidelines for the Management and Handling of Used Oil in New Zealand (MfE/OSH, 2000) (the Guidelines). Used oil collection facilities are classified as either **controlled collection** or **general collection** sites. This classification is based site manager's ability to prove that other products do not contaminate the used oil on site. Controlled collection sites can meet less stringent design requirements on the basis that provisions does not have to be made for highly flammable liquids, such as fuels.

4.4.2 Siting

The following matters should be considered when siting a waste oil storage tank:

- Suitably positioned to facilitate supervision by the operator, who has responsibility for what is emptied into the container
- Located on an impermeable surface such as concrete or asphalt (not on soil)
- Safe access for tankers during unloading
- The use of bollards if the tank is located near vehicular traffic
- Located at least two metres away from potential hazards such as recycling or rubbish bins
- Tanks should be located outdoors, inside a bund able to hold 110% of the contents of the tank
- The bund should either be roofed, or adequate provision made for the inspection and safe disposal of clean stormwater. If the bund is fitted with a drain valve, it should be lockable or the handle should be removed.

4.4.3 Construction

Generally, the maximum container size for fibreglass or plastic igloos at public used oil collection points should not exceed 1000 litres, and only one tank will be permitted per site. Tanks greater than this size will require consent in writing from the Chief Inspector, Explosives and Dangerous Goods.

Used oil containers may be constructed of plastic, metal or glass reinforced plastic, provided they meet certain performance criteria set out in the Guidelines.

The requirements of the tank include:

- A lockable opening at the top of the tank,
- A permanent mesh at the fill point,
- A discharge outlet fitted with a lockable valve, and
- A vent.

The tank should be labelled with:

- Safe fill level
- Manufacturer and date of manufacture
- Content and Prohibited Substances labels as per the Guidelines (refer to Appendix F)
- Class 3 Dangerous Goods diamond

The waste oil collection facility will require a Test Certificate (formerly known as a Dangerous Goods licence).

4.5 Generic Designs

4.5.1 Hazardous Waste Store

The recommended generic designs are based on two sizes of commercially available prefabricated concrete storage sheds. It should be noted that not all of these sheds would conform to the requirements in terms of construction, ventilation, containment (bundling) and fire protection. In some instances, minor modification to the standard design will be necessary.

An indicative costing is set out below for the two sizes of facilities:

Item	Estimated Price
Small/medium pre-cast DG shed	\$ 4,600 - \$ 7,950
Signage	\$ 1,000
Three steel storage shelves (dynabolted to floor and walls)	\$ 1,500
Safety equipment (eyewash, spill kit etc)	\$ 2,000
Approved Segregation Device	\$ 750
Monitored alarm (linked in with existing alarm)	\$ 500
Total	\$ 10,350 – \$ 13,700

4.5.2 Automotive Batteries

Automotive batteries should be stored outside the Hazardous Waste Store in a steel cage, or equivalent, so that they are stored upright and protected from being tipped over.

The battery cage should be located on a paved area away from stormwater drains and roadways. The cage should be labelled with a “Corrosives” diamond and appropriate HAZCHEM sign (2R).

4.5.3 Waste Oil Storage

A generic design for waste oil collection facilities at TS/RRPs is set out in Appendix F. This design has been prepared on the basis that the facilities will operate as a controlled collection site (see Section 5.12). The suggested generic design would not meet the more stringent requirements for a general collection site.

Item	Estimated Price
Tank (minimum cost)	\$ 750
Lockable Ball Valve (50mm)	\$ 300
Camlock Fittings	\$ 150
Civil Construction	\$ 2,200
Sealant*	\$ 630
Contingency	\$ 510
Total	\$ 4,540

*Note: Subsequent to preparation of the generic design for a waste oil collection facility contained in Appendix F, a suitable sealant has been identified (Nito Flor FC140) and the cost has been included.

5 FACILITY OPERATION AND MANAGEMENT

5.1 General

Operating a hazardous waste receiving and storage facility can be difficult, as products are frequently unknown, containers unlabeled or damaged and immediate disposal options not available. An associated MSDS (Material Safety Data Sheet) is unlikely to provide the reader with any useful additional information on disposal.

Most wastes likely to be received are of household origin, such as paints, solvents, oils and agricultural and garden sprays and batteries.

5.2 Management Procedures

As minimum the following management procedures are necessary:

- A register of chemicals must be kept and updated on a continuous basis as waste is received. Each container should be given an individual identifying code. This code is necessary to track chemicals to their final end disposal.
- The storage area must be regularly inspected by an independent auditor/supervisor and kept in a clean and tidy condition. Leaking or damaged containers should be re-contained immediately by a competent person.
- Specific procedures must be prepared and maintained for the following:
 - Receiving wastes (including unidentified wastes and waste oil)
 - Handling of leaking containers
 - Disposing of goods
 - Emergency preparedness (spills/fires)

The procedures must be simple, be clearly displayed, staff understanding must be gauged to ensure they understand them and the employee must confirm in writing that they understand and will comply with them.

Example management procedures are set out in Appendix G. These should be incorporated into the management manual for the site.

Responsibility for the implementation, review and updating of procedures must be clearly defined. The procedures (including responsibilities, contact details, etc) need to be reviewed regularly, with a minimum recommended review period of one year.

5.3 Receiving Goods

Customers should be encouraged to notify the operator responsible for managing the facility before they bring in chemicals for disposal. This will enable the operator to decide if the waste should be accepted at the site or directed to a commercial waste treatment company. This is particularly important for larger quantities or for a particularly hazardous material.

The following issues need to be addressed:

- A communication programme may be necessary to advise customers of the types of chemicals that the facility will receive, opening hours and any other special requirements.
- Staff receiving waste must be trained in handling dangerous chemicals and under the direct supervision of an Approved Handler.
- Staff need to have an understanding of the common hazardous property classes (HSNO Classes) and the need to segregate incompatible classes of materials.
- Information on chemical classes and incompatible chemicals must be clearly displayed in the receiving area, as must the procedures for receiving chemicals and the emergency procedures.
- The storage areas for each class of chemicals must be clearly identified.
- All relevant details on waste type (if known) container identification (including a unique identifying code), volume and contact details must be recorded.
- All containers must be inspected for leaks etc. and placed in a secondary containment device, if required. If there is not sufficient time or the personnel receiving the chemicals are not adequately trained, the chemical should be placed in suitable plastic trays or bins¹ large enough to hold the contents of the container. Trained staff must inspect the facility regularly and ensure that these chemicals are sorted and stored safely.

5.4 Waste Acceptance Criteria

There are some kinds of hazardous waste that are not suitable to be collected, either because they are considered too hazardous to be handled in the proposed facility, because handling and disposal are specifically regulated, or because there are other recycling or disposal schemes in place. These include:

- Explosives (Class 1)
- Liquid and solid desensitised explosives (Class 3.2 and 4.1.3)
- Self-reactive (Class 4.1.2) and spontaneously combustible substances (Class 4.2)
- Gases
- Asbestos
- Infectious and biomedical wastes
- Pharmaceuticals
- Radioactive wastes except for domestic smoke alarms.

¹ For example, widely available cube boxes or fishing crates are often suitable (see Appendix D). Look for appropriately sized containers made from high-density polyethylene (HDPE) or polypropylene (PP), which are suitable for short-term contact with most chemicals. These plastics are not suitable for strong oxidising acids (Class 5).

5.5 Unknown Wastes

The identification of unknown chemicals can be very costly and potentially dangerous. As much information as possible should be obtained during the waste acceptance process. The source and age of a chemical can give vital clues to the likely type of waste.

Unqualified staff should not carry out any identification or even basic characterisation of potentially hazardous waste. Commercial hazardous waste contractors can arrange for the identification and disposal of unknown wastes.

Under no circumstances should a container be intentionally opened for the purpose of smelling any product. However, any obvious odours should be noted to assist the analyst or disposal company in identification.

Unknown wastes should be stored separately in the store in a tray large enough to hold the contents of the container.

5.6 Decanting Wastes

The decanting of wastes is sometimes undertaken at storage facilities to secure damaged containers and to reduce space and disposal costs. Specific procedures should be in place for handling leaking containers by using secondary containment, so decanting should not be required at short-term storage facilities (see Appendix G).

In any case, only experienced and authorised people should undertake decanting or re-containing of chemicals and it is recommended that this be undertaken by a commercial waste contractor. Readers who wish to undertake decanting are referred to Chapter 4.5 of *Collecting Hazardous Waste* (Environment Waikato, 1996).

5.7 Personal Protection and Safety Equipment

The following personal protective equipment should be available to staff for handling wastes:

- **Gloves**
Gauntlet style gloves in PVC, butyl or nitrile are preferred. Gloves need to be checked regularly for cuts, tears or other damage.
- **Safety Goggles or Full Face Shield**
Be aware that a full-face shield will not provide protection from vapours. The visor will need to be replaced regularly.
- **Respiratory Protection**
Cartridge type respirators are preferred. Different cartridges will be required for different products. Note that a sealed facemask with visor for eye protection will meet the requirements of both eye and respiratory protection
- **Overalls or splash aprons**
- **Gum Boots or similar work boots with steel toe protection.**
Overalls must go over boots, not inside.

The following general safety equipment should be available:

- First Aid Equipment (including an eyewash).
- Drum trolley
- Spill kit (refer Appendix L for contents)
- Plastic trays/bins for containment of acids/alkalis/corrosives
- UN approved secondary containment devices and PE bags for secondary containment of leaking containers
- Adhesive and tie-on labels
- Waterproof marker pen
- Type I Approved Segregation Device

5.8 Personal Hygiene

For health and safety purposes, personal hygiene must always be strictly maintained. To help maintain personal hygiene when handling chemicals, staff should follow these procedures:

- **NEVER** touch your face when you have been handling waste.
- **ALWAYS** wash your hands with soap and warm water at least once before eating, smoking, touching your face, or going to the toilet.
- **NEVER** smoke in or near the dangerous good storage area.
- **WASH** spills off your skin immediately.
- **STOP WORK** and get fresh air if you feel unwell. Advise your supervisor.

Staff must not take work clothes home that may have become contaminated with hazardous substances for laundering. Any clothing that has become contaminated should be placed in a plastic bag for disposal or, if contamination is light, specific arrangements made with a commercial laundry company.

5.9 Segregating Wastes

5.9.1 General

As a general guide, chemicals with the same hazardous properties or hazard classification should be stored together. It should be noted however that some waste may have more than one hazardous property, for example, some agrichemicals are flammable, toxic and ecotoxic.

Incompatible wastes need to be segregated (separated) to prevent chemical reactions from taking place. It is recommended that certain classes of waste are not accepted at the site because of potential incompatibility issues (refer Section 5.4).

Under the HSNO Act, the person in charge of a substance must ensure that it is not in contact with any substance or material with which it is incompatible (except for planned combustion). Under the HSNO Act, Class 2, 3, 4 and 5 substances are generally classed as incompatible with each other. Class 4.3 substances are also

incompatible with Class 8 substances and water (which would include other substances containing water). The regulations do not specify how segregation should be achieved.

In the absence of other specific guidance, such as an approved Code of Practice under the HSNO Act, it is recommended that materials are segregated in accordance with the recommendations in NZS 5433:1999 "Code of Practice for the Transportation of Dangerous Goods on Land" (refer Appendix C). It should be noted that the hazard classes used under the HSNO Act are slightly different to those used in the current transport legislation. It is expected that NZS 5433: 1999 will be updated at some time in the future so that it is consistent with the HSNO classification system.

According to NZS5433: 1999, segregation can be achieved with a separation distance of 3 metres or an approved segregation device (for Classes 3, 4, 5, 6 and 8). The specifications for approved segregation devices are set out in Appendix N of NZS5433: 1999, which is incorporated by reference into the Land Transport Rule: Dangerous Goods: 1999. An example of an approved segregation device is shown in Appendix D.

It is generally not possible to achieve a separation distance of 3 metres within a small or medium sized storage facility. Therefore it is recommended that at least one Approved Segregation Device is available at the site for storage of incompatible materials, particularly Class 4 or Class 5 substances. Wastes that are likely to be incompatible should be removed from the site as quickly as possible, preferably on the following working day.

5.9.2 Store Layout

Small containers (10 Litres or less) should be stored on the shelving provided in the store. Solids (powders or granules) should be stored on the upper shelves.

The majority of waste received at collection facilities is likely to be agrichemicals (Class 3 or Class 6), or flammable liquids (Class 3) such as oils, paints and solvents. These materials can generally be stored in close proximity without any specific segregation requirements.

Acids, alkalis and corrosives (Class 8) should be stored in segregated plastic bins or trays able to hold more than the contents of the container.

Class 4.1.1 (flammable solids, including matches), Class 4.3 (substances that emit flammable gases in contact with water, e.g. calcium carbide) and Class 5 substances (organic peroxides and oxidising agents e.g. chlorates, nitrates, permanganates or hydrogen peroxide) are incompatible with most other hazard classes and should be stored in a separate facility or in an approved segregation device. Swimming pool chemical (calcium hypochlorite granules) is an example of a Class 5 substance that is likely to be deposited at the facility.

5.10 Staff Training

Staff responsible for managing the facility must be trained in both the standard operating procedures for the facility and in management of hazardous substances.

The programme for training staff in the facilities standard operating procedures should include:

- Procedures for receiving and disposing of chemicals.
- Handling procedures.
- Health and safety procedures (including identification of all hazards).
- Emergency procedures

It is strongly recommended that personnel be given special training in the management of hazardous substances. This training should have a more general focus than the training in the standard operating procedures and should focus on increasing the staff members knowledge of the:

- Environmental and health effects of hazardous substances.
- Characteristics of hazardous substances.
- Relevant legislation and the staff members roles and responsibilities under that legislation.
- Safe use and disposal of chemicals.

This sort of training is available from a number of different organisations including:

- Consultants
- Polytechnics (particularly for the management of agrichemicals).
- The New Zealand Employers Federation
- The New Zealand Chemical Industries Council
- Agricultural Chemical and Animal Remedies Manufacturers Association (AGCARM).
- Standards New Zealand

NOTE THAT THIS LIST IS NOT EXHAUSTIVE. THE MENTION OF AN ORGANISATION IN THE ABOVE LIST IS NOT AN ENDORSEMENT OF THAT ORGANISATION. THIS LIST MERELY PROVIDES SOME CONTACTS TO BE INVESTIGATED.

5.11 Disposing of Waste

5.11.1 Introduction

The disposal of hazardous wastes from the collection facility must be part of an integrated waste management strategy. The provision of collection facilities must be seen as an integral part of the waste management system. The waste management hierarchy of reduce, reuse, recycle, recover resources and residual disposal should be followed when considering the operation of these facilities and the options for the disposal of collected hazardous substances.

5.11.2 Reduce

Reducing the quantity and toxicity of the waste stream must be the primary long term objective for the management of hazardous wastes. To achieve this objective, an education campaign should be operated in conjunction with any promotional programmes advertising the collection facility. This education programme should be part of the council's integrated waste management strategy. The education programme should:

- Identify where the facility is, operating hours, any restrictions on the types of chemicals able to be received, etc.
- Provide information on the safe transport of hazardous substances.
- Encourage people to use less hazardous alternatives where they are available.
- Encourage people to buy only the amount of chemical that they require.

5.11.3 Reuse

Many components of domestic hazardous waste are suitable to be re-used. However, there is a range of issues with a potential for liability that must be carefully managed.

Paints and low hazard materials such as detergents and household cleaners are generally considered suitable for redistribution to the public for reuse. Other materials are considered to be suitable for redistribution to people who are competent in handling them, such as paint stripper, glue, stain, varnish, thinners, wood preservative or degreasers. Some materials may be suitable for use by the Council in their activities, such as drain cleaner, concrete cleaner, fuels, automotive lubricants or antifreeze.

Example management procedures for the redistribution of wastes for use are set out in Appendix G. The management procedures are provided on the basis that the council takes ownership of any wastes deposited with them. It is recommended that this be clearly stated on any publicity or information material supplied by the council in relation to the collection of hazardous waste.

At the time of writing, the transitional provision of the Hazardous Substances and New Organisms Act 1996 (HSNO Act) are in force. The requirements that apply to particular substances will not be known until the substance is transferred under the HSNO Act. However, in general, these requirements will only apply to materials with a high degree of hazard. The advice provided in this document may not apply once a substance has been transferred under the HSNO Act or after the expiry date for the transitional provisions. In particular, care will be needed to identify materials that have specific requirements under the HSNO Act, such as tracking or Approved Handlers.

5.11.4 Recycling and Recovery

There are a number of commercial facilities that can recycle or recover materials from certain household hazardous wastes. Some of these facilities are available in Canterbury (for example metal recyclers and solvent recovery companies) while others require transport out of the region (for example metal recovery from domestic batteries is undertaken in Auckland).

As part of its Target Zero programme, Christchurch City Council maintains The Recycling Directory, which includes a listing of local companies who may be able to provide assistance in the transport, storage, and disposal of hazardous substances. The Recycling Directory is available as a hardcopy or on the internet at: <http://www.ccc.govt.nz/TargetZero/WasteMinimisation/RecyclingDirectory.asp>

5.11.5 Residual Disposal

A procedure for disposing collected substances is required. The facility must be emptied at regular intervals to minimise the risk of accidents and to assure compliance with maximum volume storage limits set out in any test certificate.

It is recommended that a short-term hazardous waste storage facility be emptied approximately once per month, although this could be extended up to as much as six months if waste volumes are very small (less than 100kg).

The waste acceptance criteria at the existing landfills in Canterbury require pre-treatment of all hazardous waste to reduce its hazardous properties to acceptable levels before it would be accepted. Similarly, treated liquid wastes may be able to be disposed to trade waste, usually in accordance with a trade waste bylaw. A list of local hazardous waste treatment companies is included in The Recycling Directory.

The document *Management of Hazardous Waste* (CAE, 2000) provides useful information on the range of treatment and disposal technologies for hazardous wastes.

Some chemicals cannot be treated in New Zealand at the present time, such as PCB's, PCP, organochlorine compounds (e.g. lindane, dieldrin, DDT). It may be necessary to arrange for long term storage of these chemicals pending overseas destruction. Longer-term storage may also be required for unidentified chemicals. The short-term collection facility must not be used for the long-term storage of these chemicals. Arrangements for the long-term storage of these chemicals should be made with an appropriate waste management company.

It is recommended that all activities relating to the packaging, documentation, loading and despatch of hazardous wastes be contracted out to a hazardous waste disposal company the facility operator engages to transport and dispose of the waste. There should be an agreement with the waste disposal company outlining desired performance standards consistent with the HSNO Act and the Road Transport Rule.

Once waste is disposed of the inventory must be updated with the destination and date. A disposal certificate should be obtained from the company that is contracted to dispose of the waste.

5.12 Waste Oil

The used oil public collection point should be managed so that it can be classified as a controlled collection site. The classification is undertaken by the local authority Dangerous Goods Inspector, who must be satisfied that:

- The site can demonstrate, by appropriate in-house procedures for handling used oil, that it is protected from receiving unwanted or contaminated oils

- Used oil at the site is stored in a container that complies with the minimum design specifications as set out in Appendix 1 of the Guideline for the Management and handling of Used Oil in new Zealand (MfE, 2000).

Examples of the required management procedures (from MfE, 2000) are set out in Appendix G.

The Guidelines indicate that used oil public collection points that cannot show they are protected from receiving unwanted or contaminated oils will be classified as general collection sites. Storage equipment at these sites must comply with the Dangerous Goods (Class 3 – Flammable Liquids) Regulations 1985. It is likely that this requirement will change to compliance with the HSNO Act requirements for Class 3.1A or 3.1B substances.

5.13 Cost Recovery

The annual costs for operating a waste disposal facility can be quite high. Once it becomes known that a facility is available, small-scale industrial users will want their waste to be accepted. This is despite the fact that disposal options such as recycling are viable. The quantities coming in from these generators may be relatively large, and have the potential to exceed the space available in the facility. The council operating the facility must determine whether it is prepared to provide a free service for these generators of relatively large quantities of chemicals. In particular, the operator should develop a policy on cost recovery. It is difficult to recover all costs, especially on small quantities from domestic sources. A householder is not likely to be prepared to pay say \$30.00 for disposing of a small container of pesticide or paint thinners. The cost of billing and recovering the money could exceed the charge itself.

In Auckland, a comprehensive hazardous waste collection programme is operated, which combines:

- A HazMobile for the collection of domestic hazardous waste;
- Drop-off facilities at some transfer stations in the Region; and
- A co-ordinated rural agrichemical collection programme (up to three times each year).

The costs of the HazMobile are shared between the Auckland Regional Council (ARC) and the six participating TLAs. Each TLA funds the collection in its area, with the ARC covering the publicity costs and organising the programme. The ARC also contributes towards the costs of disposal if necessary. The household hazardous wastes drop-off facilities at transfer stations are free of charge to local residents, but commercial wastes are charged for according to the advertised fees.

There is no limit on the amount of domestic hazardous waste that can be dropped off at the HazMobile. The average quantity is approximate 16kg per participant. This can be compared with an average of 20kg per participant in the Taranaki mobile collections.

Industrial waste generators are encouraged to deal directly with specialist waste disposal companies, as the costs of managing waste are considered to be an

integral part of managing a business. However, the ARC encourages businesses to contact them for waste management advice, including cleaner production.

If cost recovery is to be practised, the following costs may need to be considered when calculating the fees:

- Capital cost recovery on depot construction.
- Operating costs
- Waste disposal costs (can vary depending on container size and waste type)
- Waste transport costs
- Administration
- Analysis costs for unknown wastes
- Long term storage for intractable chemicals.

6 HEALTH AND SAFETY

The development and implementation of a health and safety policy and plan will help your organisation meet its obligations under the Health and Safety in Employment Act 1992. Your organisation should already have health and safety policies in place. This guideline does not address these policies, we recommend that you contact a health and safety consultant if you do not already have policies in place.

The Health and Safety Plan must be consistent with the organisation's Health and Safety Policy and should include the following sections:

- Introduction/Background
- Hazard Identification
- Hazard Assessment
- Handling Procedures
- Emergency procedures
- Records.

This guideline provides some examples from health and safety procedures for the Unwanted Agrichemicals Collections operated by Environment Waikato and the Southland Regional Council. These examples are not intended to be copied directly into your own procedures, they merely provide an indication of what is required. The plans have not been endorsed or considered by the relevant authorities and have not been tested by the courts. It is recommended that health and safety consultants review any plan you draft. You may also wish to seek legal advice.

When drafting your own Health and Safety Plan:

- Remember to include site specific issues. Each site will have its own characteristics that must be taken into account.
- Remember to audit the health and safety plans of any contractors on your site. Ensure that they have identified and addressed any hazards that the hazardous waste collection facilities may present to their staff or the public.
- You must also inspect the health and safety procedures of any hazardous waste transport and disposal contractors that you engage. You must ensure that their procedures are being followed.

6.1 Introduction/Background

The introduction details background information such as:

- The site operator
- Site purpose, including references to any relevant organisational policies
- Site location – including details of relevant resource consents
- Substances that will not be accepted at the facility.

6.2 Hazard Identification

This stage of the process identifies all hazards associated with the operation of the facility. A good guide as to the requirements of a hazard identification and assessment can be found in *“How to Identify and Control Hazards Workbook”* (OSH, 1992). Each facility will have a number of site specific hazards that you will need to identify. The following hazards are common to all collection facilities:

Chemical Hazards

Chemicals can affect the body either through skin contact, the digestive system, or absorption through the lungs. The effects of over exposure to chemicals can either be acute (the person is immediately effected) or chronic (accumulation of chemicals or substances in the body over the medium to long term). Chemical hazards are likely to be the major hazard in the storage facility.

Lighting

Inadequate lighting levels are a potential hazard. A common problem area is the reaction time needed for the eyes to adjust from a brightly lit to a darker environment (e.g. a site worker entering the store from bright sunlight). In a chemical storage facility inadequate lighting could lead to accidents such as falls, spills or exposure to chemical hazards. Poor lighting could also lead to mistakes when reading chemical labels.

Temperature

Extremes of cold or heat can cause problems due to individual fatigue or reduced capacity to work. This may lead to accidental exposure to chemical hazards. Chemicals in the facility may give off fumes at high temperatures, increasing the degree of chemical hazard. Extremes of heat may also decrease the stability of chemicals and increase the risk of chemical reactions including explosions or fires.

Physical

Physical hazards in a chemical storage facility are associated with events such as tripping over obstacles, explosions and hazards associated with working in confined places.

Miscellaneous

Other hazards such as fatigue may increase the risk of other hazards occurring.

The hazard Identification process should also include a site-specific description of the likely hazard areas. In all cases the hazard potential at the collection facilities will be effected by:

- The types (including concentration, composition, age, etc.) of chemicals
- The quantity and variety of chemicals (e.g. risks associated with incompatible chemicals)
- The condition of the chemical containers
- Placement and containment of chemicals within the storage facility
- The training of the persons handling the chemicals
- The layout and operation of the site where the facility is located.

6.3 Hazard Assessment

Once all the likely hazards in the collection facility have been identified, you will need to assess their significance in terms of the Health and Safety in Employment Act (1992).

A *significant hazard* is an actual or potential cause or source of:

- Serious harm and
- Harm (being harm that is more than trivial); the severity of whose effects on any person depend (entirely or among other things) on the extent or frequency of exposure to the hazard or
- Harm that does not usually occur, or usually is not easily detectable, until a significant time after exposure to the hazard e.g., solvent, asbestos.

Serious Harm includes:

1. Any of the following condition that amounts to or result in permanent loss of bodily function , or temporary severe loss of bodily function:
 - Respiratory disease
 - Noise induced hearing loss
 - Neurological, dermatological, musculoskeletal or communicable diseases
 - Cancer
 - Illness caused by exposure to infected material
 - Decompression sickness
 - Poisoning
 - Vision impairment
 - Chemical or hot metal burn of eye
 - Penetrating wound of eye
 - Bone fracture
 - Laceration
 - Crushing
2. Amputation of body part.
3. Burns requiring referral to a specialist medical practitioner or specialist outpatient clinic.
4. Loss of consciousness from lack of oxygen
5. Loss of consciousness, or acute illness requiring treatment by a registered medical practitioner, from absorption, inhalation, or ingestion of any substance.
6. Any harm that causes the person harmed to be hospitalised for a period of 48 hours or more commencing within seven days of the harm occurrence.

A hazard assessment procedure that could be used to prioritise hazards is included in Appendix I. It is recommended that you have a health and safety professional review any hazard assessment that you complete to ensure that it is adequate.

Once all hazards have been prioritised and the significant hazards identified, you will need to develop procedures for addressing the hazards. The procedures for handling hazardous substances will be of particular importance in the hazardous waste collection facilities.

This hazard assessment process should be repeated at regular intervals. When using the results of any quantitative hazard assessment procedure (e.g. the procedure in Appendix I), you should treat the results with caution. The science of quantitative hazard assessment is not exact. In particular, low values for some hazards may give a false sense of security, which may effect the attitude of staff towards the risk.

6.4 Handling Procedures

All staff must be totally familiar with these procedures and the reasons for following them. It is particularly important that you develop your own procedures, as site specific issues will be of paramount importance.

Examples of handling procedures are set out in Appendix G. There may be other procedures considered necessary at your site depending on factors such as the site layout or the types and volumes of chemicals being accepted.

6.5 Emergency Procedures

Emergency procedures will not only apply to health and safety but to environmental protection. Emergency response planning is discussed in Section 7.

6.6 Record Keeping

To demonstrate compliance with the Health and Safety in Employment Act 1992 you must also develop and maintain:

- Records of staff training requirements and courses that staff have attended
- Records of all identified hazards
- Records of all safety equipment that has been issued and its expiry date
- A workplace safety booklet containing all the relevant health and safety policies and procedures
- A record of all accidents or incidents, including any investigations carried out and any steps taken to avoid the incident in the future
- Documentation of all meetings where safety is discussed

7 Emergency Response Planning

The local fire service must be consulted and a fire response and emergency evacuation plan developed and approved by the fire service.

Emergency response procedures are essential to ensure staff, the public and the environment are protected from the effects of any accidents at the site. For a small or medium –sized short-term storage facility, the following organisations should be consulted:

- Local authority staff with responsibilities for emergency response (Civil Defence, Trade wastes, Dangerous Goods, Environmental Health etc).
- Regional Council staff
- Fire Service
- Other emergency services
- Health protection staff at the local Crown Health Enterprise
- The Occupational Safety and Health Service

The fire service and other emergency services should be familiar with the layout of the site and the recommended emergency procedures. Emergency exercises should be arranged so that all personnel are familiar with the procedures to be used at the site.

The document *Managing Hazardous Waste* (CAE, 2000) contains a model site emergency response plan that could be used as a template for developing a site-specific plan (refer Appendix J).

Many of the factors that should be included in an emergency procedure will be site specific. An example set of procedures from *Managing Hazardous Waste* (modelled on the procedures for Hamilton City Council's Hazardous Waste Store) is provided in Appendix K. These procedures provide a minimum standard for the development of your own emergency response procedures.

8 References

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9 Applicability

This report has been prepared for the benefit of Environment Canterbury with respect to the particular brief given to us and it may not be relied upon in other contexts or for any other purpose without our prior review and agreement.

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APPENDIX A

CONTRACT FOR SERVICES



REGIONAL HAZARDOUS WASTE WORKING PARTY

GUIDELINES FOR THE SITING, CONSTRUCTION AND USE OF SHORT TERM HAZARDOUS WASTE STORAGE FACILITIES¹

REFERENCE NUMBER: 50500 June 2002

APPENDIX B

HSNO CLASSIFICATION SYSTEM



HSNO CLASSIFICATION SYSTEM

The classification systems for the HSNO hazardous properties are set out in Schedules 1 to 6 of the *Hazardous Substances (Classification) Regulations 2001*. The classification systems comprise numbered classes (e.g. Class 6) indicating the intrinsic hazardous property, numbered subclasses (e.g. subclass 6.1) indicating the type of hazard, and lettered categories (e.g. Category A) indicating the degree of hazard (the exception to this system is explosives, see below). The combination of numbers and letters used in the classification system (e.g. 6.1A) constitutes a hazard classification of a substance.

The classes for the hazardous properties are as follows:

Class 1 Explosiveness

Class 2 Flammability, gases

Class 3 Flammability, liquids

Class 4 Flammability, solids

Class 5 Oxidising capacity

Class 6 Toxicity

Class 8 Corrosiveness

Class 9 Ecotoxicity

The following paragraphs provide a brief summary of the relevant hazardous property classes and subclasses. Readers are directed to the *User Guide to the HSNO Thresholds and Classifications* (ERMA, 2001) for more comprehensive and detailed information on the HSNO Classification system.

Explosive Properties (Class 1)

Explosive substances are classified into both a subclass (indicating the type of explosive hazard) and a Category (indicating compatibility groupings) in the combinations permitted by the *UN Recommendations on the Transport of Dangerous Goods Model Regulations*. Categories for explosive substances do not indicate the degree of hazard.

Flammable Properties (Classes 2 to 4)

Overall, there are nine Subclasses to the classification system for flammable substances, with corresponding threshold levels. Briefly these are:

- (a) Ignitibility for flammable gases (Subclass 2.1.1);
- (b) Flammable components for flammable aerosols (Subclass 2.1.2);
- (c) Ignitibility for flammable liquids (Subclass 3.1)
- (d) Liquid desensitised explosives (Subclass 3.2), and

Flammable solids, divided into:

- (e) Flammable solids (readily combustible solids and solids which may cause fire through friction) (Subclass 4.1.1);
- (f) Self-reactive substances (Subclass 4.1.2);
- (g) Desensitised explosives (Subclass 4.1.3)
- (h) Substances liable to spontaneous combustion, pyrophoric and self-heating substances (Subclass 4.2); and
- (i) Substances which in contact with water emit flammable gases (Subclass 4.3).

The classification system for flammable substances is complex and is summarised in the table at the end of this Appendix.

Oxidising Properties (Class 5)

Oxidising substances are divided into subclass 5.1.1, for solids and liquids, subclass 5.1.2 for gases, and subclass 5.2 for organic peroxides. Each subclass is divided into several categories representing different degrees of hazard, except in the case of subclass 5.1.2 where there is only one Category.

Corrosive properties (Class 8)

The HSNO legislation defines 3 Subclasses under the corrosive property as follows:

- (a) Substances corrosive to metals (Subclass 8.1);
- (b) Substances corrosive to dermal tissue (Subclass 8.2); and
- (c) Substances corrosive to ocular tissue (Subclass 8.3).

Subclass 8.2 has 3 categories within it (A, B and C) whereas Subclasses 8.1 and 8.3 have one Category only (A).

Toxic Properties (Class 6)

The HSNO legislation defines 8 Subclasses under the toxic property as follows:

- (a) Substances which are acutely toxic (Subclass 6.1);
- (b) Substances which are skin irritants (Subclass 6.3);
- (c) Substances which are eye irritants (Subclass 6.4);
- (d) Substances which are sensitisers (Subclass 6.5);
- (e) Substances which are mutagenic (Subclass 6.6);
- (f) Substances which are carcinogenic (Subclass 6.7);
- (g) Substances which are reproductive or developmental toxicants (Subclass 6.8); and

- (h) Substances which are target organ systemic toxicants (Subclass 6.9).

Note: that Class 6.2 is omitted from the above list as the numbering system used in the Regulations reflects the *UN Model Regulations* numbering system. Under that system, Class 6.2 is assigned to infectious substances. Each subclass is divided into several categories representing different degrees of hazard.

Ecotoxic Properties (Class 9)

The HSNO legislation defines four Subclasses under the ecotoxic property as follows:

- (1) Aquatic effects (Subclass 9.1)
- (2) Soil effects (Subclass 9.2)
- (3) Terrestrial vertebrate effects (Subclass 9.3)
- (4) Terrestrial invertebrate effects (Subclass 9.4)

There is also a threshold set for a substance that is used as a biocide. Any substance that triggers this effect is subsequently classified within the appropriate Subclass of ecotoxic effects above.

Each subclass is divided into several categories representing different degrees of hazard



APPENDIX C

SEGREGATION OF DANGEROUS GOODS



APPENDIX D

APPROVED SEGREGATION DEVICES



APPENDIX E

GENERIC DESIGN FOR A SHORT-TERM HAZARDOUS WASTE STORAGE FACILITY





APPENDIX F

GENERIC DESIGN FOR A WASTE OIL STORAGE FACILITY



APPENDIX G

EXAMPLE MANAGEMENT PROCEDURES



MANAGEMENT PROCEDURES

The following procedures have been developed as example management procedures for a small or medium-sized short-term hazardous waste storage facility:

1. General Instructions
2. Receiving Hazardous Waste
3. Store Layout and Management
4. Handling Leaking Containers
5. Waste Oil Collection
6. Record keeping
7. Waste Disposal
8. Redistribution of Materials for Use

These procedures should be evaluated for each particular site and modified as required. Site specific contact details should be provided in Appendix One.



1. GENERAL INSTRUCTIONS

- The store must be locked at all times when it is not directly supervised.
- Smoking is prohibited at all times while receiving hazardous waste.
- No food or drink should be taken while in the vicinity of hazardous materials.
- When handling any hazardous material, the following PPE must be worn:
 - Safety glasses or similar, such as face shield;
 - Protective footwear (preferably gumboots);
 - Heavy duty chemical resistant gloves (gauntlet style in nitrile, or similar);
 - Protective coveralls;
 - Splash apron;
 - Respirators with suitable filters when handling poison, solvents or other hazardous materials that may affect the respiratory system.
- Information on the label (where present) must be read and complied with.
- REMEMBER:
 - NEVER open containers marked 'explosive' or 'radioactive'
 - NEVER open containers containing known reactive chemicals such as picric acid or substances that can combust on exposure to air or water (e.g. phosphorous, lithium or sodium, etc.)
 - NEVER smell the contents of any container
 - NEVER mix unknown chemicals
 - NEVER taste chemicals



2. RECEIVING HAZARDOUS WASTE

- Refer to the list of prohibited wastes to ensure that the waste is suitable to be accepted at the site (see Prohibited Waste List).
- Upon receipt, wastes should be placed in a tray large enough to hold the contents of the container while they are inspected and recorded.
- Where labels are inadequate or missing the owner/deliverer of the item should be consulted to assist with identification.
- Each container must be checked for cross contamination and signs of use for storing/containing a different chemical to that identified on the label.
- Rusty, cracked, brittle or otherwise damaged containers must be handled with special care. They should not be lifted but slid across surfaces and observed for leaks. Recontainment and spill response materials should be close at hand.
- Some chemicals (especially laboratory chemicals) may crystallise when aged and thus present a significant explosion or flammable hazard. Where crystals are found (often in the neck of the bottles), special care and very gentle movement is necessary.
- Label the new container with a unique identifier and record the details on the inventory sheet.
- Place the waste in a tray (if required) and place on the appropriate shelf in the store.
- Where a waste cannot be identified, it should be placed on its own in a tray large enough to hold the volume of the container.
- Ensure that the store is locked before leaving the area.

Waste Reception Equipment List

The following equipment should be available in the waste reception area:

- Spill kit
- Respirator
- Plastic trays/bins for containment of acids/alkalis/corrosives
- UN approved secondary containment devices and PE bags for secondary containment of leaking containers
- Adhesive and tie-on labels
- Waterproof marker pen
- Type I Approved Segregation Device for Class 4 and Class 5



PROHIBITED WASTE LIST

The following wastes will not be received at the Store. The table provides contact details to be assist people who might arrive at the site with these types of wastes.

Hazardous Waste Type	Contact for Disposal Advice
Explosives (Class 1)	Mines Inspectorate, Occupational Safety and Health.
Liquid and solid desensitised explosives (Class 3.2 and 4.1.3)	Occupational Safety and Health Services
Self-reactive (Class 4.1.2) and spontaneously combustible substances (Class 4.2)	Occupational Safety and Health Services
Gases	Occupational Safety and Health Services
Asbestos	Occupational Safety and Health Services
Infectious and biomedical wastes	Medical Officer of Health
Pharmaceuticals	Medical Officer of Health
Radioactive wastes except for domestic smoke alarms.	National Radiation Laboratory

3. STORE LAYOUT AND MANAGEMENT

- All shelves should be clearly labelled with the type of waste and/or hazardous property they possess (e.g. “flammables”, “acids”, “alkalis” and “corrosives”).
- The main storage shelves should generally be reserved for agrichemicals and paints.
- Solids (powders or granules) should be stored on the upper shelves and liquids on lower shelves.
- Large containers should be stored under the shelves or at the back of the store. Do not stack containers.
- Acids, alkalis and corrosives (Class 8) should be stored in segregated plastic bins or trays able to hold the contents of the container(s).
- If any Class 4 or Class 5 substances are received these should be placed in the Segregation Device inside the store (Note Class 4 and 5 materials must not be placed in the same segregation box). Label the outside of the segregation device. Arrangement should be made immediately for these materials to be removed from site.



4. HANDLING LEAKING CONTAINERS

The following procedure must be followed for dealing with leaking containers:

- Call emergency services for major leaks.
- Keep people away.
- Wear PPE, including respirator and eye protection.
- Work in fresh air where possible.
- Do not work by yourself.
- Place leaking containers into a plastic bag and then place into a UN approved container – do not decant.
- Label new containers.
- Soak up any excess spillage with absorbent material.
- Contain all absorbent material.
- Treat all contaminated material as hazardous waste and dispose of accordingly.
- REMEMBER
 - NEVER touch your face when you have been handling waste.
 - ALWAYS wash your hands with soap and warm water at least once before eating, smoking, touching your face, or going to the toilet.
 - WASH spills off your skin immediately.
 - STOP WORK and get fresh air if you feel unwell. Advise your supervisor.



5. WASTE OIL COLLECTION

The waste oil collection facility will be managed as a controlled collection facility, in accordance with the management procedures set out in the *Guidelines for the Management and Handling of Used Oil in New Zealand* (MfE/OSH, 2000) (as set out below).

The facility will comply with the following requirements:

- A prominent sign is posted which advises people wanting to dispose of used oil to avoid contaminating it, lists the products that are not accepted (antifreeze, paints, solvents, gasoline and diesel), and says where unacceptable products should be disposed of.
- The operator visually inspects the oil, and rejects any that he or she suspects may contain something unacceptable. Any rejected oil should be left in its container and labelled as a flammable liquid (Class 3). The container should be placed in the hazardous waste store and disposed via a waste contractor.
- The site uses tanks designed exclusively for the purpose of storing used oils, which can be securely capped and locked (see Appendix 1 for a generic design).
- The site provides written material about the used oil recovery programme it belongs to, and is generally proactive in promoting the programme to the community.
- Tanks are emptied by a used oil collection and transportation agent who complies with the guidelines in Section 6 of the Guidelines.
- Collection facilities are sited to prevent used oils from entering sewerage and stormwater systems, drainage channels and the natural environment.
- Storage facilities are regularly inspected to ensure a high standard of cleanliness and environmental management is maintained, and that regular collections are carried out.
- Storage facilities are formally audited annually, with records retained on site until the next audit. These audits will generally be internal (i.e., conducted by storage facility staff).
- The site can demonstrate that it has a spill-response and clean-up plan, which includes up-to-date procedures for contacting clean-up contractors and notifying the relevant municipal authorities, staff awareness and having a spill kit available (see Appendix 3).
- If storage tanks become contaminated with hazardous materials, site managers should consult their Local Authority Dangerous Goods Inspector for advice or call a transporter able to handle Class 3 material and arrange for collection.

6. RECORD KEEPING

Records must be readily available but must not be kept inside the hazardous waste store.

Inwards Goods Records

When wastes are received, each container should be assigned a unique reference number. The container should be labelled with this number for cross-referencing to the inventory records.

The following details should be recorded for each waste as it is received:

- Date of receipt
- Unique reference number
- A description of the type of waste
- The relevant hazard classes, if these can be identified
- The type of container
- An estimate of the quantity of material (Litres or kg)
- Whether the Approved Handler or Tracking requirements of the HSNO Act apply.

Note: the Approved Handler and Tracking requirements of the HSNO Act are triggered by both waste type and quantity. The overall quantity of wastes of each class should be checked to ensure that the cumulative quantity does not exceed the HSNO quantity thresholds (refer Appendix Two and Appendix Three).

Outwards Goods Records

The following details should be recorded for each waste as it is dispatched from the site:

- Date of dispatch
- Name of transport operator
- Name of Disposal Company (if different)
- Consignment note number (keep a copy of the consignment note).

MONTH

HAZARDOUS WASTE STORE RECORD

NAME OF APPROVED HANDLER.....

Acceptance Record								Disposal Record		
Date Received	Container Reference(s)	Description	Hazard Classes	Type of Container	Quantity (L or kg)	Approved Handler (✓)	Tracking(✓)	Date	Company	Consign't Number

7. WASTE DISPOSAL

The quantity of hazardous wastes in the store should be kept to a practicable minimum by regularly disposing collected waste.

An approved waste disposal contractor should be contacted to remove waste:

- At the end of each month (or site-specific alternative, but at least once every six months if there are materials in the store)
- If the quantity of waste in the store exceeds 500kg (or 1,000kg for a medium-sized store)
- If any Class 4 or Class 5 wastes are received
- If leaking containers are received and placed in secondary containment.



8. REDISTRIBUTION OF MATERIALS FOR USE

The management procedures for the redistribution of chemical for use are in three parts:

1. Identification
2. Legal requirements
3. Restrictions on use

8.1 Identification

It is not possible to unequivocally identify chemicals that are deposited at a collection facility so a degree of informed judgement by a suitably experienced person will be required in all cases.

The following steps should be taken to confirm the identity of the substance:

- Make reasonable inquiries of the person depositing the waste to confirm the identity of the contents.
- Ensure that the labelling on the container is consistent with its supposed contents.
- Check for any obvious contamination, discolouration, physical separation or odour that would indicate the material is contaminated (note: DO NOT open the container).

IF THERE IS ANY DOUBT ABOUT THE IDENTITY OF A MATERIAL, IT SHOULD BE DISPOSED VIA A WASTE CONTRACTOR AND MUST NOT BE GIVEN TO ANY OTHER PERSON OR USED.

8.2 Legal Requirements

The following flowchart provides guidance on the appropriate management of collected materials in accordance with the Agricultural Compounds and Veterinary Medicines Act 1997 (ACVM Act) and the transitional provision of the Hazardous Substances and New Organisms Act 1996 (HSNO Act). Note that these guidelines may not apply once a substance has been transferred under the HSNO Act or after the expiry date for the transitional provisions

It is assumed that the council takes full ownership of any wastes deposited with them.



8.3 Restrictions on Use

Every effort should be made to ensure that the person who is receiving the collected materials is competent in their handling and use. For example, agrichemicals should be redistributed to an agrichemical contractor or Landcare Group where the individuals have Growsafe (or equivalent) training.

Any person accepting collected materials should sign a disclaimer form (an example is given in Appendix Four).

Guidelines for Use of Agrichemicals

- Follow all label instructions for safe handling and use. If the label is unclear contact the manufacturer.
- Do not use if there is any discolouration, physical separation or odour that would indicate the material is not as per the label or is contaminated.
- Do not use near sensitive receiving environments such as:
 - Near potable, stock or irrigation water supplies
 - On sports fields or playgrounds
 - On pasture or
 - On crops or vegetable gardens



APPENDIX ONE

CONTACT DETAILS

Contact details should be provided for the following:

- Approved Handler (Name, contact details and Hazard Classes)
- Approved Waste Disposal Contractors
- TLA Contact for hazardous waste management advice
- Medical Officer of Health
- National Radiation Laboratory
- Mines Inspectorate, Occupational Safety and Health
- Occupational Safety and Health



APPENDIX TWO

APPROVED HANDLER REQUIREMENTS

The following table sets out the HSNO quantity thresholds that trigger the requirement for an Approved Handler (Note: Class 1 not included on the basis that these will not be accepted).

Quantity of Substance that Activate Approved Handler Requirements

Hazard Classification	Quantity
2.1.1A	100 kg (not permanent gases) 100 m ³ (permanent gases)
2.1.2A	3,000L aggregate water capacity
3.1A	Any amount
3.1B	100 L (closed) 25 L (decanting) 5 L (open occasionally) 1 L (open continuously)
3.2A	Any amount
3.2B	100 L
4.1.1A	100 kg
4.1.2A and B	Any amount
4.1.2C and D	25 kg
4.1.2E and F	50 kg
4.1.3A	Any amount
4.1.3B	100 kg
4.2A	Any amount
4.2B	100 kg
4.3A	Any amount
4.3B	100 kg
5.1.1A	Any amount
5.1.1B	500 kg or 500 L
5.1.1C	1,000 kg or 1,000 L
5.1.2A	250 kg or 200 m ³
5.2A or 5.2 B	Any amount



5.2C, 5.2D, 5.2E or 5.2F	10 kg or 10 L
5.2G	Approved Handler not required
6.1A, 6.1B, 6.1C	Any quantity
6.7A	10kg or 10L
8.2A	Any quantity
9.1A, 9.2A, 9.3A, 9.4A	Any quantity

Sources:

Hazardous Substances (Classes 1 to 5 Controls) Regulations 2001:

Schedule 3, Table 2

Schedule 4, Table 3

Schedule 5, Table 2

Hazardous Substances (Class 6, 8 and 9 Controls) Regulations 2001: Schedule 1



APPENDIX THREE

TRACKING REQUIREMENTS

The following table sets out the Hazard Classifications of substances requiring tracking (Note: Class 1 not included on the basis that these will not be accepted).

Hazard Classifications of Substances Requiring Tracking

Intrinsic Property of Substance	Hazard Classification
Flammability	3.1A
	3.2A
	4.1.2A and 4.1.2B
	4.1.3A
	4.2A
	4.3A
Capacity to oxidise	5.1.1A
	5.2A and 5.2 B
Toxicity	6.1A, 6.1B and 6.1C
Ecotoxicity	9.1A
	9.2A
	9.3A
	9.4A

Source: Hazardous Substances (Tracking) Regulations 2001: Schedule 1



APPENDIX FOUR

EXAMPLE DISCLAIMER FORMS

Example disclaimer forms that could be used for the redistribution of collected materials are shown on the following pages.



**IMPORTANT DISCLAIMER
REMOVAL OF UNWANTED CHEMICALS
REFUSE TRANSFER STATION**

From time to time, certain chemicals become available for removal from the Refuse Transfer Station, with possible re-use by interested parties.

The receiver of the chemicals accepts full responsibility for the chemicals at their OWN RISK:

The Hamilton City Council and its staff make no representation to the receiver of the chemicals that the chemicals are labelled correctly or comprise any particular chemical, Chemical composition or dilution.

The chemicals are provided on the strict understanding that Hamilton City Council and its staff are not responsible for any consequence arising from or in connection with the application, handling, labelling, storage or any other use of the chemicals.

The receiver acknowledges that any chemicals removed and the wastes resulting there from will be used and disposed of in an environmentally acceptable manner. If chemical advice or other expert assistance is required, the service of a competent professional person should be sought.

IT IS HEREBY ACKNOWLEDGED that having received the following chemicals:
I THE UNDERSIGNED RECEIVER OF THE CHEMICALS HAVE READ THIS
DISCLAIMER AND UNDERSTAND ITS CONTENTS

.....

*(Signature of the receiver of Chemicals)

Print (full name of receiver)

..... (Name of Company receiving if any)

.....

.....

..... (Address)

*Note: If the receiver of chemicals is a company, state full company name and the full name and position (eg Director/ Secretary/Manager) of the person authorised to accept the chemicals on the company's behalf.

APPENDIX H

AGRICHEMICALS NOT REGISTERED FOR USE IN NEW ZEALAND



REGIONAL HAZARDOUS WASTE WORKING PARTY

GUIDELINES FOR THE SITING, CONSTRUCTION AND USE OF SHORT TERM HAZARDOUS WASTE STORAGE FACILITIES

REFERENCE NUMBER: 50500 June 2002

APPENDIX I

EXAMPLE OF A HAZARD ASSESSMENT PROCEDURE

Example of a Hazard Assessment Procedure

Source: Supervisors Handbook for Occupational Safety and Health Management (Environment Waikato, 1996)

1. Group the hazards to be assessed

Consider the easiest way to assess the hazards identified. One method would be to group the hazards identified into worksite hazards, offsite hazards, accidents and other hazards. From there the hazards could be grouped further into those of the same hazard type and each hazard type assessed in turn.

2. Assess the possibility of harm being caused when the hazard occurs

Harm may not arise from exposure to a hazard in every case and in practice the possibility of harm will be affected by the organisation of the work, how effectively the hazard is controlled and, the extent and nature of exposure to it. It is not always apparent that an injury, illness or damage can result from a perceived hazardous situation. For example:

- Eye strain from inadequate lighting is a potential hazard. However if there have never been any cases reported (assuming that the lighting meets the New Zealand Standard for light level in a room) the possibility of harm may be unlikely.
- The possibility of harm from falling down a bank because of inadequate fencing may be unlikely because the slope is gentle and the bank falls away.

When assessing the possibility of harm occurring select the statement most appropriate to the hazard being assessed from the table below. Transfer the relevant rating to Column One (Possibility) of the risk score calculation table given in Section 5 of this appendix.

POSSIBILITY	RATING
Happens often/expected	10
Likely to happen	6
Unusual (but it could happen)	3
Only remotely possible (but it has happened before Conceivable (but it hasn't happened yet)	1
Practically impossible	0.5
Virtually impossible	0.2
	0.1

3. Assess how much a person is exposed to the hazard

Exposure to a hazard may not occur all the time. It is important to look at how often people and/or property are exposed to the hazard. For example:

- Occupational Overuse Syndrome from working with computers is a hazard. But if computers are only used one hour per day there is little likelihood of harm occurring
- Chemical poisoning is a hazard, but if it is only kept in very small quantities and the containers are always in good condition, there is little likelihood of harm occurring.

When assessing the exposure to harm select the statement most appropriate to the hazard being assessed from the table below. Transfer the relevant rating to Column Two (Exposure) of the risk score calculation table given in Section 5 of this appendix.

EXPOSURE	RATING
Continuous	10
Frequent (daily)	6
Occasional (weekly)	3
Unusual (monthly)	2
Rare (A few times a year)	1
Very rare (yearly)	0.5
No exposure	0

4. Assess how severe the harm would be if it occurred.

Hazards vary in severity. The effect of the hazard needs to be rated to identify those hazards that are most significant. This rating includes both actual harm caused by a hazard as well as the potential harm a hazard may cause.

This information should have been identified at the hazard identification stage. This has happened because the people doing the job have a clearer idea of the harm that could be caused by the hazard. For example:

- Falling or tripping as a result of an uneven surface would have more severe consequences if it were from a rooftop than if it was on rolling farmland.
- The consequences of chemical poisoning will be more severe where the chemical is highly toxic (a deadly poison) than where the chemical is a low toxicity chemical (a harmful substance)

When assessing the severity of harm, select the statement from the table below that is most appropriate to the hazard being assessed. Transfer the relevant rating to Column Three (Severity) of the risk score calculation table given in Section 5 of this appendix.

SEVERITY	RATING
Disaster (more than one fatality)	40
Very serious (one fatality)	15
Serious (serious harm)	7
Important (temporary harm)	3
Minor (non-disabling)	1

5. Prioritising hazards

To give priority to each hazard, you need to calculate the total risk rating. A calculation table is provided below. When developing procedures, consider each hazard in order of priority. Remember that this score is for prioritising purposes only and should not be interpreted as an accurate measure of the risk of a hazard occurring.

Possibility x	Exposure x	Severity =	Risk Score	Priority
10	6	15	900	A (199+)
3	6	7	126	B (67 TO 198)
0.1	0.5	3	0.15	C (0.15 TO 66)

6. Identify the significance of the hazards

The Act requires all significant hazards to be controlled. Therefore if a hazard is significant (i.e. has a severity rating from Section 4 of this appendix of more than 7), even if it is a C priority, it must be assessed for control purposes.

The hazard rating, a date for review and the significance of the hazard should be recorded in the Workplace Hazard Register. A standard table for a workplace hazard register would look like this:

Job and Activity; or Chemical and Substance; or Plant and Equipment	Hazard	Hazard Rating	Review Date	Significant Hazard?
Chemical Store	Spills	?	?	?
	?	?	?	?

APPENDIX J

MODEL SITE EMERGENCY PLAN

MODEL SITE EMERGENCY PLAN

This plan is taken from *Managing Hazards Waste* (CAE, 2000) and has been adapted from the Maritime Safety Authority Model Site Marine Oil Spill Contingency Plan.

NOTE: In the following model plan, words in italics are instructions to the plan author. Normal text should be inserted into the plan as they appear, or in like kind. [Square brackets] are places where the plan author should place names, etc. specific to this plan.

1. Purpose and Policy

The purpose of this document is to describe in detail the systems whereby there is a planned response in place in case of any emergencies that relate to the spillage of hazardous substances or waste, or other emergency situations, from the [name] site/operation that is liable to be a health and safety risk and/or pollute the environment.

The [name] site is subject to the provisions of the Resource Management Act 1991 and Health & Safety in Employment Act 1992, and is therefore advised to have in place a site plan for response to any incident which occurs on or from this site. This is to ensure that the risk to personnel is reduced as far as possible, and that incidents can be immediately and effectively contained within the site or within a defined boundary adjacent to the site, as agreed with the regional council.

To meet its responsibilities the [company name] has prepared this site emergency incident contingency plan.

1.1 Title

This document may be cited as the [company name] Site Emergency Plan.

1.2 Safety

NOTE: The safety of people overrides all other considerations.

In the event of an emergency, all sources of ignition must be shut down and the area checked for flammable vapours before deploying any machinery in the area. Operations in conditions that endanger personnel must be suspended until conditions improve.

NO CLEAN-UP OF ANY AREA IS TO COMMENCE UNTIL IT HAS BEEN DETERMINED SAFE TO DO SO.

“Safe to do so” means each person must make a judgement based upon their training and experience in coping with the situation faced.

Personnel involved in a clean-up must be appropriately trained and issued with the appropriate protective clothing and safety equipment.

Refer to relevant parts of the company's health and safety plan and insert a section here detailing the various measures in place to be used to protect personnel during a spill and the ensuing response.

Where necessary an evacuation plan must be prepared and inserted here.

1.3 Responsibilities

The following positions within [the company] have the responsibilities for putting the plan into action as and when required, as noted:

All personnel have a duty to respond initially to an emergency by raising the alarm, warning other personnel on site, and standing by in a safe location until instructed to take part in the clean-up exercise if needed.

Note here all other company personnel who are involved in the response structure, such as:

- the site manager;
- the person who was responsible for preparing this plan and who puts it into effect in the event of an emergency;
- the environmental and health and safety manager(s) for the company; and
- any other person who would have a role to play in an emergency, other than the on-the-ground personnel who carry out the manual tasks involved in the clean-up.

2. Description of the Company Site

Insert here a detailed description of the company site identifying likely routes for release to surrounding environments (e.g. stormwater drains, waterbodies etc.). A map/plan of the site should be included in Appendix 1. You should also include the following points where relevant:

- the location to which the plans applies. The “site” is the area of land for which the plan makes provision and sets up response procedures;
- coastal access points (from the site and public access) including roads and other vehicle access; and
- any other specific information about the site and its environs which will be of use in the response to a spill or other emergency.

2.1 Sensitive Environments

Sensitive environments within the company’s vicinity such as rivers or waterways, beaches, mangrove areas, wetlands, agricultural land, culturally sensitive areas, parks, etc. should be listed so that in the event of an emergency, protection can be considered. Sensitive sites should be given priority if possible. These should also be included in the map in Appendix 1.

In most instances your regional council will have prepared detailed inventories of such sites and these should form the basis of the information included within this plan. Some judgement will be required as to the level of detail and coverage included — seek assistance from your regional council to do this.

2.2 Characteristic Substances Stored at the Site

Provide as much detail as you can which might be of assistance in an emergency, such as chemical types, flash points, any incompatibilities, and any available health and safety information. Material safety data sheets should be included as an appendix to the plan.

2.3 Potential Spill Sources and Risks

This plan needs to identify the specific scenarios that this site contingency plan will cover.

NOTE: Do not include those scenarios that are beyond the scope of this plan, including those circumstances, as agreed with the regional council, when a regional response will be undertaken.

The risks consequent on each scenario will need to be identified. A list of all the areas where there is the potential for overflows, spillage of product, etc. should be placed in this section. An assessment must be made of the likely magnitude of different types of emergency incidents. Your regional council can assist with this.

Allow for all types of release scenarios, including:

- handling accidents;
- damaged containers;
- unstable storage;
- vandalism;
- chemical reaction;
- flooding;
- fire; and
- Natural hazards (earthquakes. major storms etc.).

2.4 Preventative Measures in Place

A list or description of preventative measures that are in place at the company's site should be inserted here. These could include special security and alarm systems, bunding of storage areas, spill kits, stormwater drains directed to separators, saline bags for placing over drains, etc. It should be noted that emergency response requirements could well be lessened if the regional council considered that sufficient preventative measures had been put in place.

2.5 Training

A commitment to training all staff to be conscious of their responsibilities in relation to adverse incidents should be stated, and specific training for emergency response should be undertaken regularly. You will need to list here all personnel on site who can be called upon in an emergency response, their contact numbers, and their level of training and/or special expertise (e.g. first aider, spill kit user, boom operator, digger driver, etc.)

2.6 Response Organisation

In the event of an incident occurring a reporting procedure should be adopted for:

- staff to management;
- management to regional council;
- Fire Service (if necessary); and
- Police (if necessary).

A list of relevant phone numbers and personnel to contact should be included in Appendix 5.

You will need to set out, preferably in diagram form, the lines of communication from the discoverer of an incident to all relevant people. An example is set out below. Further advice on assessing the severity of an incident can be obtained from the Incident Potential Matrix produced by the Shell International Petroleum Company.

It may be appropriate to categorise incidents as follows:

Type A: An incident which can be contained before it leaves the store or site and can be cleaned up by the company or its contractors within the scope of this plan, or an accident in which there were no serious injuries or on-going risk to personnel.

Type B: An incident which leaves the site, but can still be contained and cleaned up by the company or its contractors within the scope of this plan, or where minor injury has occurred and there is an ongoing minor threat to personnel.

Regional Response: An incident which cannot be contained and leaves the site or threatens to do so, and cannot be cleaned up without significant external resources. There is or may be a threat to personnel and local resources and/or response is beyond the scope of this plan and should be under the control of outside authorities.

3. Equipment and Operators

It is recognised that spill response may require equipment and/or operators rapidly. The [.....]Regional Council must be informed immediately.

3.1 Equipment Available on Site

Insert a list of equipment available for containment and clean-up held on site should be recorded (Refer Appendix 2).

3.2 Equipment Available Elsewhere

Insert a list of equipment available for containment and clean-up held off site (Refer Appendix 3).

3.3 Operators and Other Assistance Available

Note here the sources of equipment, personnel and relevant operators (e.g. contractor/digger companies, vacuum truck operators) which could be used in a clean-up operation. Include a detailed list of equipment, call-out numbers and names in Appendix 4.

4. Response Procedures

Detail what you can/will do in each of the scenarios set out in 2.3 above. Some of the questions you may need to ask for assessing the adequacy of your contingency plan are:

- Has there been a realistic assessment of the nature and size of the possible threat, and of the resources most at risk, bearing in mind the type of substance stored and the probable movement of any incident?
- Has the process for notification of the regional council been established?
- In the event of a significant emergency, has the process by which outside agencies take control of the response function been established and recognised in the plan?
- Have priorities for protection been agreed, taking into account the viability of the various protection and clean-up options?
- Has a strategy for protecting and cleaning the various areas been agreed and clearly explained?
- Has the necessary organisation been outlined and the responsibilities of all those involved been clearly stated with no “grey areas” — will all who have a task to perform be aware of what is expected of them? In particular, are company responders aware of their role and responsibilities in the event of outside agencies taking control of the emergency response?
- Are the levels of equipment, materials and manpower immediately available sufficient to deal with the size of emergency planned for? If not, have back-up resources been identified?
- Have temporary storage sites and final disposal routes for collected spilled substance been identified?
- Are the alerting and initial evaluation procedures fully explained as well as arrangements for continual review of the progress and effectiveness of the clean-up operation?
- Have the arrangements for ensuring effective communication during the response been described?
- Have all aspects of the plan been tested and nothing significant found lacking?

4.1 Immediate Response

The **person who discovers** the emergency situation will first:

- determine whether it is a result of an incident which occurred some time ago, or is still occurring; and
- identify the type of substance released and, if possible, obtain a sample;

It is of utmost importance, once an emergency has been reported, to ensure the safety of all staff. In the event of an emergency, attempt to isolate the source and limit or contain the release, taking safety into consideration. If safe to do so, take immediate steps to limit the size of the release by shutting down pumps, closing valves, or taking whatever other action is appropriate. He/she will then report it to their supervisor or the person nominated to respond to emergency incidents [name/position in company] on [phone number/ extension/pager] or the company telephone operator [phone].

The **supervisor** or the person nominated to respond to incidents will then:

- have the incident evaluated by [name/ position in company].
- notify the [.....] Regional Council (Phone.....) and will follow this, as soon as practicable, with a fax of the same details. (Fax.....).

NOTE: What constitutes a notifiable incident should be agreed between the company and the regional council or other emergency services.

Fill in an emergency incident notification report form as set out in Appendix 6.

Undertake other action as required by the plan.

NOTE: Where appropriate, e.g. for larger sites, it will be necessary to detail in an appendix the specific roles of all key personnel involved in response, as well as provide forms for pollution notification, spill evaluating, etc. This should be discussed with your regional council.

4.2 Category of Incidents

All incidents will be evaluated as soon as possible by [state name/position in company] and categorised progressively as type A or type B or regional response, as defined on in Section 2.6 above.

4.3 Procedure Following Incident Evaluation

Once an incident has been evaluated, the [company's emergency response coordinator name/ position in company/ phone or extension or pager number] is to be notified. In his absence, his/her deputy is to be notified [name/position in company/phone or extension or pager number]

The emergency response coordinator will proceed immediately to the emergency response room [location] and take command of the response operation according to the procedures set out in 4.4, 4.5 and 4.6 below. Any or all of the response procedures set out in Section 4.0 above may be used by the response coordinator, who has responsibility for action on behalf of the company in the event of a type A or type B incident.

NOTE: For smaller and/or mobile sources, there may be no emergency response room. Note other/alternatives.

4.4 Procedures for a Type A Incident

Once an incident has been categorised Type A, the emergency response coordinator is to supervise the following actions:

- carry out procedures to ensure safety of staff and the public. If appropriate, notify Fire Service and Police and initiate evacuation procedures;
- take any safe steps to prevent further discharge at the source of the event;
- mobilise appropriate equipment and personnel to commence containment and clean-up;
- advise the [.....] Regional Council, on phone [.....] fax [.....] (subject to regional council agreement on need to advise see 4.1 above);
- notify neighbouring properties and landowners of the incident; and

- supervise clean-up operations in such a manner as to ensure no or minimal environmental damage.

4.5 Procedures for a Type B Incident

Once an incident has been categorised type B, the emergency response coordinator is to supervise the following actions:

- carry out procedures to ensure safety of staff and the public. If appropriate, notify Fire Service and Police and initiate evacuation procedures;
- take any safe steps to prevent further discharge at the source of the incident;
- advise the [.....] Regional Council, on phone [.....] fax [.....];
- notify neighbouring properties and landowners of the emergency;
- mobilise appropriate equipment and personnel to commence containment and clean-up (it should be noted that equipment from other sources is available for use and this is listed in Appendix 3); and
- supervise clean-up operations in such a manner as to minimise any environmental damage.

Clean-up should be completed so that the area affected is returned as near as possible to its natural state prior to the incident.

The [.....] Regional Council will attend the response and monitor the cleanup. The regional on-scene commander may take control of the response, if they consider it to be appropriate, or if asked to do so by the site emergency response coordinator.

4.6 Procedures for an Incident Requiring a Regional Response

If an emergency situation and containment and/ or clean-up operation is determined to be beyond the capability of the site response system, the regional council should be notified as soon as possible on phone [.....] fax [.....]

NOTE: In some instances the regional council or other emergency services may classify the incident as requiring a regional response and take control of the situation and/or clean-up.

Once an incident has been declared to be under the control of outside authorities, management of the company should:

- carry out procedures to ensure safety of staff and the public. If appropriate, notify Fire Service and Police and initiate evacuation procedures;
- take any safe steps to prevent further discharge at the source of the incident;
- notify neighbouring properties and landowners of the incident;
- take any safe steps to deal with the incident (as directed by the regional on-scene commander) until outside help arrives; and
- assist the outside authority with personnel and equipment to undertake any response and clean-up operations until completed.

You will need to be quite specific in setting out all of the above procedures, particularly for larger, more complex sites, including step-by-step instructions for all personnel involved in the response/clean-up operation. Flow charts are a very useful way of showing this information. For smaller events or simple sites, emergency procedures can be displayed as simple one page documents.

IT IS ESSENTIAL THAT ALL PERSONNEL INVOLVED KNOW EXACTLY WHAT THEY ARE TO DO, WHO TO NOTIFY/REPORT TO, ETC.

5. Media Releases

The only person who is authorised to make public statements, via the media or not, is [name/ position in company].

6. Debriefing

After the clean-up has been completed a debriefing involving all personnel concerned with the incident should be carried out, and a report with recommendations compiled to the [.....] Regional Council. It is the responsibility of [state name/position in company] to arrange and organise a debriefing and review of the plan (Refer 8 below).

NOTE: The regional council or emergency services may wish to be involved in the debriefing and should be invited.

7. Points to Consider

It is recognised and probable that any incident may be part of a fire or similar emergency and that Fire Service and Police would supervise the event probably by appointing a commander. In this case, any clean-up operation undertaken would be subordinate to that agency.

8. Document Review

This document must be reviewed not less than once every twelve months to check the currency and completeness of the information contained in it. The next review is due in [.....]. This document must also be reviewed after its use in response to an emergency incident.

NOTE: The regional council may need to approve any significant amendments to this plan, and may wish to be involved therefore in its review.

9. Plan Testing

This plan must be fully tested not less than once every twelve months, with individual components of the plan being tested as necessary. Tests are due before [.....] and [.....]. Any modification that would increase the effectiveness of the plan must be made.

10. Appendices

Appendix 1: Map of Site

Show site and its relationship to all sensitive sites/environs, drains, waterways, etc.

Appendix 2: List of Equipment Available On-site

Note all equipment, where it is stored, who has access to it (plus 24 hour phone numbers), and any special requirements for its use (e.g. "Can only be operated by [name]", or "can only use following approval from Regional Council." (All contact people and their contact details (phone numbers, pagers, e-mail etc.) should be checked and updated regularly.)

Appendix 3: List of Equipment Available Elsewhere

Include location of equipment, 24 hour contacts of people who can get access to it, and the list of equipment available. Note any special requirements for its use - e.g. "can only be operated by [name]" where necessary. (All contact people and their contact details (phone numbers, pagers, e-mail etc.) should be checked and updated regularly.)

Appendix 4: List of Operators

List operators who can assist in a clean-up, such as sucker/tanker truck firms, earthworks contractors, any firms experienced in hazardous substance clean-up or who may have equipment to assist. (All contact people and their contact details (phone numbers, pagers, e-mail etc.) should be checked and updated regularly.)

Appendix 5: Telephone Numbers of Other Organisations

National Poisons Centre: (03) 474 7000 (Urgent) - 24 hour phone.

NZ Fire Service

Ambulance

Police

[.....] District Council [contact name and telephone number]

[.....] Area Health Board [contact name and telephone number]

[.....] Hospital [contact name and telephone number]

[.....] Port company [contact name and telephone number]

Department of Conservation [contact name and telephone number]

Department of Labour, OSH [contact name and telephone number]

Civil Defence [contact name and telephone number]

Regional Council Pollution Hotline

(All contact people and their contact details (phone numbers, pagers, e-mail etc.) should be checked and updated regularly.)

Appendix 6: Pollution Report and Incident Forms

As discussed and agreed with the [.....] Regional Council.

APPENDIX K

EXAMPLE EMERGENCY PROCEDURES

EXAMPLE EMERGENCY PROCEDURES

These procedures have been taken from *Managing Hazardous Waste* (CAE, 2000).

These procedures are intended to be examples of instructions that can be laminated and displayed at appropriate places around the storage facility. The Emergency Plan should contain such instructions, which are concise and easy to read.

SAFETY OF PEOPLE IS MOST IMPORTANT DURING ANY EMERGENCY

1. Hazardous Waste Store – Hazard Identification

The events most likely to cause emergencies at the hazardous waste store are as follows

- Fire or explosion in the hazardous waste store or nearby buildings;
- Chemical spills/reactions within the store;
- Chemical spills or staff injury while handling hazardous waste; and
- Flooding of the hazardous waste store.

Other emergency events that are considered to be of very low risk include:

- Earthquakes; and
- Other natural hazards — e.g. tornadoes.

2. Risk Reduction and Emergency Procedures

Through care and good management the risks of emergency events occurring can be reduced or eliminated.

2.1 Fire/Explosion in the Hazardous Waste Store or Neighbouring Buildings

Possible causes of this hazard include:

- Vandalism
- Sparks igniting flammable gases/fumes.
- Reactions between incompatible chemicals
- Smoking in or near store.
- Spontaneous combustion of flammable gases at flashpoint concentrations.

2.1.1 Emergency Procedures

In the case of a fire in the hazardous waste store the following procedure shall be carried out:

- Sound the alarm and dial 111 for Fire Service.
- Advise the operator of:

- company name;
 - location (suburb, street, nearest intersecting street to relevant site entry);
 - type of emergency;
 - casualties;
 - assistance required;
 - telephone contact number; and
 - name of caller.
- If the fire is in its initial stages personnel may attempt to extinguish the fire or remove the source. This should only be attempted if protective clothing (including full face respirator) is worn, and if it can be done with no additional danger to persons or property.
 - Customers and staff must be evacuated to at least 200 metres from the facility.
 - Fire Service must be provided with hazardous waste store inventory records, plan etc. Copy to be held nearby but separate from the store.
 - Ensure that any liquid used to control the fire (or spilt during the event) is contained. Drain covers and absorbent materials are to be stored nearby.
 - Notify the local Council.
 - Notify the Regional Council.
 - Place a temporary bund of sand or absorbent material around any stormwater drains.
 - Assist the emergency services as necessary.

2.2 Chemical Spills/Reactions in or near the Store

Possible causes include:

- Accidents/carelessness when handling chemicals;
- Damaged, weak or inappropriate containers;
- Unstable stacking of containers; and/or
- Vandalism.

Steps to eliminate or minimise risks include:

- Provide security monitoring for the site and buildings after hours.
- Minimise handling of chemicals.
- Repackage leaking chemicals into new UN approved containers. Transfer the label details across to the new container.
- Staff must be trained in safe handling and spill containment procedures.
- Containers should not be stacked unless unavoidable. If containers must be stacked, only use stacking containers designed for that purpose. Consider using shelves with steel mesh covers to stop containers falling.
- Spill kits for the various chemical types should be provided and maintained in easily accessible positions both within the store and adjacent to it.
- Check labels and/or test chemicals to ensure that the container is appropriate for its contents, i.e. acids not in metal tins.
- Place all containers in bunded areas and/or in plastic trays large enough to hold the entire contents of the container if it leaks.
- A drum of dry sand or absorbent material must be available to isolate any spills outside of the bunded area and to block off exit points such as stormwater drains.

2.2.1 Emergency Procedures

- Assess the scale of the spill.
- Identify chemicals involved, refer to the label, MSDS or other information sources. Check for any special handling instructions.
- Minor Spills — i.e. only a few containers. Use clay granules and spill kits to clean up the mess. The contaminated absorbent material must be treated as hazardous waste and be placed in sealed containers for disposal. The container must be labelled and recorded in the system noting the details of the contaminant.
- Major Spills — Isolate the spill using dry sand or spill booms. Move other containers away from the spill site and either pump the spilled liquid into new containers or use absorbent materials to soak up the spilt liquid.
- Dispose of any contaminated material as hazardous waste.
- Ensure that any nearby stormwater drains are isolated with temporary bunds of dry sand or absorbent materials.

- For large spills or for dangerous or reacting chemicals (i.e. spills which may have an effect off the site) call the Fire Service and Regional Council. Follow procedures for fires and explosions as appropriate.
- If any liquid enters stormwater system or any neighbouring streams notify the local territorial authority and the regional council.
- Always wear protective clothing (gloves, overalls, eye protection) when handling chemicals.
- Avoid breathing any fumes. Wear appropriate respirators.
- All contaminated equipment must be placed in sealed containers and held for disposal as hazardous waste.
- Any floor staining or slight residue unable to be absorbed can be washed with detergents or solvents and the liquid retained for disposal. Ensure compatibility before applying detergent or solvent.
- If the spill occurred outside the storage facility and soil has been contaminated, the contaminated soil must be removed and held until a suitable disposal method can be identified.

2.3 Staff Injury While Handling Hazardous Waste

Possible causes include:

- Unlabeled or mislabelled waste.
- Damaged weak or inappropriate containers.
- Chemical reactions between incompatible chemicals.
- Inhalation of toxic or narcotic fumes (e.g. solvents).
- Contact with corrosive or toxic on-contact chemicals.

Steps to minimise risk include:

- Minimise handling of chemicals.
- Staff must be trained in safe handling and spill containment procedures and be familiar with the risks that the chemical may pose.
- Containers should be visually examined before they are moved. If containers look fragile, the substance should be repackaged in UN approved hazardous goods containers and all label details transferred to the new container.
- Working and storage areas must be well ventilated.
- All chemicals must be identified on receipt. The contact details of the person they came from should be noted.
- Unknown chemicals should be treated as extremely hazardous until proven otherwise.
- Unknown chemicals should be characterised using an experienced laboratory or removed off site as quickly as practicable.
- Staff must be provided with all necessary protective equipment and trained in its use.

- Staff must be aware of where first aid equipment is kept and the use of the equipment.

2.3.1 Emergency Procedures

- Immediately wash the affected skin area, use the emergency shower and/or eyewash as appropriate.
- Remove affected clothing immediately.
- Check MSDS, labels and other chemical data (if available) for any specific first aid instructions.
- If the chemical is known to be toxic through skin contact and no first aid information is available consult a doctor immediately.
- If there is any redness of skin, swelling, rash or itchiness, etc. Consult a doctor.
- If the staff member exhibits symptoms such as nausea and there is reason to believe that fumes may have been the cause, immediately cease work in the store. If the symptoms continue consult a doctor. Do not resume work in the facility until medical approval has been received.

2.4 Flooding of Hazardous Waste Store

Possible causes include:

- Blockage of stormwater drains during heavy rain.
- Strong winds driving rain into store; and/or
- Vandalism.

Steps to eliminate or minimise risks:

- Ensure regular clearing of stormwater drains.
- Ensure security of both store and overall site, especially after hours.
- Make sure staff, including after hours security staff, know to keep an eye on the Hazardous Waste Store and who to call in an emergency.
- All containers in the store should be waterproof. Shelving should be provided for powdered formulations. Keep containers above ground level.
- A bund around the store will assist keeping water out as well as in.

2.4.1 Emergency Procedures

- Eliminate cause of flooding if possible.
- Ascertain if any chemicals have leaked into the water.
- Wear gloves, gumboots and waterproof overalls when in contact with water, treat as if contaminated.
- Extract flood water from the store, do not discharge to stormwater as it will most likely be contaminated.

- Water must be disposed of as hazardous waste through a suitable waste disposal facility.
- Notify the territorial authority and the regional council if the contaminated water has entered the stormwater system or nearby streams.

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APPENDIX L

SPILL RESPONSE EQUIPMENT

Spill Response Equipment

All sites will need a minimum 100 Litre spill response kit, as sold by a number of companies, such as NZ Safety Limited and EnviroSafety Limited. These kits are contained inside a labelled wheelie bin and include as a minimum:

- Spill mats, pillows and booms
- Absorbent granules
- Plastic brush and pan
- Disposable apron
- Disposable bag and tie (for contaminated mats/booms, etc)
- Goggles, gloves and respirator

NOTE: There are two kinds of spill kits – those designed for water-based liquids, and those that are more effective on oil-based liquids. Hazardous waste storage facilities will require “general” or “all purpose” kits containing absorbent suitable for both oil and water-based liquids.

Other materials that should be available for emergency response are:

- Rubber gumboots with a steel toe.
- Sandbags or drain mats if there are stormwater grates near the store
- Danger tape to mark off and isolate the spill area.
- A recovery drum for putting leaking containers, solids into.
- Polyethylene liners for the drum.
- Labels to identify recovered spillage.
- Marker pen
- Shovel and broom
- Sample jars (if a sample needs to be taken to confirm identity of spillage).
- A list of people you may need to contact in case of a spill emergency and their telephone numbers.