

**APPENDIX II**  
**HAZARDOUS FACILITIES SCREENING PROCEDURE**

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Accident	A sudden event causing harm to people, property or the natural environment.
Acute Toxicity	Adverse effects caused by a substance with toxic properties occurring within a short time following exposure to that substance.
Adjusted Quantity	The amount (mass in tonnes or m <sup>3</sup> at 101.3 kPa and 20° C for compressed gases) of a substance that has been assessed as generating no significant off-site effects in a heavy industrial area after site-and-substance specific considerations have been taken into account.
Adjustment Factor	The product of the individual factors for each Effect Type ( <i>Fire/Explosion, Human Health and Environment</i> ) that increase or decrease the likelihood and consequences of the release of a hazardous substance.
Base Quantity	The amount (mass in tonnes or m <sup>3</sup> at 101.3 kPa and 20° C for compressed gases) 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.
Bioaccumulation	Accumulation of a substance within the tissues of living organisms.
BOD <sub>5</sub>	The biochemical oxygen demand (measured over a five day period) which is the amount of dissolved oxygen in a body of water required for the breakdown of organic material in the water.
Carcinogen	Causing a statistically significant increase in the incident of tumours – see HSNO Regulations.
Chronic Toxicity	Adverse effects caused by a substance with toxic properties which occur either after prolonged exposure or an extended period after initial exposure.
Cleaner Production	The use of techniques to reduce the need for raw materials and/or energy and the amount of wastes generated. These techniques may include the use of recyclable materials, the use of less hazardous substances or the reduction in their quantity and the use of renewable resources.
Code of Practice	Means any document for the purposes of specifying procedures and practices, or equipment and facilities for the management of hazardous substances, including documents issued and approved in accordance with HSNO.
Consent Status Index	Numerical values in the District Plan that are used to determine the consent status of a facility.

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Consequence	The outcome of an event or situation expressed qualitatively or quantitatively, being a loss, injury, disadvantage or gain (AS/NZS 4360:1999).
Corrosive	Capability of breaking down metal or human tissue on contact – see HSNO Regulations.
Cumulative Risk	The risk posed by a hazardous facility added to or multiplied by risks from other facilities.
Ecosystem	A biotic community and its abiotic environment, considered together as a unit. Ecosystems are characterised by a flow of energy that leads to trophic status and material recycling.
Ecotoxic	Capability for toxic effects on non-human organisms and ecosystems – see HSNO Regulations.
Effect Types	<p>The effects generated when a hazardous substance is released or reacts:</p> <p><i>Fire/Explosion effect types</i> – concerned with damage to property, the built environment and people by substances with explosive, flammable or oxidising properties;</p> <p><i>Human Health effect types</i> – concerned with adverse effects to the well-being and health of people by substances with toxic or corrosive properties;</p> <p><i>Environmental effect types</i> – concerned with damage to ecosystems or natural resources by substances with ecotoxic or corrosive properties.</p>
Emergency Plans	A regularly updated document serving as an emergency response guide by identifying and cataloguing the elements required to respond to an emergency, and defining responsibilities and specific tasks in an emergency.
Environment	<p>Includes:</p> <ul style="list-style-type: none"><li>(a) Ecosystems and their constituent parts, including people and communities; and</li><li>(b) All natural and physical resources; and</li><li>(c) The social, economic, aesthetic and cultural conditions which affect the matters stated in paragraphs (a) to (c) of this definition or which are affected by those matters. (RMA/HSNO)</li></ul>
Environmental Effect	Any change to the environment regardless of scale, intensity, duration or frequency, in relation to the use, development, or protection of natural and physical resources (based on the RMA).

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Environmental Management system	Part of the overall management system that includes organisational structure, planning activities, responsibilities, practices, procedures, processes and resources for developing, implementing, achieving, reviewing and maintaining the environmental policy (ISO/IDS 14050).
Environmentally Damaging Substances	Risks to human health and welfare including ecosystem health, that arise in, or are transmitted by the natural environment (Asian Development Bank 1990).
Environmentally sensitive areas	Areas that, in the judgement of the local community and/or regulatory authority, should not be subject to more than a specified low risk, or where additional safeguards are required when undertaking activities exceeding the specified low risk. Environmentally sensitive areas may include aquifers, waterways, wetlands, coastal environments, special ecosystems or species habitats.
Explosiveness	Capability of sudden expansion due to release of internal energy – see HSNO Regulations.
Flammability	Capability to be ignited in the presence of oxygen and to sustain combustion – see HSNO Regulations.
Frequency	Measure of likelihood expressed as the number of occurrences of an event in a given time. See also Likelihood and Probability.
Harm	Injury or damage to health, property or the environment.
Hazard	Actual or potential source of harm or a situation with a potential to cause adverse effect (modified from AS/NZS 4360:1999).
Hazard Rating	The level of hazard (high, medium or low) applied to a hazardous substance for the purpose of an HFSP calculation, based on its HSNO classifications.
Hazardous Activity	An activity which does not include the use, storage or otherwise handling of a hazardous substance but which may pose a risk to the environment or a community (for example, earthworks).
Hazardous Facility	Activities involving hazardous substances and sites, including vehicles for their transport, at which these substances are used, stored, handled or disposed of.
Hazardous Subdivision-Facility	A hazardous facility that is separated by more than 30 metres from any other hazardous facility on the same site.
Hazardous Substance	Any substance with hazardous properties including those substances defined as hazardous for the purpose of the HSNO Act.

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Hazardous Waste	As defined in “Towards a New Zealand Definition of Hazardous Waste” (October 1999) MfE Technical Working Paper.
HSNO	Includes both the Hazardous Substances and New Organisms Act 1996 and HSNO Regulations in relation to hazard classification and life cycle requirements for hazardous substances.
Likelihood	Qualitative description of probability or frequency (AS/NZS 4360:1999).
Off-site Effects	Effects on people, property and/or the natural environment outside the boundary of the site of a hazardous facility.
Oxidising Capacity	Capacity to contribute to fire or explosion due to the release of oxygen – see HSNO Regulations.
Performance Requirements	Controls which say what is to be achieved (including in measurable terms), without being prescriptive (based on MfE, 1994).
Precautionary Approach	The need for caution in managing adverse effects of hazardous substances where there is scientific and technical uncertainty about those effects (based on HSNO).
Probability	Likelihood of a specific outcome, measured by the ratio of specific outcomes to the total number of possible outcomes. Probability is expressed as a percentage or number between 0 and 1, with 0 indicating an impossible outcome and 1 indicating an outcome is certain (based on AS/NZS 4360:1999).
Property Performance Requirements	Standards relating to the nature of the hazardous properties (eg explosive, toxic, corrosive, etc) of a given hazardous substance (based on MfE, 1994).
Proposed Quantity	The quantity of a hazardous substance proposed to be used or stores on a site.
Quantity Ratio	The ratio of the proposed quantity of a substance over the applicable Base Quantity.
Receptor	Ecological entity exposed to the stressor (USEPA Federal Register: Proposed Guidelines for Ecological Risk Assessment 1996).
Residual Risk	The risk remaining after risk treatment measures have been taken (modified AS/NZS 4360:1999).

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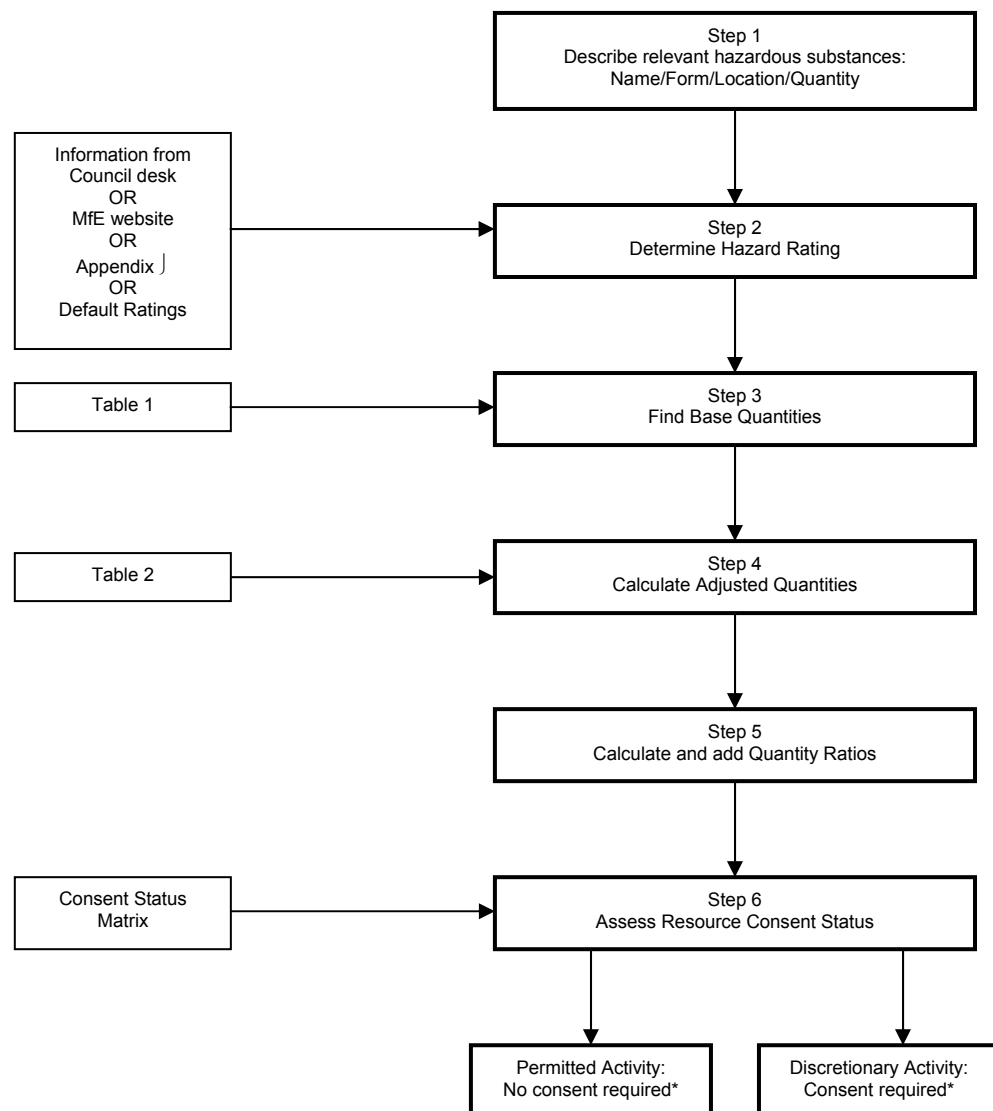
Risk	The chance of something happening that will have an impact upon objectives. It may be an event, action, or lack of action. It is measured in terms of consequences and likelihood (AS/NZS 4360:1999). In the context of Part Fourteen of this Plan, risk is the chance of something happening that will have an impact on the environment.
Risk Analysis	The systematic use of available information to determine how often specified events may occur and the magnitude of their likely consequences (AS/NZS 4360:1999).
Risk Assessment	Overall process of risk identification, risk analysis and risk evaluation. (AS/NZS 4360:1999 and AS/NZS 3931:1998).
Risk Management	The systematic application of management policies, procedures and practices to the tasks of identifying, analysing, assessing, treating and monitoring risk (AS/NZS 4360:1999).
Risk Mitigation	Steps taken to reduce the probability of occurrence or the magnitude of the consequences (AS/NZS 4360:1999).
Separation Distance	The distance from the edge of the area where hazardous substances are used, stored or otherwise handled to the edge of the area exposed to defined adverse effects.
Site Management System	The means of ensuring the ongoing safety of a hazardous facility through sound management. A site management system should include safety policy, provide a description of organisational structure and responsibilities, including operating, emergency and monitoring procedures; and carry out regular performance auditing.
Spill Containment System	A structure which will contain liquid or solid hazardous substances in the event of a spill, and prevent them from entering the stormwater system or a natural water body.
Storage	The containment of a substance, either above ground or underground, which is not being used for the manufacturing or altered to another substance, but does not include use of a substance as a cooling or heating medium. Storage does include the filling and emptying of a container.
Substance	(a) Any element, defined mixture of elements, compounds or defined mixtures of compounds, either naturally occurring or produced synthetically, or any mixtures thereof.  (b) Any isotope, allotrope, isomer, congener, radical or ion of an element of compound which has been officially declared by the Environmental Risk Management Authority to be a different substance from that element or compound.

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- (c) Any mixtures or combinations of any of the above.
- (d) Any manufactured article containing, incorporating or including any hazardous substances with explosive properties (HSNO).
- Unintentional Release Unplanned or unwanted release of a hazardous substance or substances that may or may not be detected immediately.
- Use The manufacturing, processing or handling of a substance for a particular activity without necessarily changing the physical state or chemical structure of the substance involved. This includes mixing, blending and packaging operations, but does not include the filling or drawing of substances from bulk storage tanks unless the processing is permanently connected to the bulk storage and does not include loading out and dispensing of petroleum products.

## 1. HAZARDOUS FACILITIES SCREENING PROCEDURE

The Hazardous Facility Screening Procedure (HFSP) is applied to hazardous facilities in all zones and in addition to other zone-specific rules. The HFSP is used to screen hazardous facilities and their sites. However, where hazardous facilities on the same site are separated more than 30 metres from each other, they may be dealt with as separate facilities and the HFSP is applied to them separately.

Appendix II provides a step-by-step guide and an attached worksheet (Attachment 1) on how to use the HFSP.



**NOTE:** Compliance with minimum performance standards is always required.



**THE HFSP STEP-BY-STEP GUIDE**

STEPS	HFSP CALCULATIONS				EXPLANATION
<p><b>1. Describe the hazardous facility</b></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"> <li>names of the hazardous substances</li> <li>quantities of the hazardous substances</li> <li>the physical form of the substances at 20°C and 101.3 kPa</li> <li>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)</li> </ul> <p>The description should also include site-specific details, including neighbouring land uses and the surrounding environment, with a focus on sensitive land uses and receptors (for example, retirement accommodation, aquifers or wetlands).</p>	Substance Name	Substance Form (liquid, solid, gas)	Location of Substances On site	Proposed Quantity (P) (tonnes or m <sup>3</sup> )	<p>The HFSP uses standard units of tonnes (for solids, liquids and liquefied gases) and m<sup>3</sup> (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 m<sup>3</sup> to tonnes (ie</p> <p style="text-align: center;">Volume of liquid (litres x specific gravity = tonnes</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 needs 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>Substance 1</p> <p>Substance 2</p> <p>.....</p> <p>Substance 10</p>	<p><b>EXAMPLE</b></p>	<p><b>&lt; 30 metres</b></p>	<p><b>50 †</b></p>	

STEPS	HFSP CALCULATIONS			EXPLANATION
<p><b>2. Determine Hazard Rating</b></p> <p>For the purposes of the HFSP, the effects of substances are categorised into three Effect Types:</p> <ul style="list-style-type: none"> <li>• Fire/Explosion Effect Type: addressing damage to the built environment and safety of people</li> <li>• Human Health Effect Type: addressing adverse effects on the well-being, health and safety of people</li> <li>• Environmental Effect Type: addressing adverse effects on ecosystems and natural resources</li> </ul> <p>Each Effect Type is divided into three Hazard Rating Levels:</p> <ul style="list-style-type: none"> <li>• High</li> <li>• Medium</li> <li>• Low</li> </ul> <p>The rating levels are predominantly based on the HSNO classification system.</p>	<p>Substance Name</p> <p>Substance 1</p> <p>Substance 2</p> <p>.....</p> <p>Substance 10</p> <p><b>Petrol</b></p>	<p>Fire/Explosion</p> <p>High (H) Or Medium (M) Or Low (L)</p> <p><b>High</b></p>	<p>Hazard Rating</p> <p>Human Health</p> <p>High (H) Or Medium (M) Or Low (L)</p> <p>--</p>	<p>Environment</p> <p>High (H) Or Medium (M) Or Low (L)</p> <p><b>High (default)</b></p> <p>The HFSP rates hazardous substances in terms of each of the three Effect Types as having a high, medium or low hazard. The Hazard Rating of a substance is derived from:</p> <ol style="list-style-type: none"> <li>1. The list of HFSP-rated hazardous substances is available from the Council desk or MfE website.</li> <li>2. The HSNO classification (refer Appendix J or ERMA website). Once a substance has been classified under HSNO, Hazard Ratings can be assigned for each Effect Type as shown in Appendix Z.</li> <li>3. Where a substance is neither found in the list of HFSP-related substances available at the Council desk nor the HSNO databases on the MfE/ERMA websites, default ratings should be used (Fire/Explosion Effect Type: <b>Medium</b>, Human Health Effect Type: <b>Medium</b> and Environment Effect Type: <b>High</b>).</li> </ol>
<b>EXAMPLE</b>				

STEPS	HFSP CALCULATIONS				EXPLANATION	
<p><b>3. Find Base Quantities</b></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 1.</p>	Substance Name	Fire/ Explosion	Base Quantities (B)		<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"> <li>• 100 tonnes of a HSNO Category D flammable liquid which has a low hazard level for the Fire/Explosion Effect Type</li> <li>• 30 tonnes of a HSNO Category C flammable liquid which has a medium hazard level for the Fire/Explosion Effect Type</li> </ul>	
			Human Health	Environment		
	Substance 1	B <sub>1</sub>	B <sub>1</sub>	B <sub>1</sub>		
	Substance 2	B <sub>2</sub>	B <sub>2</sub>	B <sub>2</sub>		
.....	.....	.....	.....			
Substance 10	B <sub>10</sub>	B <sub>10</sub>	B <sub>10</sub>			
<p><b>Petrol</b></p>	<b>EXAMPLE</b>					
	<p><b>10 †</b></p>	<p>--</p>	<p><b>1 †</b></p>			

STEPS	HFSP CALCULATIONS			EXPLANATION			
<p><b>4. Calculate Adjusted Quantity (A)</b></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"> <li>the physical state of the substance</li> <li>the type of storage</li> <li>the type of activity or use</li> <li>separation distances to the site boundary</li> <li>the environmental sensitivity of the site location</li> </ul> <p>The Adjustment Factors are listed in Table 2.</p>	Substance Name	Fire/Explosion	Adjusted Quantities (A)		<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 needs 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"> <li>&lt;30 to site boundary</li> <li>not adjacent to water body</li> <li>underground storage</li> </ul>		
	Substance 1	A <sub>1</sub>	Human Health	A <sub>1</sub>		Environment	A <sub>1</sub>
	Substance 2	A <sub>2</sub>		A <sub>2</sub>			A <sub>2</sub>
	.....	.....		.....			.....
	Substance 10	A <sub>10</sub>	A <sub>10</sub>	A <sub>10</sub>			
	<b>Petrol</b>	<b>100 †</b> (10 tonnes x 10)	<b>EXAMPLE</b> --	<b>3 †</b> (1 tonne x 3)			

STEPS	HFSP CALCULATIONS			EXPLANATION	
<p><b>5. Calculate and add Quantity Ratios (FQ, HQ, EQ)</b></p> <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<sub>Total</sub> stands for the total sum of Quantity Ratio values for all assessed hazardous substances within each Effect Type.</p>	Substance Name	Quantity Ratios (FQ, HQ, EQ)			<p>By using the dimensionless ratio of the Proposed Quantity of a hazardous substance over the Adjusted Quantity, it is possible to aggregate the effects presented by multiple substances held on the same site. Hence, it becomes possible to assess the cumulative potential effects which may be created by several substances present on the same site.</p>
		Fire/Explosion	Human Health	Environment	
	Substance 1	FQ <sub>1</sub>	HQ <sub>1</sub>	Q <sub>1</sub>	
	Substance 2	FQ <sub>2</sub>	HQ <sub>2</sub>	Q <sub>2</sub>	
	.....	.....	.....	.....	
Substance 10	FQ <sub>10</sub>	HQ <sub>10</sub>	Q <sub>10</sub>		
	<b>FQ Total</b>	<b>HQ Total</b>	<b>EQ Total</b>		
	<b>EXAMPLE</b>				
<b>Petrol</b>	<b>0.50</b>	--	<b>16.67</b>		
	(50 tonnes/ 100 tonnes)		(50 tonnes/ 3 tonnes)		

STEPS	HFSP CALCULATIONS			EXPLANATION	
<p><b>6. Assess Resource Consent Status of Hazardous Facility</b></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>	Substance Name	Does Quantity Ratio exceed Consent Status Index?			<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>
		Fire/Explosion	Human Health	Environment	
	Substance 1		YES/NO		
	Substance 2	YES/NO		YES/NO	
	.....				
Substance 10					
	<p><b>EXAMPLE</b></p> <p>In a typical industrial zone</p>				
	<b>Petrol</b>	<b>NO</b>	<b>--</b>	<b>YES</b>	

**Table I: Base Quantities (B) for all Effect Types and Hazard Ratings**

HSNO CATEGORY	UN CLASS EQUIVALENT	HAZARD LEVEL	UNIT	BASE QUANTITY (B)		
				Fire/ Explosion	Human Health	Environment
<b>EXPLOSIVENESS</b>						
1.1	Class 1.1	High	tonnes	0.1	-	-
1.2	Class 1.2	Medium	tonnes	1	-	-
1.3	Class 1.3	Low	tonnes	3	-	-
<b>FLAMMABLE GASES</b>						
2.1 A+B (LPG)	Class 2.1	Medium	tonnes	30	-	-
2.1 A+B (excluding LPG)	Class 2.1	High	m <sup>3</sup>	10,000*	-	-
<b>FLAMMABLE LIQUIDS</b>						
3 A and 3 B	Class 3PGI and 3PGII	High	tonnes	10	-	-
3 C	Class 3PGIII	Medium	tonnes	30	-	-
3 D		Low	tonnes	100	-	-
<b>FLAMMABLE SOLIDS</b>						
4.1 (all categories)	Class 4.1	Medium	tonnes	10	-	-
4.2 (all categories)	Class 4.2	High	tonnes	1	-	-
4.3 (all categories)	Class 4.3	High	tonnes	1	-	-
<b>OXIDISING GASES, LIQUIDS AND SOLIDS</b>						
5.1 (all categories)	Class 5.1	Medium	Tonnes (m <sup>3</sup> )	10 (10,000*)	-	-
5.2 (all categories)	Class 5.2	High	tonnes	1	-	-
<b>TOXIC GASES, LIQUIDS AND SOLIDS</b>						
6.1 A	Class 6.1 PGI	High	tonnes	-	0.5	-
6.1 A	Class 2.3 PGI	High	m <sup>3</sup>	-	30*	-
6.1 B	Class 6.1 PGII	Medium	tonnes	-	10	-
6.1 B	Class 2.3 PGII	Medium	m <sup>3</sup>	-	50*	-
6.7-6.9 (chronic toxicity categories)	OECD	Medium	tonnes	-	10	-
6.1 C	Class 6.1 PGIII	Low	tonnes	-	30	-
6.1 C	Class 2.3 PGIII	Low	m <sup>3</sup>	-	500*	-
<b>CORROSIVE GASES, LIQUIDS AND SOLIDS</b>						
(8A) 6.3-6.4 (corrosives, all categories)	Class 8	Medium	tonnes (m <sup>3</sup> )	-	10	-
<b>ECOTOXIC GASES, LIQUIDS AND SOLIDS</b>						
9.1-9.4 A	(OECD 1)	High	tonnes (m <sup>3</sup> )	-	-	1 (30*)
9.1-9.4 B	(OECD 2)	Medium	tonnes (m <sup>3</sup> )	-	-	30 (50*)
9.1-9.4 C	(OECD 3)	Low	tonnes (m <sup>3</sup> )	-	-	100 (500*)

**Table 2: Adjustment Factors**

<b>ADJUSTMENT FACTORS FOR ALL EFFECT TYPES</b>		
<b>Fire/Explosion</b>	<b>Human Health</b>	<b>Environmental</b>
<b>FF1: SUBSTANCE FORM</b>	<b>FH1: SUBSTANCE FORM</b>	<b>FE1: SUBSTANCE FORM</b>
Solid = 1	Solid = 3	Solid = 3
Liquid, powder = 1	Liquid, powder = 1	Liquid, powder = 1
Gas (101.3 kPA and 20° C) = 0.1	Gas (101.3 kPA and 20°C) = 0.1	Gas (101.3 kPA and 20°C) = 0.1
<b>FF2: SEPARATION DISTANCE FROM SITE BOUNDARY (SUB-FACILITY)</b>	<b>FH2: SEPARATION DISTANCE FROM SITE BOUNDARY (SUB-FACILITY) (GASES ONLY)</b>	<b>FE2: ENVIRONMENTAL SENSITIVITY</b>
< 30 metres = 1	< 30 metres = 1	More than 100 metres from a water course <sup>2</sup> = 1
> 30 metres (>60 metres) <sup>1</sup> = 3	> 30 metres (>60 metres) <sup>1</sup> = 3	Adjacent to or within 100 metres of a water course = 0.3
<b>FF3: TYPE OF ACTIVITY</b>	<b>FH3: TYPE OF ACTIVITY</b>	<b>FE3: TYPE OF ACTIVITY</b>
Use = 0.3	Use = 0.3	Use = 0.3
Above ground storage = 1	Above ground storage = 1	Above ground storage = 1
Underground storage <sup>3</sup> = 10	Underground storage <sup>3</sup> = 10	Underground storage <sup>3</sup> = 3
Final Fire/Explosion Adjustment Factor <b>FF = FF1 x FF2 x FF3</b>	Final Human Health Adjustment Factor <b>FH = FH1 x FH2 x FH3</b>	Final Environment Adjustment Factor <b>FE = FE1 x FE2 x FE3</b>

<sup>1</sup> 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.

<sup>2</sup> Water resource includes aquifers and water supplies, streams, springs, lakes, wetlands, estuaries and the sea, but do not include entry points to the stormwater drainage network.

<sup>3</sup> Applicable to UN Class 3 substances (flammable liquids) only.



Operative South Taranaki District Plan (December 2004)  
**Appendix II: Hazardous Facilities Screening Procedure**



**ATTACHMENT 1: HFSP CALCULATION SPREADSHEET**

APPLICATION NO																			
APPLICANT																			
CONTACT NAME																			
POSTAL ADDRESS																			
SITE ADDRESS																			
PHONE NUMBER																			
FAX NUMBER																			
EMAIL																			
COMMENT																			
Ref No	Substance on this site	CAS No	Effects Type	Hazard Rating	Base Quantity B Tonnes	Substance Form	Distance to Boundary less than 30 m?	Adjacent to Water? YES/NO	Type of Activity Aground Bground Use	F1	F2	F3	Product of Adjustment Factor	Adjusted Quantity	Proposed Quantity Q T or m <sup>3</sup>	Fire/Explosion Quantity Ratio	Human Health Quantity Ratio	Environment Quantity Ratio	
1			Fire/Explosion Human Health Environment																
2			Fire/Explosion Human Health Environment																
3			Fire/Explosion Human Health Environment																
4			Fire/Explosion Human Health Environment																
5			Fire/Explosion Human Health Environment																
6			Fire/Explosion Human Health Environment																
7			Fire/Explosion Human Health Environment																
8			Fire/Explosion Human Health Environment																
9			Fire/Explosion Human Health Environment																
10			Fire/Explosion Human Health Environment																
<b>Total Quantity Ratios</b>																			

**HFSP RATING FOR HAZARDOUS SUBSTANCES**

The full description of HSNO Classes, Sub-classes and Categories is contained in the HSNO Regulations.

<u>Hazard</u>	<u>HSNO Class and Category</u>	<u>(UN Division)</u>	<u>Description</u>	<u>Effect Type</u>	<u>Hazard Rating</u>
Explosiveness	1.1	1.1	Articles and substances having a mass explosion hazard	Fire/Explosion	High
	1.2	1.2	Articles and substances having a projection hazard, but not a mass explosion hazard.	Fire/Explosion	Medium
	1.3	1.3	Articles and substances having a fire hazard and either a minor blast hazard or a minor projection hazard for both but not a mass explosion hazard. This division comprises articles and substances that: <ul style="list-style-type: none"> <li>• give rise to considerable radiant heat, or</li> <li>• burn one after another, producing minor blast and/or projection effects</li> </ul>	Fire/Explosion	Low
Flammable Gases	1.4, 1.5, 1.6	1.4, 1.5, 1.6	Not applicable		
	2.1A, 2.1B	2.1	Flammable Gases: (i) gases which at 20°C and a standard pressure of 101.3kPa: <ul style="list-style-type: none"> <li>• are ignitable when in a mixture of 13% or less by volume with air, or</li> <li>• have a flammable range with air of at least 12% regardless of the lower flammability limit; or</li> </ul>	Fire/Explosion	High
			(ii) gases or gas mixtures, other than those of (i) above, that at 20°C and a standard pressure of 101.3 kPa have a flammable range in mixture in air.		
	-		LPG	Flammable aerosols being a pressurised mixture of containing gas, compressed, liquified or dissolved under pressure, with or without a liquid, paste or powder; comprising at least 45% by mass of flammable ingredients, under a pressure greater than 100 kPa, which can be released in a finely divided spray.	Fire/Explosion
		2.2	Not applicable		

Operative South Taranaki District Plan (December 2004)  
**Appendix II: Hazardous Facilities Screening Procedure**



<u>Hazard</u>	<u>HSNO Class and Category</u>	<u>(UN Division)</u>	<u>Description</u>	<u>Effect Type</u>	<u>Hazard Rating</u>
Flammable Liquids	3A	3PGI	Flammable liquids comprising liquids, mixtures of liquids, or liquids containing solids in suspension which give off a flammable vapour at specific temperatures Flash point: <23°C Initial boiling point: <35°C	Fire/Explosion	High
	3B	3PGII	Flash point: <23°C Initial boiling point: <35°C	Fire/Explosion	High
	3C	3PGIII	(a) Flash point: ≥23°C; ≤60°C (b) Flash point: >60°C, but liquid is manufactured, stored, transported or used (except deliberate burning) at a temperature at or above its flash point.	Fire/Explosion	Medium
	3D	Combustible liquids	Flash point: >60°C but ≤93°C	Fire/Explosion	Low
Flammable solids	4.1 All categories	4.1	<ul style="list-style-type: none"> <li>Flammable solids that are readily combustible or may cause fire easily through an ignition source or friction.</li> <li>Self-reacting substances that are thermally unstable and are liable to undergo a strongly exothermic decomposition even without the participation of oxygen (and related substances).</li> <li>De-sensitised explosives; substances which are wetted with water or alcohol or diluted with other substances to suppress their explosive properties.</li> </ul>	Fire/Explosion	Medium
	4.2 All categories	4.2	Substances liable to spontaneous combustion: <ul style="list-style-type: none"> <li>Pyrophoric substances: liquid or solid substances which, even in small quantities, ignite within 5 minutes of coming in contact with air.</li> <li>Self-heating substances: solid substances which generate heat when in contact with air without additional energy supply.</li> </ul> Substances which, in contact with water, become spontaneously flammable, or emit flammable gases.	Fire/Explosion	High
	4.3 All categories	4.3	Oxidising substances: substances which in themselves are not necessarily combustible, but may cause or contribute to the combustion of other materials by yielding oxygen.	Fire/Explosion	High
Oxidising Capacity	5.1 All categories	5.1	Organic peroxides: organic substances that are thermally unstable and may undergo exothermic, self-accelerating decomposition. They may: <ul style="list-style-type: none"> <li>Be liable to explosive decomposition</li> <li>Burn rapidly</li> <li>Be sensitive to impact or friction</li> </ul>	Fire/Explosion	Medium
	5.2 All categories	5.2		Fire/Explosion	High

Operative South Taranaki District Plan (December 2004)  
**Appendix II: Hazardous Facilities Screening Procedure**



<b>Hazard</b>	<b>HSNO Class and Category</b>	<b>(UN Division)</b>	<b>Description</b>	<b>Effect Type</b>	<b>Hazard Rating</b>	
Toxicity			<ul style="list-style-type: none"> <li>React dangerously with other substances</li> <li>Cause damage to the eyes</li> </ul>			
		6.1	Substances which are liable to cause death or injury or to harm human health if swallowed, inhaled, or contacted by the skin.			
	6.1A	6.1 PGI	Oral toxicity LD <sub>50</sub> (mg/kg): ≤5 Dermal toxicity LD <sub>50</sub> (mg/kg): ≤50 Inhalation toxicity dust/mist LC <sub>50</sub> (mg/l) ≤0.05	Human Health	High	
	6.1B	6.1 PGII	Oral Toxicity LD <sub>50</sub> (mg/kg) >5-50 Dermal toxicity LD <sub>50</sub> (mg/kg): >50-200 Inhalation toxicity dust/mist LC <sub>50</sub> (mg/l) >0.5-1	Human Health	Medium	
	6.1C	6.1 PGIII	Oral Toxicity LD <sub>50</sub> (mg/kg) Dermal toxicity LD <sub>50</sub> (mg/kg): Inhalation toxicity dust/mist LC <sub>50</sub> (mg/l)	Human Health	Low	
	6.1A	2.3	Toxic gases which are known to be toxic or corrosive to humans and pose a hazard to health. This division is divided into the following categories: (a) Inhalation toxicity gases LC <sub>50</sub> : <100 ppm, vapours LC <sub>50</sub> : <0.5 mg/l (b) Inhalation toxicity gases LC <sub>50</sub> : ≥100 ppm-500ppm, vapours LC <sub>50</sub> : ≥0.5 mg/l-2mg/l (c) Inhalation toxicity gases LC <sub>50</sub> : ≥500 ppm-2,500 ppm, vapours LC <sub>50</sub> : ≥2 mg/l-10 mg/l	Human Health	High	
	6.1B			Human Health	Medium	
	6.1C			Human Health	Low	
	(8A) 6.4 All categories	8		Eye irritation/corrosiveness: Chemical Property: 2>pH>11.5 Effect: Draize Grade ≥ 1 for either corneal opacity or iritis or Grade 2 for either conjunctival redness or chemosis	Human Health	Medium
	(8A) 6.3 All categories	8		Skin irritation/corrosiveness: Chemical Property 2>pH>11.5 Effect: Draize Grade ≥ 1.5 for erythema or oedema	Human Health	Medium
	6.4	(OECD 1 & 2)		Respiratory or contact sensitizer.	Human Health	Medium
	6.7A, 6.7B	(OECD 1 & 2)		Carcinogenicity: Suspected or presumed carcinogen	Human Health	Medium
	6.9A, 6.9B	(OECD 1 & 2)		Known, presumed or suspected human target organ toxicity	Human Health	Medium
6.6A, 6.6B	(OECD 1 & 2)		Substances known or regarded as mutagenic OR Substances which cause concern for man owing to the possibility that they may induce heritable mutations in the germ cells of human	Human Health	Medium	
6.8A, 6.8B	(OECD 1 & 2)		Known, or presumed Human Reproductive or Developmental Toxicant OR Suspected Human Reproductive or Developmental Toxicant	Human Health	Medium	

Operative South Taranaki District Plan (December 2004)  
**Appendix II: Hazardous Facilities Screening Procedure**



	6.8C	(OECD)	Effects on or via lactation: Data showing: (i) a likelihood that the substance would be present in potentially toxic levels in human breast milk; AND/OR (ii) clearly defined adverse effect in the offspring of animals due to transfer in the milk; OR clearly defined adverse effect on the quality of the milk in animals; AND/OR (iii) human evidence indicating a hazard to babies during the lactation period. Not applicable	Human Health	Medium
Exotoxicity	6.2		Ecotoxic substances: any substance exhibiting a toxic effect on ecosystems. This division is divided into three categories: (a) Very toxic to the aquatic environment very toxic to the terrestrial environment very toxic to terrestrial vertebrates very toxic to beneficial invertebrates (b) Toxic to the aquatic environment toxic to the terrestrial environment toxic to terrestrial vertebrates toxic to beneficial invertebrates (c) Harmful to the aquatic environment harmful to the terrestrial environment harmful to terrestrial vertebrates harmful to beneficial invertebrates	Environment	High
9.1A		(OECD1)		Environment	High
9.2A		(OECD2)		Environment	Medium
9.3A		(OECD3)		Environment	Low
9.4A				Environment	Low
9.1C				Environment	Low
9.2C				Environment	Low
9.3C				Environment	Low
9.4C				Environment	Low