

APPENDIX 2

PROPOSED PLAN CHANGE 35 HAZARDOUS SUBSTANCES INCORPERATES RECOMMENDED CHANGES FOLLOWING SUBMISSIONS (AUGUST 2005)

Chapter 3.5: The Hazardous Facility Screening Procedure

Before the first paragraph under heading 'Section 3.5.1', **add** the following text:

The hazardous substance provisions of this Plan work in conjunction with the provisions for hazardous substances under the Hazardous Substance and New Organisms Act 1996. While the Resource Management Act 1991 focuses on managing the site-specific effects of hazardous substances, controls under the Hazardous Substance and New Organisms Act 1996 manage the intrinsic risks of substances irrespective of location.

Anybody operating a hazardous facility must comply with the provisions for hazardous substances both under the Resource Management and the Hazardous Substance and New Organisms Act 1996 and associated transitional provisions. Controls imposed on hazardous substances under the Resource Management Act cannot be less stringent than those set under the Hazardous Substance and New Organisms Act 1996. This requirement is reflected in the provisions for hazardous substances in this Plan.

Apart from the Hazardous Substance and New Organisms Act 1996, a range of other pieces of legislation deal with managing the on-site and off-site effects of hazardous substances. These include:

- ▶ legislation, rules and standards relating to the transportation of hazardous substances (Land Transport Act 1993, Land Transport Rule: Dangerous Goods 1999 and New Zealand Standard 5433:1999)
- ▶ Building Act 1991
- ▶ Health Act 1956
- ▶ Fire Service Act 1975
- ▶ Health and Safety in Employment Act 1992
- ▶ Radiation Protection Act 1965
- ▶ Agricultural Compounds and Veterinary Medicines Act 1997

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After the words 'environmentally damaging substances,' in the first paragraph of Section 3.5.1, **add** the following words:

and to any facilities where a modification in operations causes a significant change in the character, nature and/or scale of actual or potential effects.

Delete paragraphs 3 and 4 of Section 3.5.1 and **replace** with the following three paragraphs:

The HFSP works through assessing the whether potential cumulative environmental effects presented by a hazardous substance on a proposed site are significant. If the calculated "Effects Ratio" is higher than the specific limits set for the different land use consents, a resource consent will be required.

To be able to carry out an HFSP calculation, information is required on the location and layout of the facility, nature of the surrounding environment, as well as the types and quantities of hazardous substances proposed to be stored or used on the site. Some guidance on how to use the HFSP is provided in this Plan. More extensive guidance and materials can be requested from the Council.

In some cases, proposals involving the establishment of new hazardous facilities may add to the number of hazardous facilities already existing on a site. Where such facilities are separated by more than 30 metres, they will be treated as 'hazardous sub-facilities'. The HFSP will only be applied to the new facility. Consideration will not be given to the existing hazardous substances used on other parts of the site.

Delete exemption No.11 in Section 3.5.2.1 and **replace** with the following text:11. Storage and use of hazardous substances in association with temporary military training activities where Clause 9A of the Hazardous Substances (Classes 1-5 Controls) Regulations 2001 (hazardous substances used in military combat or training for combat) applies.

At the end of exemption No.13 and No. 14 (and before the full stop) in Section 3.5.2.1, **add** the following words:

and that they comply with the provisions of the Hazardous Substances and New Organisms Act 1996

In point 1 of exemption No. 15 in Section 3.5.2.1 after words 'in compliance with', **delete** the words "ISO 668:1995 (or its successor)." and **replace** with the following words:

the Hazardous Substances and New Organisms Act 1996.

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Under point 2 of exemption 15 in Section 3.5.2.1, after the words ‘incompatible materials are isolated from each other,’ **delete** the words “there is a management system in place to isolate and protect packages of high danger packing group (packing group I, and packing group II if deemed necessary) from other packages, unless specifically recommended in the industry best practice” and replace with the following words:

- the provisions of the Hazardous Substance and New Organisms Act 1996 are complied with.

Delete the second paragraph of the bold, italicised text in the right hand column adjacent to exemption 15 under Section 3.5.2.1, and **replace** with the following paragraph:

Points 1 and 2 apply to HSNO and UN Class 1 substances (explosives) only if relevant provisions under the Hazardous Substance and New Organisms Act 1996 are fully complied with (including requirements for test certification, approved handlers, hazard substance locations, and time limits for storage in designated transfer zones or transit depots).

Delete the table under point 3 of exemption 15 in section 3.5.2.1, and **replace** with the following table:

Substance	Definition and examples	Storage requirement
Low corrosive substances	<p>Substances that meet HSNO Class 8.2C, but do not exceed any other HSNO “Minimum Degrees of Hazard” thresholds.</p> <p>The definition of the threshold for Class 8.2C is as follows:</p> <ul style="list-style-type: none"> - evidence of irreversible damage within 14 days following exposure to the substances for >3 minutes but not more than 4 hours. - <p>Examples include soda ash, salt cake, cement.</p>	<ul style="list-style-type: none"> - The storage area meets the requirements of the HSNO Act 1996 for Class 8.2C (skin corrosives). - Storage is in a secure, covered area, designed to avoid dust emissions and water entry. - The storage area is designed to contain any spill or accidental release of hazardous substances and any storm water and/or fire water that has become contaminated. - The storage area is designed to prevent any contaminant from entering the sewerage or stormwater drainage system unless expressly permitted under a resource consent or trade waste permit.
Combustible solids not	Any material that are combustible solids but do not	- Adequate fire fighting water supply is

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defined as flammable solids under the HSNO Act	exceed any of the critical HSNO “minimum Degrees of Hazard” thresholds for classes 4.1.1, 4.1.2, and 4.1.3 (flammable solids). Will burn when raised to a temperature > 75 degree Celsius, but cannot be ignited and sustain combustion in air at 20 degrees Celsius, 101.3 kPa absolute pressure. Examples include processed timber, medium density fibreboard, and grains.	available. - Fire risk has been considered.
Environmentally damaging or persistent substances	Substances that cause effects on the environment but do not meet the definition for ecotoxic hazards under the HNSO Act 1996. Examples include substances with a high organic content, ie. milk and food products.	- The storage area is designed to contain any spill or accidental release of hazardous substances and any stormwater and/or fire water that has become contaminated. - The storage area is designed to prevent any contaminant from entering the sewerage or stormwater drainage system unless expressly permitted under a resource consent or trade waste permit.

Renumber points 5 and 6 of exemption 15 in Section 3.5.2.1 to 4 and 5 respectively.

Generic word replacements

In the following sections and rules of the plan, make the following standard word changes:

delete the words ‘effects group (or effect groups)’ and **replace** with ‘effect type (or effect types)’ whichever plural is appropriate.

delete the word ‘Threshold’ and **replace** with ‘Quantity’

Delete the words ‘Effects ratio’ and **replace** with ‘Effect Ratio’

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3.5.3 Terminology

In the first paragraph under section 3.5.3, **delete** the word 'is' and **replace** with the word 'are'.

Delete the second paragraph of section 3.5.3 and **replace** with the following words and table:

Each *Effect Type* is divided into levels reflecting the severity of the effect potentially associated with a hazardous substance. Based on this approach, each substance is given a hazard rating for each Effect Type:

EFFECT TYPE	HAZARD LEVEL		
Fire/Explosion	High	Medium	Low
Human Health	High	Medium	Low
Environment	High	Medium	Low

The Hazard Level for each hazardous substance is based on the hazard classification system established under the HSNO Act (refer Table 1).

In the 8th paragraph of section 3.5.3, **delete** the words 'consent trigger level' and **replace** with the following words:

comparative Effect Ratios

In the 9th paragraph of section 3.5.3, **delete** the second sentence and **replace** with the following sentence:

The Effects Ratio is initially calculated for the most important hazardous substances present on the site, either by hazard or quantity.

3.5.4 Step by Step HFSP Procedure

In the first paragraph of Section 3.5.4, delete the words 'steps 1, 2 and 3' and replace with the following words:

Step 1

In section 3.5.4, delete all text associated with Step 1 to Step 11 and replace with the following table:

TABLE 1: STEP-BY-STEP GUIDE TO THE HFSP

DESCRIPTION OF STEP	EXPLANATION
<p>1. Describe the hazardous facility</p> <p>Prior to using the HFSP, it is necessary to compile a full description of the hazardous facility in question. This includes the creation of an inventory of hazardous substances held on the site, including:</p> <ul style="list-style-type: none"> • names of the hazardous substances • quantities of the hazardous substances • the physical form of the substances at 20°C and 101.3 kPa • the location of use or storage on the site, including separation distances from the site boundary and neighbouring hazardous facilities (on-site and off-site). <p>The description should also include site-specific details, including neighbouring land uses and the surrounding environment, with a focus on sensitive environments, sensitive activities and land uses (eg, retirement accommodation, aquifers or wetlands).</p> <p>Where it has been determined that the activity constitutes a hazardous sub-facility, then only those substances used as part of the hazardous sub-facility shall form part of the inventory.</p>	<p>The HFSP uses standard units of tonnes (t) for solids, liquids and liquefied gases and cubic metres (m³) for compressed gases. In some cases, it may therefore be necessary to convert substance quantities to these units. In the case of liquids, specific gravity (or density) must be taken into consideration when converting litres or m³ to tonnes, ie.</p> <p><u>volume of liquid (litres) x specific gravity = tonnes.</u></p> <p style="text-align: center;">1000</p> <p>Adjustments to quantities are also necessary where a substance is diluted with water or mixed with another substance. In this instance, only the percentage quantity of the hazardous substance or product in the dilution or mixture is assessed for the purposes of HFSP calculations (unless a mixture is more hazardous than its components, in which case data on the mixture need to be used).</p> <p>An exception to this are products or brands that already constitute dilutions or mixtures of hazardous substances and which have been classified in terms of their hazardous properties as the 'whole' dilution or mixture for life cycle management purposes. Examples of this are corrosives, oxidising substances and pesticides, which are often sold commercially as standard solutions or strengths. In these cases, quantity adjustments are only applied when these commercially supplied concentrations are further diluted or mixed.</p>
<p>2. Determine Hazard Rating</p> <p>For the purposes of the HFSP, the effects of substances are categorised into three Effect</p>	<p>1. The HFSP rates hazardous substances in terms of each of the three Effect Types as having a high, medium or low hazard. The</p>

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DESCRIPTION OF STEP	EXPLANATION
<p>Types:</p> <ul style="list-style-type: none"> • Fire/Explosion Effect Type: addressing damage to the built environment and safety of people; • Human Health Effect Type: addressing adverse effects on the well-being, health and safety of people; • Environmental Effect Type: addressing adverse effects on ecosystems and natural resources. <p>Each Effect Type is divided into three Hazard Rating Levels:</p> <p>◆ High ◆ Medium ◆ Low</p> <p>The rating levels are based predominantly on the HSNO classification system.</p>	<p>Hazard Rating of a substance is derived from Table 2. Once a substance has been classified under HSNO, Hazard Ratings can be assigned for each Effect Type.</p> <p>2. Where a substance is not found in Table 2 the following default ratings should be used:</p> <ul style="list-style-type: none"> • Fire/Explosion Effect Type: Medium • Human Health Effect Type: Medium • Environment Effect Type: High
<p>3. Find Base Quantities</p> <p>The Base Quantity (B) is pre-calibrated. It is the amount of a substance that has been assessed as generating no significant off-site effects in a heavy industrial area before site- and substance-specific considerations have been taken into account (refer Step 4). Base Quantities for different hazardous properties and hazard ratings in each Effect Type are listed in Table 3.</p>	<p>For example, in the Fire/Explosion Effect Type [Sub-category Flammables], non-significant off-site effects in a heavy industrial area are represented by a Base Quantity of:</p> <ul style="list-style-type: none"> ◆ 100 tonnes of a HSNO Category D flammable liquid which has a low hazard level for the Fire/Explosion Effect Type. ◆ 30 tonnes of a HSNO Category C flammable liquid which has a medium hazard level for the Fire/Explosion Effect Type.
<p>4. Calculate Adjusted Quantity (A)</p> <p>The pre-calibrated Adjustment Factors (FF, HF, EF) are multiplied with the Base Quantities (B) to account for substance properties and site-specific environmental circumstances. This multiplication yields the Adjusted Quantity (A).</p> <p>Adjustment Factors differ for each of the Effect Types, and take into account the following considerations:</p> <ul style="list-style-type: none"> • the physical state of the substance • the type of storage • the type of activity or use • separation distances to the site boundary • the environmental sensitivity of the site location. <p>The Adjustment Factors are listed in Table 4.</p>	<p>Different Adjustment Factors are applied for each Effect Type. For example, for the Fire/Explosion Effect Type, the temperature is relevant, while for the Human Health Effect Type, proximity to a potable water resource is important.</p> <p>In some instances, more than one Adjustment Factor within each Effect Type must be applied, which then need to be multiplied with each other to yield the total Adjustment Factor for the Effect Type. When the Adjustment Factors for each Effect Type have been calculated, they in turn are multiplied with the Base Quantity to yield the Adjusted Quantity).</p> <p>In the example given, the following parameters have been assumed:</p> <ul style="list-style-type: none"> • <30m to site boundary • not adjacent to water body • underground storage.
<p>5. Calculate and add Quantity Ratios (FQ, HQ, EQ)</p>	<p>By using the dimensionless ratio of the Proposed Quantity of a hazardous substance over the</p>

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DESCRIPTION OF STEP	EXPLANATION
<p>This step requires the calculation of the Quantity Ratio for each hazardous substance in question. The Quantity Ratio is a dimensionless number. It is obtained by dividing the quantity of a substance that is proposed to be used or stored on a site, ie the Proposed Quantity (P) by the Adjusted Quantity (A).</p> <p>If several hazardous substances are used or stored on a site, the Quantity Ratios calculated for each of these substances are added up for each Effect Type.</p> <p>Note that $FQ/HQ/EQ_{Total}$ stands for the total sum of Quantity Ratio values from all assessed hazardous substances, within each Effect Type.</p>	<p>Adjusted Quantity, it is possible to aggregate the effects presented by multiple substances held on the same site. This assists with assessing the cumulative potential effects which may be created by several substances present on the same site.</p>
<p>6. Assess resource consent status of hazardous facility</p> <p>When assessing the resource consent status of a particular hazardous facility, the added Quantity Ratios for each Effect Type are compared with relevant Consent Status Indices in the Resource Consent Matrix in the district plan. If they are exceeded, a resource consent is required.</p>	<p>When examining total Quantity Ratios against applicable Consent Status Indices, one or several substances may trigger a resource consent. This highlights the fact that when assessing hazardous facilities, it is often sufficient to assess just a few hazardous substances to start off with, mainly those that are either highly hazardous or are used/stored in high quantities.</p>

Delete 'Table 1: UN Classification of Hazardous Substances' on pages 3/37 – 3/41 of section 3.5 and **replace** with the following table:

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TABLE 2: CLASSIFICATION OF HAZARDOUS SUBSTANCES

It is important to note that:

- ◆ **HSNO classes and categories do not always correspond perfectly with the UN Classification. This list should therefore only be used for HSFP purposes.**
- ◆ **A number of HSNO classes or sub-classes do not have an HFSP hazard rating in the land use planning context as the potential for off-site effect of these substances is low.**

Hazard	HSNO Class & Category	(UN Division)	Description	Effect Type	Hazard Rating
Explosive Substances	1.1	1.1	Substances and articles that have a mass explosion hazard.	Fire/Explosion	High
	1.2	1.2	Substances and articles that have a projection hazard but not a mass explosion hazard.	Fire/Explosion	Medium
	1.3	1.3	Substances and articles that have a fire hazard and either a minor blast hazard or a minor projection hazard or both.	Fire/Explosion	Low
	1.5	1.5	Very insensitive substances that have a mass explosion hazard.	Fire/Explosion	Low

Hazard	HSNO Class & Category	(UN Division)	Description	Effect Type	Hazard Rating
Flammable Gases	2.1.1A High hazard	2.1	a) Ignitable when in a mixture of 13% or less by volume with air; or b) Has a flammable range with air of at least 12%, regardless of the lower flammability limit.	Fire/Explosion	High
	2.1.2A Flammable aerosols	2.1	An aerosol comprising 45% or more by mass of flammable ingredients.	Fire/Explosion	High
		LPG		Fire/Explosion	Medium

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Hazard	HSNO Class & Category	(UN Division)	Description	Effect Type	Hazard Rating
Flammable Liquids	3.1.A Very high hazard	3 PGI	A flash point of less than 23°C and an initial boiling point of less than or equal to 35°C.	Fire/Explosion	High
	3.1B High hazard	3 PGII	A flash point of less than 23°C and an initial boiling point of greater than 35°C.	Fire/Explosion	High
	3.1C Medium hazard	3 PGIII	A flash point of greater than or equal to 23°C but less than or equal to 60°C.	Fire/Explosion	Medium
	3.1D Low hazard	Combustible liquids	A flash point of greater than 60°C but less than or equal to 93°C.	Fire/Explosion	Low

Hazard	HSNO Class & Category	(UN Division)	Description	Effect Type	Hazard Rating
Liquid desensitised explosives	3.2A	3 PGI	(a) A substance that (i) is listed as a liquid desensitised explosive and is assigned Packing Group I, II or III in the UN Model Regulations; or (b) A liquid desensitised explosive that: (i) is formed from an explosive of Class I by adding a desensitising agent to form a liquid that no longer meets the threshold for Class I; and (ii) is not listed in the UN Model Regulations and is not assigned a Packing Group.	Fire/Explosion	High
	3.2B	3 PGII			
	3.2C	3 PG III			

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Hazard	HSNO Class & Category	(UN Division)	Description	Effect Type	Hazard Rating
Flammable Solids - Readily combustible solids and solids that may cause fire through friction	4.1.1A: Medium hazard	4.1(a) PG II	A substance that burns rapidly or the reaction spreads rapidly or may cause fire through low friction in the relevant tests of the UN Manual of Tests and Criteria.	Fire/Explosion	Medium
	4.1.1B Low hazard	4.1(a) PG III	A substance that has lower ratings than 4.1.1A in the relevant tests of the UN Manual of Tests and Criteria.	Fire/Explosion	Low
Self-reactive substances	4.1.2A 4.1.2B	4.1(b) Type A Type B	A thermally unstable substance that propagates a detonation or rapid deflagration or violent effect or thermal explosion in the relevant tests of the UN Manual of Tests and Criteria.	Fire/Explosion	High
	4.1.2C 4.1.2D	4.1(b) Type C Type D	A substance with lower ratings than the above two categories in the relevant tests.	Fire/Explosion	Medium
	4.1.2E 4.1.2F 4.1.2G	4.1(b) Type E Type F	A substance with even lower ratings than the above two categories in the relevant tests.	Fire/Explosion	Low
	4.1.3A 4.1.3B 4.1.3C	4.1(c) PG I PG II PG III	(a) A substance with one of the specified UN serial numbers listed in the UN Model Regulations; or (b) A solid desensitised explosive that is formed from an explosive of Class I by adding a desensitising agent to form a solid substance that no longer meets the threshold for Class I.	Fire/Explosion	High

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Hazard	HSNO Class & Category	(UN Division)	Description	Effect Type	Hazard Rating
Spontaneously combustible substances	4.2A Spontaneously combustible and pyrophoric substances High hazard	4.2 PG I	(a) A solid substance that does not meet the criteria for subclass 4.1.2, but ignites within 5 minutes on contact with air under the relevant test conditions in the UN Manual of Tests and Criteria; or (b) A substance that does not meet the criteria for subclass 4.1.2, but is a liquid which ignites or ignites or chars the filter paper under the relevant test conditions.	Fire/Explosion	High
	4.2B Spontaneously combustible and self-heating substances Medium hazard	4.2 PG II	A substance that does not meet the criteria for subclass 4.1.2 but meets specified criteria under the relevant test conditions.	Fire/Explosion	High
	4.2C Spontaneously combustible and self-heating substances Low hazard	4.2 PG III	A substance that does not meet the criteria for subclass 4.1.2, which, depending on quantity, meets specified criteria under the relevant test conditions.	Fire/Explosion	Medium
Solids that emit flammable gas when in contact with water	4.3A High hazard	4.3 PG I	(a) A substance that emits a gas that ignites when a small quantity of the substance is brought into contact with water; or (b) A substance that reacts readily with water at ambient temperatures such that the rate of evolution of flammable gas is > 10 litres/kg over any 1 minute.	Fire/Explosion	High
	4.3B Medium hazard	4.3 PG II	A substance that reacts readily with water at ambient temperatures such that the maximum rate of evolution is > 20 litres/ kg per hour.	Fire/Explosion	High
	4.3C Low hazard	4.3 PG III	A substance that reacts slowly with water at ambient temperatures so that the maximum rate of evolution of flammable gas is > 1 litre /kg per hour.	Fire/Explosion	Medium

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Hazard	HSNO Class & Category	(UN Division)	Description	Effect Type	Hazard Rating
Oxidising substances - Liquids or solids	5.1.1A High hazard	5.1 PG I	(a) A substance listed as 5.1 in the UN Model Regulations and assigned Packing Group I; or (b) a solid that when mixed with dry cellulose either spontaneously ignites or exhibits a mean burning time less than that of a specified reference material; or (c) a liquid that when mixed with dry cellulose forms a mixture that either spontaneously ignites or exhibits a mean pressure rise time less than that of a specified reference material.	Fire/Explosion	High
	5.1.1B Medium hazard	5.1 PG II	(a) A substance listed as 5.1 in the UN Model Regulations and assigned Packing Group II; or (b) A solid that does not meet the criteria of 5.1.1A and that when mixed with dry cellulose forms a mixture that exhibits a mean burning time equal to or less than a specified reference material; or (c) A liquid that does not meet the criteria of 5.1.1A and that when mixed with dry cellulose forms a mixture that exhibits a mean pressure rise time less than or equal to that of a specified reference material.	Fire/Explosion	High
	5.1.1C Low hazard	5.1 PG III	(a) A substance listed as 5.1 in the UN Model Regulations and assigned Packing Group III; or (b) A solid that does not meet the criteria of 5.1.1A or B and that when mixed with dry cellulose forms a mixture that exhibits a mean burning time equal to or less than that of a specific reference material; or (c) A liquid that does not meet the criteria of 5.1.1A or B and that when mixed with dry cellulose forms a mixture that exhibits a mean pressure rise time less than or equal to that of a specified reference material.	Fire/Explosion	Medium
Gases	5.1.2A	2.2	(a) A gas that is listed as 5.1 in the UN model Regulations; or (b) A gas that causes or contributes to combustion of other material at a faster rate than air.	Fire/Explosion	High

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Hazard	HSNO Class & Category	(UN Division)	Description	Effect Type	Hazard Rating
Organic peroxides	5.2A 5.2B	5.2 Type A Type B	A substance that propagates a detonation or rapid deflagration or violent effect or thermal explosion in the relevant tests of the UN Manual of Tests and Criteria.	Fire/Explosion	High
	5.2C 5.2D	5.2 Type C Type D	A substance with lower ratings than 5.2A or B in the relevant tests.	Fire/Explosion	Medium
	5.2E 5.2F 5.2G	5.2 Type E Type F Type G	A substance with even lower ratings than 5.2A or B in the relevant tests.	Fire/Explosion	Low

Hazard	HSNO Class & Category	(UN Division)	Description	Effect Type	Hazard Rating
Toxic Substances	6.1A	6.1 PGI 2.3 (gases)	Oral toxicity: LD ₅₀ of less than or equal to 5 mg/kg Dermal toxicity: LD ₅₀ of less than or equal to 50 mg/kg Inhalation toxicity (gas): LC ₅₀ of less than or equal to 100 ppm Inhalation toxicity (vapour) LC ₅₀ of less than or equal to 0.5 mg/l Inhalation toxicity (dust/mist) LC ₅₀ of less than or equal to 0.05 mg/l	Human Health	High
	6.1B	6.1 PGII 2.3 (gases)	Oral toxicity: LD ₅₀ of greater than 5 mg/kg but less than or equal to 50 mg/kg Dermal toxicity: LD ₅₀ of greater than 50 mg/kg but less than or equal to 200 mg/kg Inhalation toxicity (gas): LC ₅₀ of greater than 100 ppm but less than or equal to 500 ppm Inhalation toxicity (vapour) LC ₅₀ of greater than 0.5 mg/l but less than or equal to 2.0 mg/l Inhalation toxicity (dust/mist) LC ₅₀ of greater than 0.05 mg/l but less than or equal to 0.5 mg/l	Human Health	High

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Hazard	HSNO Class & Category	(UN Division)	Description	Effect Type	Hazard Rating
	6.1C	6.1 PGIII	Oral toxicity: LD ₅₀ of greater than 50 mg/kg but less than or equal to 300 mg/kg Dermal toxicity: LD ₅₀ of greater than 200 mg/kg but less than or equal to 1,000 mg/kg Inhalation toxicity (gas): LC ₅₀ of greater than 500 ppm but less than or equal to 2,500 ppm Inhalation toxicity (vapour) LC ₅₀ of greater than 2.0 mg/l but less than or equal to 10.0 mg/l Inhalation toxicity (dust/mist) LC ₅₀ of greater than 0.5 mg/l but less than or equal to 1.0 mg/l	Human Health	Medium
	6.1D	Toxic Substances Regulations: Standard Poison	Oral toxicity: LD ₅₀ of greater than 300 mg/kg but less than or equal to 2,000 mg/kg Dermal toxicity: LD ₅₀ of greater than 1,000 mg/kg but less than or equal to 2,000 mg/kg Inhalation toxicity (gas): LC ₅₀ of greater than 2,500 ppm but less than or equal to 5,000 ppm Inhalation toxicity (vapour) LC ₅₀ of greater than 10 mg/l but less than or equal to 20 mg/l Inhalation toxicity (dust/mist) LC ₅₀ of greater than 1.0 mg/l but less than or equal to 5.0 mg/l	Human Health	Low

Hazard	HSNO Class & Category	(UN Division)	Description	Effect Type	Hazard Rating
Corrosive Substances	8.2A	8 PG I	Data indicate irreversible destruction of dermal tissue following brief exposure.	Human Health	High
	8.2B	8 PG II	Data indicate irreversible destruction at dermal tissue following moderate exposure	Human Health	Medium
	8.2C	8 PG III	Data indicate irreversible destruction at dermal tissue following lengthy exposure (up to 4 hours).	Human Health	Low

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Hazard	HSNO Class & Category	(UN Division)	Description	Effect Type	Hazard Rating
Ecotoxic Substances	9.1A Substances that are very ecotoxic in the aquatic environment	GHS	Acute aquatic toxicity value ¹ of less than or equal to 1 mg/l	Environment	High
	9.1B Substances that are ecotoxic in the aquatic environment	GHS	Chronic aquatic toxicity ² of less than or equal to 1 mg/l and: (a) acute aquatic toxicity value of greater than 1 mg/l but less than 10 mg/l; and (b) not rapidly degradable or is bioaccumulative, or is not rapidly degradable and is bioaccumulative.	Environment	Medium
	9.1C Substances that are harmful in the aquatic environment	GHS	Chronic aquatic toxicity of less than or equal to 1 mg/l and: (a) acute aquatic toxicity value of greater than 10 mg/l but less than 100 mg/l; and (b) not rapidly degradable or is bioaccumulative or, is not rapidly degradable and is bioaccumulative.	Environment	Low
	9.1D Substances that are slightly harmful in the aquatic environment or are otherwise designed for biocidal action	GHS	a) Acute aquatic toxicity value of greater than 1 mg/l but less than 100 mg/l, but does not meet classification criteria for 9.1A, 9.1B or 9.1C; or b) Chronic aquatic toxicity value is less than or equal to 1 mg/l but does not meet classification criteria for 9.1B or 9.1C; or c) Not rapidly degradable and is bioaccumulative but does not meet classification criteria for 9.1A, 9.1B or 9.1C.	Environment	Low

¹ 'Acute aquatic toxicity value' means the lowest value expressed in units of milligrams of a substance per litre of water from:
(a) fish LC₅₀ data after a 96-hour exposure period; or
(b) crustacean EC₅₀ data after a 48-hour exposure period; or
(c) algal, or other aquatic plant EC₅₀ data after a 72-hour exposure period.

² 'Chronic aquatic toxicity' means the lowest value expressed in units of milligrams of a substances per litre of water from chronic fish, crustacean, algal, or other aquatic plant NOEC (No observed effect concentration) data.

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Delete 'Table 2: Base Thresholds for Each *Effects Group*' from section 3.5 and replace with the following table:

TABLE 3: BASE QUANTITIES

HSNO category	UN Class equivalent	Hazard level	Unit tonnes or cubic metres	Base Quantity (B)		
				Fire/ Explo-sion	Human Health	Environment
Explosive Substances						
1.1	1.1	High	tonnes	0.1	-	-
1.2	1.2	Medium	tonnes	1	-	-
1.3	1.3	Low	tonnes	3	-	-
1.5	1.5	Low	tonnes	3	-	-
Flammable Gases						
2.1.1A	2.1	High	m ³ tonnes	10,000* 10	-	-
2.1.2A	2.1	High	m ³ tonnes	10,000* 10	-	-
	LPG	Medium	tonnes	30	-	-
Flammable Liquids						
3.1 A	3PGI	High	tonnes	10	-	-
3.1 B	3PGII	High	tonnes	10	-	-
3.1 C	3PGIII	Medium	tonnes	30	-	-
3.1 D	Combustible Liquids	Low	tonnes	100	-	-
Liquid Desensitised Explosives						
3.2 A	3 PGI	High	tonnes	1		
3.2 B	3 PGII					
3.2 C	3 PGIII					
Flammable Solids						
4.1.1.A	4.1 (a) PGII	Medium	tonnes	10	-	-
4.1.1 B	4.1 (a) PGIII	Low	tonnes	30	-	-
4.1.2 A	4.1 (b) PGII	High	tonnes	1	-	-
4.1.2 B						
4.1.2 C	4.1 (b) PGII	Medium	tonnes	10	-	-
4.1.2 D						
4.1.2 E						
4.1.2 F	4.1 (b) PGII	Low	tonnes	30	-	-
4.1.2 G						
4.1.3 A	4.1 (c) PGI	High	tonnes	1	-	-
4.1.3 B	4.1 (c) PGII	High	tonnes	1	-	-

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HSNO category	UN Class equivalent	Hazard level	Unit tonnes or cubic metres	Base Quantity (B)		
				Fire/Explo-sion	Human Health	Environment
4.1.3 C	4.1 (c) PGIII	High	tonnes	1	-	-
4.2 A	4.2 PGI	High	tonnes	1	-	-
4.2 B	4.2 PGII	High	tonnes	1	-	-
4.2 C	4.2 PGIII	Medium	tonnes	10	-	-
4.3 A	4.3 PGI	High	tonnes	1	-	-
4.3 B	4.3 PGII	High	tonnes	1	-	-
4.3 C	4.3 PGIII	Medium	tonnes	10	-	-
Oxidising Substances						
5.1.1 A	5.1 PGI	High	tonnes	1		
5.1.1 B	5.1 PGII	High	tonnes	1		
5.1.1 C	5.1 PGIII	Medium	tonnes	10		
5.1.2 A	2.2	High	m ³ tonnes	10,000 10		
5.2 A	5.2	High	tonnes	1		
5.2 B	Types A and B					
5.2 C	5.2	Medium	tonnes	10		
5.2 D	Types C and D					
5.2 E	5.2	Low	tonnes	30		
5.2 F	Types E,F and G					
5.2 G						
Toxic Substances						
6.1 A	6.1 PGI 2.3	High	tonnes m ³	- 50	1	-
6.1 B	6.1 PGII 2.3	High	tonnes m ³	- 50	1	-
6.1 C	6.1 PGIII 2.3	Medium	tonnes m ³	- 150	10	-
6.1 D	Standard Poison	Low	tonnes m ³	- 500	30	-
Corrosive Substances						
8.2 A	8 PGI	High	tonnes	-	1	-
8.2 B	8 PGII	Medium	tonnes	-	10	-
8.2 C	8 PGIII	Low	tonnes	-	30	-
Ecotoxic Substances						
9.1 A	GHS	High	tonnes	-	-	3
9.1 B	GHS	Medium	tonnes	-	-	30
9.1 C	GHS	Low	tonnes	-	-	100
9.1 D	GHS	Low	tonnes			100

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* Base threshold in m³ at 101.3kPa and 20°C for permanent or compressed gases.

Delete 'Table 3: Adjustment factors for Each Effects Group' in section 3.5 and **replace** with the following table:

TABLE 4: ADJUSTMENT FACTORS

ADJUSTMENT FACTORS FOR ALL EFFECT TYPES		
Fire/ Explosion	Human Health	Environment
FF1: SUBSTANCE FORM	FH1: SUBSTANCE FORM	FE1: SUBSTANCE FORM
Solid = 1	Solid = 3	Solid = 3
Liquid, powder = 1	Liquid, powder = 1	Liquid, powder = 1
Gas (101.3 kPa, 20°C) = 0.1	Gas (101.3 kPa and 20°C) = 0.1	Gas (101.3 kPa and 20°C) = 0.1
FF2: SEPARATION DISTANCE FROM SITE BOUNDARY (SUB-FACILITY)	FH2: SEPARATION DISTANCE FROM SITE BOUNDARY (SUB-FACILITY) (GASES ONLY)	FE2: ENVIRONMENTAL SENSITIVITY
< 30 m = 1	< 30 m = 1	Normal = 1
> 30 m (>60 m) ³ = 3	> 30 m (>60 m) ³ = 3	Adjacent to water resource ⁴ = 0.3
FF3: TYPE OF ACTIVITY	FH3: TYPE OF ACTIVITY	FE3: TYPE OF ACTIVITY
Use = 0.3	Use = 0.3	Use = 0.3
Above ground storage = 1	Above ground storage = 1	Above ground storage = 1
Underground storage ⁵ = 10	Underground storage ⁵ = 10	Underground storage ⁵ = 3
Final Fire/Explosion Adjustment Factor FF = FF1 x FF2 x FF3	Final Human Health Adjustment Factor FH = FH1 x FH2 x FH3	Final Environment Adjustment Factor FE = FE1 x FE2 x FE3

³ If the facility is assessed as a sub-facility, the distance to the neighbouring sub-facility must be more than 60 metres (ie, 2 x 30 metres) to qualify for an Adjustment Factor of 3 (refer Section 5.5.4 of the main document).

⁴ 'Adjacent' means the hazardous facility is within 20m of a water resource. Water resources include aquifers and water supplies, streams, springs, lakes, wetlands, estuaries and the sea, but do not include entry points to the stormwater drainage network.

⁵ Applicable to UN Class 3 substances (flammable liquids) only.

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3.10 Definitions

After the definition for 'Educational Services', **add** the following definition:

ENVIRONMENTALLY DAMAGING SUBSTANCES: Substances that are not intrinsically hazardous but may cause adverse effects if discharged into the environment in large quantities e.g. oxygen depletion in waterways from substances with high organic contents such as milk, wine, soft drinks etc.

Amend the definition for 'Hazardous Facility' by inserting the following words after the word 'any':

building, structure or activity on a site, or part of a

After the definition for Hazardous Facility, **add** the following definition:

HAZARDOUS SUB-FACILITY: a hazardous facility on part of a site that is separated by more than 30m from another hazardous facility on the same site.

Policies

After the first paragraph of the italicised explanation for policies 4.2.8.1 6.2.7.1, 8.2.6.1, 10.2.3.1, 12.2.7.1, 14.2.8.1, and 16.5.3.1, **add** the following paragraph:

The hazardous substance provisions of this Plan work in conjunction with the provisions for hazardous substances under the Hazardous Substance and New Organisms Act 1996. Controls imposed on hazardous substances under the Resource Management Act cannot be less stringent than those set under the Hazardous Substance and New Organisms Act 1996. This requirement is reflected in the rules for hazardous substances in this Plan.

After the words "(advocacy and bylaws," in the second bullet point of policies 4.2.8.2, 6.2.7.2, 8.2.6.2, 10.2.3.2, 12.2.7.2, 14.2.8.2, and 16.5.3.2, **add** the following words:

and NZ land transport legislation (including Land Transport Act 1993, Land Transport Rule: Dangerous Goods 1999 and New Zealand Standard 5433:1999)

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After the words '(Regional Plans,' in the second bullet point of policy 4.2.8.3, 6.2.7.3, 10.2.3.3, 12.2.7.3, 14.2.8.3, and 16.5.3, **add** the following words:

and Hazardous Substances and New Organisms Act 1996).

Rules

Add the following sentence at the end of rules 5.1.10.2, 7.1.1.9.2, 9.1.1.8.2, 11.1.1.7.2, 11.5.1.6.2, 13.1.1.9.2, 13.14.1.8.5, 15.1.11.2, 17.1.13.2:

Secondary containment systems also need to comply with any relevant provisions under the Hazardous Substances and New Organisms Act 1996.

Add the following paragraph after rules 7.1.1.9.2, 9.1.1.8.2, 11.1.1.7.2, 11.5.1.6.2, 13.1.1.9.2, and 13.14.1.8.5 (NB: paragraph numbers should be adjusted accordingly):

7.1.1.9.2A: Except for the storage, use or handling of Liquid Petroleum Gas (LPG), any secondary containment system shall be maintained to ensure that it will perform the functions for which it was designed and contain any spill or accidental release.

In rules 5.1.10.4, 7.1.1.9.3, 9.1.1.8.3, 11.1.1.7.3, 11.5.1.6.3, 13.1.1.9.3, 13.14.1.8.6, 15.1.11.4, and 17.1.13.4, **delete** the words "able to contain the maximum volume of substance of the largest bulk storage vessel, or half the volume of the total stored volume if it is stored in drums." and **replace** with the following words:

that is compliant with relevant provisions under the Hazardous Substances and New Organisms Act 1996.

After the words 'Compliance with' in rules 5.1.10.8, 7.1.1.9.7, 9.1.1.8.7, 11.1.1.7.7, 13.1.1.9.8, 15.1.11.8, and 17.1.13.8, **add** the following words:

any relevant provisions under the Hazardous Substances and New Organisms Act 1996 and

After the words 'is a minimum' in rules 5.1.10.8, 7.1.1.9.7, 9.1.1.8.7, 11.1.1.7.7, 13.1.1.9.8, 15.1.11.8, and 17.1.13.8, **add** the following word:

requirement

Delete rule section 13.14.1.8.11 and **replace** with the following words:

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13.14.1.8.11 Underground tanks for the storage of petroleum products shall be designed, constructed, installed, maintained, operated, managed and at the end of their life removed, to prevent leakage and spills. Compliance with any relevant provisions under the Hazardous Substances and New Organisms Act 1996 and the OSH Code of Practice for the "Design, Installation and Operation of Underground Petroleum Storage Systems" (1992) is a minimum requirement.

Delete all text in rules 5.1.10.9, 7.1.1.9.8, 9.1.1.8.8, 11.1.1.7.8, 13.1.1.9.8, 13.14.1.8.13, 15.1.11.9 and 17.1.13.9 and **replace** with the following text:

All facilities must display signage to indicate the nature of the hazardous substances present (compliance with the provisions of the Hazardous Substances and New Organisms Act 1996 and the requirements of the Building Code (F8) or the Code of Practice "Signage for Premises Storing Hazardous Substances and Dangerous Goods" of the New Zealand Chemical Industry Council (Nov 2004) is a minimum requirement).

After the words 'discharges to the environment' in rules 5.1.10.11, 7.1.1.9.10, 9.1.1.8.10, 11.1.1.7.10, 13.1.1.9.10, 13.14.1.8.15, 15.1.11.11, and 17.1.13.11, **add** the following words:

and also the provisions of the Hazardous Substances and New Organisms Act 1996

In the bold, italicised text in the right hand column of the plan adjacent to the rules relating to *Waste Management* (ie. rules 5.1.10, 7.1.1.9, 9.1.1.8, 11.1.1.7, 13.1.1.9, 13.14.1.8, 15.1.11, and 17.1.13), **delete** all text and **replace** with the following text:

The on-site disposal of hazardous substances will be controlled through Council's Waste Management Strategy, through obtaining the appropriate discharge consents from the Regional Council or trade waste permits, and through relevant controls on disposal of hazardous substances by the Hazardous Substances and New Organisms Act 1996.

Delete the italicised explanatory text for rules 5.1.10, 7.1.1.9, 9.1.1.8, 11.1.1.7, 11.5.1.6, 13.1.1.9, 15.1.11, and 17.1.13 and **replace** with the following text:

In addition to the provisions of the Plan, all activities which involve the use, storage, handling or transportation of hazardous substances are regulated for their on-site and off-site effects by a range of other legislation and regulations, and associated standards and codes of practice which should be complied with.. Key pieces of legislation include:

- *the Hazardous Substance and New Organisms Act 1996*

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- *legislation, rules and standards relating to the transportation of hazardous substances (Land Transport Act 1993, Land Transport Rule: Dangerous Goods 1999 and New Zealand Standard 5433:1999)*
- *Building Act 1991*
- *Health Act 1956*
- *Fire Service Act 1975*
- *Health and Safety in Employment Act 1992*
- *Radiation Protection Act 1965*
- *Agricultural Compounds and Veterinary Medicines Act 1997*

Delete Rule 13.14.1.8.17 and **add** the following italicised explanatory text at the end of rule 13.14.1.8:

In addition to the provisions of the Plan, all activities which involve the use, storage, handling or transportation of hazardous substances are regulated for their on-site and off-site effects by a range of other legislation and regulations, and associated standards and codes of practice which should be complied with.. Key pieces of legislation include:

- *the Hazardous Substance and New Organisms Act 1996*
- *legislation, rules and standards relating to the transportation of hazardous substances (Land Transport Act 1993, Land Transport Rule: Dangerous Goods 1999 and New Zealand Standard 5433:1999)*
- *Building Act 1991*
- *Health Act 1956*
- *Fire Service Act 1975*
- *Health and Safety in Employment Act 1992*
- *Radiation Protection Act 1965*
- *Agricultural Compounds and Veterinary Medicines Act 1997*

In the second paragraph under the standards and terms for Rule 13.3.1, **delete** the phrase “a the central area buffer zone or”. In the first paragraph under the standards and Terms for Rule 13.16.9, **delete** the phrase “a the central area buffer zone or”. This is illustrated below:

Standards and Terms

For hazardous substances, the cumulative effects ratio as assessed under the Hazardous Facilities Screening Procedure for the site where the activity is to occur is **greater than 0.1** or does not meet the conditions in rules 13.1.1.9, unless the site is located in ~~a the central area buffer zone or~~ a Hazard Area.

For hazardous substances, where the hazardous facility is located in a Hazard Area, the cumulative effects ratio as assessed under the Hazardous Facilities Screening Procedure for the site where the activity is to occur is **less than or equal to 0.5** but does not meet the conditions in rules 13.1.1.9.

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Add two new assessment criteria after the existing assessment criteria in rules 5.4.3.13, 7.2.4.16, 7.3.1.14.15, 9.3.1.10.15, 11.2.1.20, 11.2.2.16, 11.3.1.15.15, 13.2.3.16, 11.6.1.14.15, 13.3.1.14.15, 13.15.3.16, 13.16.9.15, 15.4.3.13, 17.3.5.14, as outlined below (NB: assessment criteria to be numbered appropriately):

- Whether appropriate contingency measures and emergency plans are in place.
- Whether the facility complies with the provisions of the Hazardous Substances and New Organisms Act 1996, and whether more stringent controls are required to take account of site-specific conditions.

Changes to Effects Ratio Thresholds

In all tables outlining the Effects Ratio Thresholds, **delete** 'x' and **replace** with 'ER'. Tables are included in rules 5.1.10.1, 7.1.1.9.1, 9.1.1.8.1, 11.1.1.7.1, 11.5.1.6.1, 13.1.1.9.1, 15.1.11.1, 17.1.13.

In rule 5.4.3, after the words "less than or equal to", **delete** '5' and **replace** with '0.5'

Delete rules 13.14.1.8.1, 13.14.1.8.2, 13.14.1.8.3 and 13.14.1.8.4 and replace with the following text and table:

13.14.1.8.1 For those activities which are not specifically exempted (see Section 3.5.2.2) the cumulative effects ratio calculated using the HFSP will be used to determine whether or not those other activities should be Permitted Activities according to the table below. *See Exemptions to the Hazardous Facilities Screening Procedure contained in section 3.5.2*

Location	Hazard Area	Not Hazard Area	Either Area
Effects Ratio	$0.002 < x \leq 0.05$	$0.002 < x \leq 0.1$	≤ 0.002
Conditions applying	13.14.1.8.5 to 13.14.1.8.16	13.14.1.8.5 to 13.14.1.8.16	13.14.1.8.13, 13.14.1.8.15 and 13.14.1.8.16

Activities that do not meet the above effects ratio criteria or do not otherwise comply with the applicable conditions will be Discretionary (Restricted) Activities.

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Delete the second paragraph of the Standard and Terms in Rule 13.16.9

Delete the Effects Ratio threshold table in Rule 15.1.11, and **replace** with the following table:

Location	Hazard Area	Not Hazard Area	Either Area
Effects Ratio	$0.002 < x \leq 0.05$	$0.002 < x \leq 0.5$	≤ 0.002
Conditions applying	15.1.11.2 to 15.1.11.12	15.1.11.2 to 15.1.11.12	15.1.11.9, 15.1.11.11 and 15.1.11.12 only