Appendix L of the CEMP

Hazardous Substances Management Plan

NZ TRANSPORT AGENCY
WAKA KOTAHI

1 MacKays to Peka Peka Expressway

Revision History

Revision Nº	Prepared By	Description	Date
A	Emily Sadlier	Draft for Internal Review	8 August 2011
B	Emily Sadlier / Kate Jackson	Draft for Internal Review	11 October 2011
C	Kate Jackson	Draft for Internal Review	22 November 2011

Document Acceptance

Action	Name	Signed	Date
Prepared by	Kate Jackson		22/11/11
Reviewed by	Jenny Simpson		12/12/11
Approved by	Jenny Simpson		12/12/11
on behalf of	Beca Infrastructure Ltd		

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Appendices

How to use this document:

The Project team[1] is required to control and manage the storage and use of hazardous substances associated with the Project.

When any new hazardous substance in brought onto the site the following procedure must be followed:

1. **Refer to Appendix L.A:**

- Determine the trigger quantities for any hazardous substance stored within the Project footprint.
- Where the substance is not listed obtain a HSNO classification for the substance from either the Safety Data Sheet (SDS) or the supplier and determine the required controls.
- Where specific controls are required refer to the appropriate section of this plan for guidance.

2. **Update Register** (Appendix L.B)

- The Project team is required to produce and manage a register of hazardous substances used or stored.

3. **Update plan showing hazardous substance storage areas** (Appendix L.C)

- This map must show:
  - the location of hazardous substance storage areas;
  - fire fighting requirement and
  - spill kits

4. **Review storage area**

- Ensure all hazardous substances are stored safely and securely
- Is secondary containment required?
- Is secondary containment sufficient?

5. **Review General Requirements**

- Ensure all hazardous substances are correctly labelled.
- Ensure all hazardous substances are correctly transported.
- Dispose of all hazardous substances and their containers appropriately.

[1] This Management Plan refers to the Project team as carrying out works on behalf of and as contracted by the NZTA. The NZTA is the requiring authority and the consent holder.

1 Introduction

1.1 Purpose

This Hazardous Substances Management Plan (HSMP) forms part of the comprehensive suite of management plans that have been prepared for the construction phase of the MacKay's to Peka Peka Expressway Project. This document outlines the hazardous substances that are to be used or stored as part of the construction activities, and how the risks associated with these substances are to be managed.

This document has been prepared for two distinct purposes:

1) to provide information to the construction team as to acceptable management methodologies during the construction phase, and

2) to provide information to the consenting authorities to demonstrate that the possible risks as a result of storage and use of hazardous substances has been considered and will be appropriately managed by the construction team.

1.2 Scope

This management plan outlines appropriate hazardous substance methodologies for:

- Storage;
- Handling;
- Transport; and
- Disposal.

Through the management of these aspects potential health and safety effects will be minimised and environmental risks will be reduced.

The construction phase of this Project is estimated to take approximately 5 years and will involve the formation of 11 construction yards within the construction Designation. The storage of hazardous substances will be limited to these areas.

Should changes be made to requirements for hazardous substance storage and use, this plan should be reviewed and updated as required.

1.3 Environmental plans/maps

The management of the potential effects of the construction phase of the Project are outlined in a suite of management plans/maps. A number of these plans/maps are relevant to the management of hazardous substances; Table 1 below outlines the location of these plans and how these plans are relevant to the management of hazardous substances.

Table1 - Relevant Management Plans and Maps

Plan/Map	Relevance	Location
Erosion and Sediment Control Plan (ESCP)	Sediment retention devices such as ponds or decanting earth bunds may be impacted by spills of hazardous substances.	Appendix H of the CEMP, Volume 4
Ecological Management Plan (EMP)	Sensitive receiving environments which may be impacted by spills of hazardous substances	Appendix M of the CEMP, Volume 4
Environmental Maps	Show the location of construction laydown areas; sediment retention devices; and the receiving environments.	Appendix C of the CEMP, Volume 4

2 Environmental aspects

The storage and use of hazardous substances within the Project footprint presents a number of environmental risks including the environment, human health and fire and explosion.

3 Environmental performance standards

The storage, use and management of hazardous substances within the Project footprint are subject to the following environmental performance standards:

- Hazardous Substances and New Organisms Act, 1996 (HSNO), HSNO Regulations and gazette notices, in relation to:
  - Storage, Use and Disposal

  - Appropriate design to prevent /reduce the potential for any accidental spillage or leak of hazardous substances
  - Containers are appropriately labelled to identify potential hazards
- Transportation of hazardous substances must be performed in accordance with the Land Transport Management Act, 2003.
- Emergency Response Plans must be in place to provide the framework to manage any incidents involving hazardous substances.

Training systems must be in place to provide appropriate training on the handling, storage and use of hazardous substances.

4 Legislative requirements

The overarching legislative requirements for the Project have been outlined within the Construction Environmental Management Plan (CEMP), Volume 4.

The following legislative standards and other requirements have been identified as relevant to the management of hazardous substances for the Project:

- The HSNO Act
- Relevant conditions of the consents granted for the Project
- Regional and District Plan Rules
- Hazardous Substances (Tank Wagons and Transportable Containers) Regulations 2004 and the Land Transport Rule 45001/1 and 45001/2: Dangerous Goods 2005
- NZTA - Standard Operating Procedure for Response to Spills Arising from Transport Incidents on the State highway Network, March 2010.

These requirements will be reviewed quarterly to confirm completeness and compliance with regulations. Where necessary the requirements will be amended to account for any changes in legislative requirements.

4.1 HSNO Act

The use, storage, transportation and disposal of hazardous substances are managed under the HSNO Act. The HSNO Act deals with the safe management of all hazardous substances. Hazardous substances are substances that are explosive, flammable, oxidising, toxic, corrosive, or harmful to the environment. These hazard classes are defined under HSNO:

- explosiveness (Class 1)
- flammability (Class 2, 3, 4)
- oxidising ability (Class 5)

- corrosiveness (Class 8)
- toxicity (Class 6)
- ecotoxicity (Class 9).

HSNO requires substances to be controlled throughout their lifecycle and prescribes regulations covering packaging, identification, emergency management, disposal, tracking, storage and handling.

The storage of hazardous substances at the construction sites will be kept to a minimum. A list of hazardous substances to be stored within the Project footprint is outlined in **Appendix L.A**. This

list of hazardous substances will be reviewed and amended by the Project team prior to establishment of the site to reflect the complete list of hazardous substances that are proposed to be used within the Project. The classifications or group standards and controls that maybe triggered under HSNO Act are also provided. Further discussion will be provided in later sections describing each of the controls that may be triggered depending on the quantity of material.

4.2 HSNO controls

HSNO Act is a complex legislative framework. This section is intended to give a general understanding of the types of controls that are required under HSNO Act and how these controls should be implemented. This section is not exhaustive, and the advice of a suitably trained and experienced person should be sought where required.

4.2.1 Hazardous atmosphere zones

The definition of a Hazardous Atmosphere Zone is outlined in AS/NZS 2430.3.1:2004 as:

An area (three dimensional) in which an explosive atmosphere is present, or may be expected to be present, in quantities such as to require special precautions for the construction, installation and use of potential ignition sources.

Examples of potential ignition sources are electrical equipment, naked flames, sparks from grinding and welding operations as well as hot surfaces.

The controls table in **Appendix L.A** outlines the trigger values above which hazardous atmosphere zones will need to be established. The purpose of these zones is to reduce the likelihood of accidental ignition.

Where a hazardous atmosphere zone is required, a suitably qualified and experienced professional must be advised to provide advice on the suitable storage and application for appropriate approvals.

4.2.2 Segregation and storage

Chemical substances may react in a violent or unexpected manner when mixed producing heat, pressure fire and/or explosion. A reaction may also result in the production of toxic or flammable dusts, mists, fumes or gases. Chemicals which may react in this manner when mixed are referred to “incompatible”.

The HSNO Act outlines how incompatible substances should be segregated for storage in order to manage the potential effects. Segregation involves separation using distance or partitioning to isolate incompatible substances. Partitioning methods include using partitions, berms, bunds or spill pallets and approved cabinets.

The Safety Data Sheet (SDS) will provide information on incompatibility of substances and Appendix L.A outlines the classes of substances with which a substance in incompatible. Typically specific care should be taken with the storage on flammable and oxidising substances.

4.2.3 Approved handlers

An “Approved Handler” is a person who is competent and certified to handle certain hazardous substances. To become an Approved Handler you must meet the requirements of the Hazardous Substances and New Organisms (Personnel Qualifications) Regulations 2001.

Appendix L.A outlines at what quantities an Approved Handler is required. Handling may be performed by personnel other than the approved handler provided an approved handler is present, providing guidance and available at all times to provided assistance, as required, to the person while the substance is being handled.

Approved Handlers are also required for the transportation of hazardous substances. This person is deemed compliant if the person who loads, unloads and drives the vehicle has a current dangerous goods endorsement on their driving licence and the Land Transport Rule is complied with.

4.2.4 Location test certificates

A location test certificate is a certification of storage and administrative controls associated with highly flammable and oxidative substances. In order to obtain a test certificate a Test Certifier will undertake a review of the following aspects of hazardous substance management at the site:

- Administrative controls;
- Control of the ignition sources, including hazardous atmosphere zone and controlled zone provision;
- Segregation and storage of hazardous substances;

- Protective equipment and clothing in some instances;
- Signage; and
- Emergency management, including secondary containment.

Appendix L.A notes the substances which require Location Test Certificates.

4.2.5 Fire extinguishers

Appendix L.A notes the substances when stored trigger the requirement for fire extinguishers. Where fire extinguishers are required these must be located within 30m of the storage location. Fire extinguishers must be regularly serviced in accordance with the manufacturer's specifications.

4.2.6 Signage

Signage requirements are triggered for various substances stored within the Project footprint. These substances and the quantities above which signage is required are outlined in Appendix L.A.

Where the substance is stored within a building, signage must be placed at every entrance (vehicular or pedestrian) to the building and the site. Where the substance is stored within a room, the signage must be placed at every entrance to the room. In outdoor areas, signage will be placed immediately next to the storage area.

The HSNO Code of Practice for Signage for premises storing hazardous substances and dangerous goods state that signs must:

- be located where clearly visible to persons entering a site where hazardous substances are located (at above the specified trigger quantities)
- advise that the location contains hazardous substances
- describe the hazardous property and nature of the hazard(s) of the substance
- describe the precautions needed to safely manage the substance
- give contacts for emergency response personnel
- advise emergency service provider(s) and trained persons of the immediate emergency response actions for the hazardous substances present
- be easily understood
- be easily read at a distance, under varying conditions.

4.2.7 Emergency management

The HSNO Emergency Management requirements are primarily found in the Hazardous Substances (Emergency Management) Regulations 2011. These regulations list three levels of Emergency Management requirements and these depend on the quantities of hazardous

substances are held onsite. The levels include requirements for the provision of information (eg first aid instructions or spill response procedures), equipment (eg fire-extinguishers) and emergency response plans.

- **Level 1**
  - Information, for example first aid directions or emergency response contact details on labels, should be clear and readily available so people know the effects of the substance and the remedies.

- **Level 2**
  - Documentation, such as Safety Data Sheets, should be made available so that people will know in advance the properties of the substance and what to do in an emergency; and
  - Fire extinguisher requirements.
- **Level 3**
  - Signage requirements;
  - Emergency response plans; and
  - Secondary containment, or bunding, to contain spills.

This information has been incorporated into the overarching CEMP (Volume 4) for the Project.

4.2.8 Transportation

Transportation of hazardous substances and empty containers which have not been cleaned are subject to containment and packaging requirements outlined in the Hazardous Substances (Tank Wagons and Transportable Containers) Regulations, 2004 and the Land Transport Rule 45001/1 and 45001/2: Dangerous Goods 2005 and Land Transport Rule Dangerous Goods Amendment 2011 Rule 45001/3.

These rules are in place to manage the safe transport of hazardous substances and cover the following aspects relating to the transport of substances and/or their containers:

- Packaging;
- Identification;
- Documentation;
- Segregation of incompatible substances; and
- Training and responsibilities.

The supplier shall be responsible for adhering to these rules as they will be responsible for the supply of substances and the removal of empty containers. No hazardous substances will be transported by the Project team outside the Project footprint.

4.3 Storage

4.3.1 General considerations

The following should be strongly considered when assessment the adequacy of a building for the storage of hazardous substances:

- Well ventilated and lit;
- Separated from ignition sources;
- Secured from the public;
- Protected from temperature fluctuations and direct sunlight;
- Material suitability for shelving/cupboards (chemically resistant);
- Lip on door to aid in containment of spills or leaks; and
- Self-closing door.

4.3.2 Flammable substance storage within buildings

Where flammable substances are to be stored varying degrees of fire resistance may be required depending on the quantity stored. Where any 3.1a-c (flammable) substance is to be stored, a test certifier (or suitably qualified person) should be used to assess the appropriate storage facility for these substances.

4.3.3 Location

All proposed hazardous substance storage should be located within the construction yards. Within each yard the following aspects will be considered when choosing a suitable storage area:

- Distance to high intensity land use;
- Distance between other hazardous substance storage locations;
- Location of any heated surfaces; to prevent contact between heated surfaces in the event of a spill;
- Where loss of containment will not result in contamination of lakes, streams or waterways; and
- Positioned to avoid accidental collision with vehicles.

Where practicable, storage locations should allow for the containment or restriction of flows in the event of a spill.

4.3.4 Separation distances

“Separation distance” is the minimum clear distance from the flammable substance storage location. Separation distances differ depending on the intensity of the neighbouring land use.

Appendix L.A notes the substance types and quantities at which separation distances are required to be employed. Where separation distance is required, a certified test certifier should be consulted when deciding the storage location to ensure adherence with HSNO regulations.

4.3.5 Secondary containment

Secondary containment requirements under HSNO Act vary depending on the total volume stored, and the volume of the containers within which the hazardous substance is stored. Table 2 as follows summarises these secondary containment requirements:

Table2 - Storage Capacity of Bunds for the Storage of Hazardous Substances

Single Container Volume (L)	Total Pooling Potential (L)	Required Bund Capacity (L)
60	<5000	≥ 50% total pooling potential
60	>5000	Greater of 2,500L or 25% of total pooling potential
60-450	<5000	Total pooling potential
60-450	>5000	Greater of 5,000L or 50% of the total pooling potential
>450	-	110% of largest container

Other points of note include:

- All above ground stationary containers (storage tanks) require secondary containment of 110% of the largest tank. This can be either by way of a double skinned tank or with appropriately sized bunding.
- Incompatible substances will require separate containment systems.

4.4 Above Ground Storage Tanks

Two 15,000l ASTs are proposed for the storage of diesel during construction. Diesel does not require a Location Test Certificate or an approved handler, but when it is stored in a bulk storage tank of more than 5,000 litres, a Stationary Container Test Certificate is required.

While diesel is not a particularly flammable substance, it is an environmental hazard, with considerable clean-up costs if it should leak into a drain, watercourse or the soil.

Adhere to the following safety guidance when using or storing diesel:

- No hotwork should be performed on the storage tank or container unless it is emptied and purged of remaining diesel vapour.
- Containers should be positioned away from any source of direct heat.

- Drums should be located in an area where there is no risk of collision with vehicles, such as fork-lift trucks, as diesel splashing onto a hot engine may ignite.
- Leaks and spills should be confined to the vicinity of the drum and mopped up quickly, to lessen the risk of slipping.
- Adhere to safe handling practices when refilling and dispensing containers.

4.5 Underground storage tanks

Underground storage of hazardous substances has different requirements under HSNO Act. No underground storage is proposed as part of this Project. In the event that underground storage is required advice will be sought from a suitably qualified and experienced person to ensure HSNO Act requirements are met.

5 Relevant planning and policy documents

5.1 Introduction

Part B, Volume 2 of the AEE provides a full assessment of the Project with respect to the national, regional and district planning framework. This section aims to outline the specific rules which apply to the storage and use of hazardous substances to provide the reader with a context to understand how the activity is managed within this framework.

5.2 Regional planning framework

The storage and use of hazardous substances associated with the Project will be managed to ensure that hazardous substances are not liable to enter surface or ground water, nor contaminate the underlying land. The Greater Wellington Regional Plan for Discharges to Land specifically allows for discharge of hazardous substances related to the construction, maintenance and repair of roads as Permitted Activity as stated in the Rule 18:

> *The discharge of any contaminants into or onto land in association with the construction, maintenance and repair of roads, pathways, yards and other sealed areas or accessways, is a Permitted Activity (other than the disposal of waste materials addressed by another Rule in this Plan), provided*
>
> *(a) the discharge shall consist only of materials normally associated with the construction and maintenance of roads and sealed areas, but not including any agrichemical or waste oil; and*
>
> *(b) no contaminant shall be able to enter surface or ground water, other than by way of imperceptible seepage, for the duration of the activity.*

Explanation. Rule 18 applies to the discharge of contaminants to land in the course of the construction, maintenance and repair of roads and sealed areas. Condition (a) relates to the nature of the materials discharged. These include solid fill, concrete, bitumen, lime and dust suppressants other than waste oil. Alternatives to the use of waste oil as a dust suppressant include the use of lime/cement or bitumen stabilisation (spraying of a cold liquid bitumen emulsion). The disposal of waste materials is not covered by this Rule and therefore requires that disposal either occur at a landfill, or other facility able to accept such material, or the material be recycled, as appropriate. Pesticides used to control weeds on roads or other sealed areas are not permitted by this Rule, but are addressed by Rule 16 when solid pesticides are applied (e.g., granules, pellets or prills). The spray application of agrichemicals is addressed in the Regional Air Quality Management Plan. The conditions relate to adverse effects on water quality and amenity values. These conditions require good practice (e.g., not laying bitumen during or prior to rain).

The Greater Wellington Regional Council does not have rules related to the storage of hazardous substances. This activity is governed by the HSNO Regulations as detailed in Section 4.2.

5.3 District planning framework

The Kāpiti Coast District Council provides rules for the storage and use of hazardous substances. This plan provides thresholds for the storage and use of hazardous substances above which land use consent is required.

As part of the Project a designation is proposed for the “construction, operation and maintenance of the MacKays to Peka Peka Expressway Project”; as all storage and use of hazardous substances is within the Designation and required for the construction phase of the Project, land use consent will not be required.

6 Roles and responsibilities

The CEMP, Volume 4 outlines the overall roles and responsibilities for the Project. The Environmental Manager (or delegate) is responsible for the management of hazardous substances in line with the “Person in Charge” requirements as outlined in the HSNO Act.

The HSNO Act defines a “Person in Charge” who is responsible for maintaining control of hazardous substance storage and management and ensuring all necessary certifications are received and maintained.

In addition, this person is responsible for maintaining: health and safety of workers; health and safety of the public; and environmental standards associated with the storage and use of hazardous substances on the Project.

Where the Environmental Manager has delegated these responsibilities the details of the delegated person shall be recorded below:

Person in Charge:

Name:

Role:

Contact Detail:

All people working on the Project are required to follow the requirements outlined in this HSMP.

7 Training

Environmental training for all staff will be undertaken as outlined in the CEMP, Volume 4. All staff are required to undergo a site induction prior to works being undertaken on the site, in addition a periodic refresher course is required (annually as a minimum). Aspects of the HSMP covered in this induction include:

- The type and location of chemicals on the site;
- Where information can be found on storage; use and disposal of chemicals;
- Procedures to be followed;
- Spill management and emergency procedures;
- Cleaning procedures;
- Roles and responsibilities associated with the hazardous substance management; and
- Personal Protective Equipment (PPE) requirements when handling or using hazardous substances.

8 Standard operating procedures

8.1 Summary of requirements

The Project team is required to control and manage the storage of hazardous substances associated with the Project. The main issues that will need to be addressed include the following:

- Refer to **Appendix L.A**, to determine the trigger quantities for any hazardous substance stored within the Project footprint. Where the substance is not listed obtain a HSNO classification for the substance from either the Safety Data Sheet (SDS) or the supplier and determine the required controls.
- Prepare and manage a register of hazardous substances used or stored.

- Prepare and maintain a location plan showing the location of hazardous substance storage areas; fire fighting requirement and spill kits.
- Ensure all hazardous substances are stored safely and securely.
- Ensure all hazardous substances are correctly labelled.
- Ensure all hazardous substances are correctly transported.
- Secondary containment is provided (and sufficient) for all liquids stored.
- Dispose of all hazardous substances and their containers appropriately.

8.2 Hazardous substances register

Any hazardous substances stored or used on the site shall be recorded on a Hazardous Substances Register for the site. This document shall be prepared prior to the construction phase commencing and shall be maintained over the duration of the Project.

The register shall include the hazardous substance names, quantities, HSNO classifications, storage locations, approved hander (per storage location) and whether an SDS is held for the substance. In addition the “Person in Charge” shall be clearly noted on the register.

The register must be current at all times and updated by the Environmental Manager when new substances are introduced. The register must be readily available for emergency personnel. The register framework is provided in Appendix L.B.

8.3 Purchasing

Prior to the purchasing of new hazardous substances, consideration shall be given as to the appropriateness of the substance and whether substances with a lesser risk rating are more appropriate. Where new hazardous substances are to be used/stored on the site, the Environmental manager shall update the register accordingly.

Controls associated with new substances will be identified to allow for communication of requirements and implementation immediately upon receipt of a new substance.

8.4 Safety Data Sheets

SDS’s are required for all hazardous substances stored/used on the Project. The SDS should be provided by the supplier and with delivery. The SDS must be available and understood by all personnel handling (or with access to) the substance.

8.5 Location plan

A location plan will be prepared for each site storing hazardous substances. The plan will include the location of:

- Stored hazardous substances
- Fire fighting equipment
- Spill kits.

The location plan must be readily accessible to all staff.

8.6 Labelling

All containers shall be appropriately labelled regardless of their contents (hazardous or otherwise). The SDS for each substance will provide information required for labelling – clearly indicating any significant hazards to those handling the substance. Labelling shall take into account all hazards with are likely to occur over the lifetime of the substance and / or packaging.

Security is required at all locations where hazardous substances are stored in order to prevent theft and vandalism.

8.7 Disposal

8.7.1 Disposal of hazardous substances

Information contained within the SDS is to be referred to when considering the most appropriate disposal method for containers of unused/unwanted hazardous substances. Where hazardous substances are no longer required onsite, they are to be:

- removed and stored at another suitable storage facility (moved either within the footprint or by a suitably trained and experienced person – Refer Section 4.2.8); or
- removed and disposed of by an appropriately licenced waste disposal operator.

8.7.2 Disposal of packaging

Packaging that has been directly in contact with a hazardous substance must be disposed of in a manner that takes into account the nature of any residues and the nature and type of packaging. Packaging may be reused (returned to manufacturer) or placed in an appropriate recycling bin if it has been treated to remove any residual material or if the residue has been treated to render the contents non-hazardous. The SDS should be referred to in order to assess the most appropriate disposal method.

8.8 Spill response plan

Loss of containment of hazardous substances can potentially affect human health and the environment.

The Project team is to adopt the Fletcher Construction SOP "*ENV-02 Fuel, Oil and Chemical Spills (On Land and Water)*" which is attached for completeness in **Appendix L.D**. This SOP outlines the following aspects:

1. Preventive Measures to be taken for the following activities:
    a. Refuelling procedures on land
    b. Refuelling procedures over water
2. Actions in the Event of Spill
3. Reporting Procedures
4. Investigation Procedures

Staff that use or manage hazardous substances must have an understanding of the SDS including spill controls, appropriate fire extinguishers to use in the event of fire, incompatible substances and reactivity with water and air.

Reporting of incidents will be performed in accordance with the Fletchers Spill reporting system which is regularly audited as part of maintaining Fletchers ISO 14001 accreditation.

8.9 Spill kits

Spill kits will be available for use at regular locations throughout the Expressway Alignment and placed at each area designated for the storage of hazardous substances. In addition, all foremen will carry a spill response bag in their vehicles to ensure a quick response.

These spill kits will contain:

- PPE
- Spill handling equipment
- Containment equipment
- Absorbent material
- A disposal container

It is the responsibility of the Construction Manager/Environmental Manager to ensure these spill kits are clearly labelled, easily accessible, staff are appropriately trained in their use and are checked and restocked at least monthly and after a spill event.

9 Monitoring requirements

As part of the management of the construction yards a monthly inspection will be performed. This inspection will cover:

- Hazardous substance inventory is updated;
- Check that chemicals are stored correctly;
- Check condition of bunds; and
- Check that spill kits are well stocked.

Where action is required, the actions will be recorded and assigned in accordance with the procedure outlined in the CEMP, Volume 4. The results of these inspections will be reported within the regular update reports distributed within the Project team.

10 Updates and review

This management plan will be reviewed once the resource consent and designation consent conditions are finalised to ensure this plan is in accordance with these conditions. In addition this report shall be reviewed and updated (as necessary) on at least an annual basis throughout the construction phase of the Project. Where changes are required to this plan the plan will be forwarded to Greater Wellington Regional Council and Kāpiti Coast District Council for comment.

The annual review will take the following aspects into consideration:

- What has changed within the Project:
  - Use of hazardous substances – what new substances are being used onsite? Are there any substances now under the Project team's control that responsibility was previously subcontracted out?
  - Activities – do any new activities impact hazardous substance use, storage or disposal?
  - Facilities – new facilities may need to be reviewed to ensure compliance; and
  - Location – Does the new location need specific controls? i.e. proximity to sites of ecological significance/stormwater system.
- Roles and Responsibilities
  - Has there been any key changes to roles and responsibilities; and
  - Is the current regime adequately managing the use, storage and disposal of hazardous substances
- Industry Best Practice
  - Has there been changes in industry best practice or recommended pollution controls.
- Legislative or Policy Changes

  - Has there been any changes that impact how hazardous substances are managed? Either legislative/NZTA requirements.
- Continuous Improvement
  - Do the results of Inspection/Maintenance programs, incident management, internal assessment or external assessment indicate any required changes?
- Public Complaints.

Where changes are made to the HSMP, an update register will be kept to document what has been altered. A copy of the original document will be kept for Project records marked as superseded.

11 References

Construction Environmental Management Plan: Volume 4 of the MacKays to Peka Peka Expressway Project AEE.

Appendix L.A

Hazardous Substances and Controls Table

Table A Hazardous substances and management controls triggered

	Hazardous substance	HSNO Classification / Group Standard [2]	UN Number/ ERMA Approval Number	Trigger Quantity	Controls triggered
1	Acetylene (non-permanent gas for welding)	2.1.1A	1001 / HSR000987	100 kg	Approved handler
				100 kg	Hazardous atmosphere zone requirements
				100 kg	Location test certificate
				250 kg	Secondary containment
				50 kg	Fire extinguisher
				250 kg	Signage
				Any quantity	Storage incompatibilities with all class 1, class 2.1.2, all class 3, all class 4, all class 5 substances.
2	Cements, concrete admixtures, fillers, grouts, mortars, plasters, putties, roading products, concrete etching agents	Group Standards for Construction Products 2006 (4 standards)	HSR002542 (Corrosive 8.2C) HSR002543 (Corrosive 8.2C, Toxic 6.7A) - product contains respirable silica (carcinogen)	100 L or 100 kg (for a HSNO 9.1A substance)	Secondary containment
				1,000 L or 1,000 kg (for a HSNO 6.1D, 6.5A, 6.5B, 9.1B or 9.1C substance)	
				10,000 L or 10,000 kg (for all other substances)	

[2] Substances approved under Group Standards may have other specific hazard classifications. Quantities that trigger controls are dependent on these additional hazard classifications. There are various trigger quantities however the quantities presented in this table are the most conservative and appropriate for the context of this Project.

	Hazardous substance	HSNO Classification / Group Standard [2]	UN Number/ ERMA Approval Number	Trigger Quantity	Controls triggered
			HSR002544 (Subsidiary hazard) HSR002545 (Toxic 6.7A)	50 L of 50 kg (for a HSNO 6.1A 8.2A substance);	Signage
				100 L of 100 kg (for a HSNO 9.1A substance);	
				1,000 L or 1,000 kg (for all other substances)	
				10,000 kg (for a HSNO 6.1D or 9.1D substance)	
3	Cutback Bitumen (>10% kerosene)	3.1D, 6.3B, 9.1C	HSR001508	Any amount	Storage incompatibilities with all Class 1, 2, 3.2, 4 and 5 substances
				500L	2 Fire extinguishers
				1,000L	Signage
				1,000L	Secondary containment
	Cutback Bitumen (7-10% kerosene)	3.1D, 9.1C	HSR001519	500L	2 Fire extinguishers
				1,000L	Signage
				1,000L	Secondary containment
	Cutback Bitumen (2.5-7% kerosene)	9.1C	HSR001520	1,000L	Signage
				1,000L	Secondary containment
4	De-Solv-It Solution	3.1D Group Cleaning Products (Combustible) Group	HSR002525	10,000 L	Signage
				500 L	Fire extinguishers
				10,000 L	Secondary containment

	Hazardous substance	HSNO Classification / Group Standard [2]	UN Number/ ERMA Approval Number	Trigger Quantity	Controls triggered
		Standard 2006 (9 standards)			
5	Diesel	3.1D, 6.1E, 6.3B, 6.7B, 9.1B	1202/HSR001441	Any amount	Storage incompatibilities with all Class 1, 2, 3.2, 4 and 5 substances
				500L	2 Fire extinguishers
				1,000L	Secondary containment
				1,000L	Signage
6	Engine oil (Mobil Delvac)[3]	Group Standards for Lubricants 2006 (Subsidiary Hazard)	HSR002602	100 L or 100 kg (for a HSNO 9.1A substance);	Secondary containment
				1,000 L or 1,000 kg (for a HSNO 6.1D, 6.5A, 6.5B, 9.1B or 9.1C substance);	
				10,000 L or 10,000 kg (for a HSNO 9.1D, 8.3A, 6.6A, 6.8A or 6.9A substance)	
				100 L or 100 kg (for a HSNO 9.1A substance);	Signage
				1,000 L or 1,000 kg (for a HSNO 8.3A, 9.1B or 9.1C substance);	

[3] Note: other brands of engine oil may trigger different controls. Check HSNO classification.

	Hazardous substance	HSNO Classification / Group Standard [2]	UN Number/ ERMA Approval Number	Trigger Quantity	Controls triggered
				10,000 L or 10,000 kg (for a HSNO 6.1D or 9.1D substance)	
7	Dinoram 184	6.3A, 8.3A, 9.1A	HSR006697	Any amount	Approved handler
				100 L	Signage
				10,000L	Secondary containment
8	Hydraulic oil Gear oil	Group Standards for Lubricants 2006 (Low Hazard)	HSR002605	10,000L (for a HSNO 9.1D substance)	Secondary containment
				10,000L (for a HSNO 9.1D substance)	Signage
9	Kerosene/ Bitumen cutter	3.1C, 6.1E, 6.3B, 9.1B	1223/ HSR001049	Any amount	Storage incompatibilities with all Class 1, 2, 3.2, 4 and 5 substances
				100L (closed) 25L (decanting) 5L (open occasionally) 1L (open container)	Hazardous atmosphere zone
				500L (in closed containers >5L)	Location test certificate
				1,500L (in closed containers <5L)	
				250 L (open containers)	
				500L	2 Fire extinguishers
				1,000L	Secondary containment
				1,000L	Signage
10	LPG	2.1.1A: Flammable	1075 / HSR001009	Any amount	Odorized in accordance with approved

	Hazardous substance	HSNO Classification / Group Standard [2]	UN Number/ ERMA Approval Number	Trigger Quantity	Controls triggered
		Gases : high hazard			code of practice
					Stored in a place which has a leak detection system
					Approved handler
				> 20 kg	Must not be carried or conveyed on any passenger service vehicle
				Any amount carried or conveyed	Storage incompatibilities with all Class 1, 2, 3.2, 4 and 5 substances
					Signage
				If > 300 kg stored	Location test certificate
				> 50 kg	1 fire extinguisher
					Signage
				≥12,000 L tank wagon (parked > 1h)	Fire fighting facilities
11	Petrol (unleaded)	3.1A, 6.1E, 6.3B, 6.7B, 9.1B	1203/HSR001445	Any amount	Storage incompatibilities with all Class 1, 2, 3.2, 4 and 5 substances
				Any amount	Approved handler
				100L (closed) 25L (decanting) 5L (open occasionally) 1L (in open container for continuous use)	Hazardous atmosphere zone

	Hazardous substance	HSNO Classification / Group Standard [2]	UN Number/ ERMA Approval Number	Trigger Quantity	Controls triggered
				20L (open or closed container)	Location test certificate (if held for more than 18 hours)
				50L	1 Fire extinguisher
				200L	2 Fire extinguishers
				100L	Secondary containment
				50L	Signage
12	Sulphuric acid, >10% aqueous solution	6.1D, 6.7A, 6.9A, 8.1A, 8.2B, 8.3A, 9.1D	1830 / HSR001572	10L	Approved handler
				1,000L	Secondary containment
				1,000L	Signage
13	Calcium Hydroxide	8.2C , 8.3A , 9.1D (All), 9.1D (F)	HSR002925 HSC000322	Any amount	Approved handler
				10,000L held 10,000 kg held	Secondary containment
				1,000L 1,000 kg	Signage
14	Calcium Oxide - Quicklime	8.2C , 8.3A , 9.1D (All), 9.1D (F)	1910 / HSR002926	Any amount	Approved handler
				10,000L held 10,000 kg held	Secondary containment
				1,000L 1,000 kg	Signage

Note: Certain brands of hydraulic oils are considered non-hazardous e.g. AMSOIL, CAT, Mobil EAL and DTE, Shell Omala Shell Naturelle, Shell Vitrea, Shell Tellus, Shell Corona and Shell Vitrea. Check with the supplier and refer to the product safety data sheets.

Appendix L.B

Hazardous Substances Register

Table B Example Hazardous substances register

Person in charge:……

Name	Quantity	HSNO Classification	Storage Location	Approved Handler	SDS Held?

Appendix L.C

Location of Hazardous Substances Storage Areas

To be developed immediately prior to construction

Appendix L.D

Fletcher Environmental Procedure ENV- 02

ENV-02 FUEL, OIL AND CHEMICAL SPILLS (On Land and Water)

A INTRODUCTION

PURPOSE

This procedure describes the system for prevention, control, corrective action and reporting of fuel, oil and chemical spills on a project site.

REFERENCES

Applicable Material Safety Data Sheets (MSDS)
(available from FCC Intranet/Health and Safety (MSDS Online)

Resource consent requirements (if applicable)

DEFINITIONS

Oil includes lubricants and machine oil and hydraulic fluid.

Fuel includes diesel and petrol.

Chemicals include thinners, anti-corrosion compounds, polymers, adhesives, form oil, retarders, curing agents, cement, pesticides and herbicides.

The following documents are associated with this procedure:

Standard Forms

Environmental Incident Investigation Report

Incident Register

Environmental Incident Witness Statement

B PROCEDURE

Activity	Responsibility	Key Actions	Records	References
1. Preventive Measures	FCC Employees and Subcontractors	• Implement and maintain the required preventive measures for handling, transferring and storing of oil, fuel and chemicals	Training and toolbox records	MSD sheets
2. Action in the Event of Spill	FCC Employees and and Subcontractors	• Assess personal safety and explosion risk • Stop operating machinery • Turn off discharge valve and/or isolate source of spill • Take whatever action is necessary to contain the spill and prevent it from spreading or discharging into a stormwater drain or cesspit, natural waterway or the sea (e.g. create a temporary earth bund) • Notify Foreman/Supervisor • Locate nearest spill kit (if available) • Use absorbent booms, mats or 'kitty litter' to soak up the contamination • If external assistance is necessary call the local provider of spill equipment or the Regional Council spill response unit		Refer to Env. Toolkit
3. Reporting Spills	Project Engineer Project Environmental Representative	• Report spills using an Environmental Incident Investigation Report form • Submit Incident Report to Project Manager and copy to Environmental Manager • Log Incident Report on Register • Immediately notify client's representative and Regional Council of any significant spill to land, stormwater system or natural watercourse	Incident Investigation Report Register	
4. Investigation	Construction / Operations Manager Project Environmental Representative	• Request investigation report for spills having significant environmental impact • Conduct investigation and prepare report • Obtain witness statements where appropriate	Investigation Report Witness Statement	

C NOTES

1.0 PREVENTIVE MEASURES

The following measures are generic and each project should identify their site-specific/ resource consent requirements.

1.1 ON WATER

1.1.1 General

- All vessels used on water (dredges, runabouts, work boat, survey vessel and tugboat) are to be inspected regularly for fuel or oil leaks
- Vessels are to regularly cleaned to prevent the build up of oil and debris in the bilge
- All items of equipment used on or near water must have a cut-off control (automatic or manual) on the hydraulic and fuel tanks. Person refuelling must remain present at refuelling point - do not rely on cut-off controls.
- All staff working over water are to be trained in the use of spill kits
- Hold sufficient and suitable spill equipment for trapping and absorbing oil and fuel on each vessel

1.1.2 Refuelling from a Work Boat

- A suitable fire extinguisher must be carried, fully charged and service check current
- Fuel transfer is only to be carried out by a member of the work boat crew who shall remain present at all times during this operation
- Work Boat to carry an adequate number of oil containment booms and spill mats
- An electric pump must be available to removed spilled diesel from the tank containment area
- Smoking is not permitted on the work boat or the vessel being refuelled

1.2 ON LAND

1.2.1 Fuel Storage (Diesel Transfer Tanks)

- Transfer tanks must be contained in a bunded area, or in a double shell construction, to contain diesel in the event of a leak/rupture of the tank
- Transfer tanks must be clearly labelled, vented and earthed
- Fuel storage areas must be made secure to minimise the potential for vandalism or theft.

1.2.2 Fuel Transfer from Transfer Tanks to Fuel Truck and FCC Vehicles

- Fuel must only be transferred by a suitably trained operator who shall remain present at all times during this operation

- A spill kit must be held in the fuel truck
- The spill kit is to be periodically checked by the driver, reporting to the Foreman/Superintendent any items that need to be replaced or restocked
- Caution to be exercised when refuelling light vehicles. Preference shall be given to refuelling at points remote from any natural water or stormwater systems.
- No smoking permitted during refuelling

2.0 ACTION IN THE EVENT OF A SPILL (Fuel, Oil or Chemical)

2.1 Immediate Actions

- Assess safety of all personnel
- Assess risk of explosion
- Turn off the discharge valve or isolate the source of leakage or spill
- Stop operating machinery
- Take whatever immediate actions are required to contain the spill and prevent it spreading or discharging into stormwater drains, natural waterways or the sea as directed by the Foreman or Supervisor
- Notify Foreman or Supervisor
- Locate nearest spill kit
- On water; place boom around the spill and any downstream discharge pipes to prevent contamination from spreading. Place absorbent mats over the spill area
- On land; place absorbent mats on the spill and build temporary earth bunds if necessary
- If it is necessary to call in external assistance to a spill, call the local provider of spill equipment or the Regional Council spill response unit

2.2 Clean-Up Actions

- Use spill kit to soak up spill
- Foreman or Superintendent to notify Project Manager in event of significant spill
- On water; dispersants are only to be used under the direction of the Regional Council
- Used spill material is to be collected in heavy duty plastic bags and disposed of in an environmentally responsible manner (usually to landfill or hazardous waste collection facility)
- Appropriate training in the use of spill kits is to be provided for key personnel
- Notify Regional Council as appropriate
- If necessary contact a waste disposal contractor to remove spill residue to an authorised disposal facility.

2.3 Follow-Up Actions

Contaminated ground is to be examined by the Project Environmental Representative and Clients Representative, and remedial action implemented if required.

3.0 REPORTING SPILLS

All spills to land or natural waterways are to be reported using the Environmental Incident Investigation Report form.

A copy of the Incident Report is to be forwarded to the Project Manager and copied to the Environmental Manager.

The Incident Report is to be logged on the Environmental Incident Register by the Project Environmental Representative.

The client's representative and Regional Council is to be informed of any significant spill to land or to natural waterways (the sea, stormwater drains or open watercourses) by the Project Manager. Lines of communication with external parties are often stated in the project specifications.

4.0 INVESTIGATION

Following a spill having significant environmental impact the Environmental Manager requires an investigation report to be prepared by the Project Environmental Representative under the direction of the Project Manager.

Attach witness statements where appropriate.