

6. HAZARDOUS SUBSTANCES

6.1 Introduction

The use, storage, transportation and disposal of potentially hazardous substances is an integral part of the normal activities of a community. Such substances include industrial, agricultural and household chemicals, medical wastes, petroleum products including LPG, lubricating oils, and radioactive substances. These substances whether singularly, or in combination, have the potential to adversely affect the health and safety of the community, and the wellbeing and sustainability of the local natural and physical environment.

Territorial authorities are responsible for managing the effects of land use activities under section 31(b) of the RMA. This requires the control of effects from activities associated with hazardous substances. The RMA requires territorial authorities and regional councils to liaise closely to determine respective roles and responsibilities, and identify those functions in the regional policy statement. In that regard, the Regional Policy Statement for Southland states in section 5.17.8 Roles:

Territorial Authorities will be responsible, within their district plans, for controlling the use of land for:

- the purpose of prevention or mitigation of any adverse effects of the storage, use, disposal or transportation of hazardous substances;
- storage and/or disposal of those materials that can be safely disposed of to local landfills; and
- providing for sites for the treatment, storage and or disposal of spillages of hazardous substances and the material used to treat such spills.

Except that the Regional Council shall be responsible for:

- co-ordination of disposal on a Regional basis;
- storage and / or disposal of those materials that cannot be safely disposed of to local landfills; and
- treatment and / or remediation of contaminated sites.

The Hazardous Substances and New Organisms Act 1996 ("HSNO") co-ordinates the management of hazardous substances. The focus of the HSNO legislation and regulations is on the characteristics of the substance itself regardless of the location. This includes containment, packaging, identification, tracking, competency handling, emergency preparedness and disposal. The HSNO Act provides the means to set conditions on the management of hazardous substances, which apply irrespective of location. The control of potential adverse environmental effects at a particular site will be set under the RMA.

There are also other non-statutory mechanisms that can be used to complement the legislative requirements. Examples of these include management and emergency response plans, codes of practice and New Zealand Standards. Council acknowledges it has limited ability to control the effects of the transportation of hazardous substances through the District Plan. While it is useful for the objectives and policies to refer

to such effects so that the matter can be at least considered when assessing resource consent applications, the methods of implementation relating to transportation can only rely on other legislative provisions and non-statutory mechanisms.

6.2 Issues

The use, storage, transportation and disposal of hazardous substances are associated with primary production, manufacturing and processing activities, as well as retail, business and domestic activities.

There are risks associated with hazardous substances that could adversely affect the environment and human health. These hazards include explosiveness, flammability, corrosiveness, toxicity and ecotoxicity.

6.3 Objectives

- (1) Prevent or mitigate adverse environmental effects and risks associated with the use, storage, transportation and disposal of hazardous substances.

6.4 Policies

- (1) Limit the quantities of hazardous substances stored at sites to a level that is appropriate to the activities undertaken on that site and appropriate to the environment of that locality.
- (2) Encourage alternatives to the use of hazardous substances.
- (3) Minimise the risks associated with the transportation of hazardous substances.
- (4) Avoid, where practical, the disposal of hazardous substances within the Gore District.
- (5) Ensure that any disposal of hazardous substances undertaken is in such a manner as to avoid any actual or potential adverse environmental effects.

6.5 Methods of implementation

District Plan

- (1) Limiting the quantities of hazardous substances that can be stored on-site.
- (2) Use of appropriate resource consent conditions, including buffer areas, to avoid conflicts with sensitive ecosystems and land use activities.

Other methods

- (3) Hazardous Substances and New Organisms Act – sets out technical standards for the use, storage, inspection, identification and regulation of hazardous substances.
- (4) Liaison with parties involved with hazardous substance use – such as Environment Southland and adjoining territorial authorities, Ministry of Health, Ministry for the Environment, the Environmental Risk Management Authority (ERMA), the New Zealand Police and owner/operators who use hazardous substances, will allow more effective risk management co-ordination.

- (5) Legislation, regulations and codes of practice addressing the transportation of hazardous substances – to impose relevant controls on the transportation of hazardous substances.
- (6) Education – will be used to promote public awareness about the costs and benefits of hazardous substances and facilities, to encourage resource users to take responsibility for their own health and safety, and for management of the effects of their activities on the public and the environment.
- (7) Industry Codes of Practice, New Zealand Standards and Guidelines – will be used to avoid, remedy or mitigate environmental effects and in managing risks associated with hazardous facilities. Industry Codes will be utilised in some circumstances to provide the basis for controls on the use of hazardous substances.
- (8) Prepare and operate site management systems and emergency plans to avoid or mitigate the risk of hazardous substances escaping into the environment.
- (9) Promotion of “Cleaner Production” and recycling principles.

6.6 Principal reasons

Hazardous substances could be toxic, flammable, highly reactive, corrosive or ecotoxic. Therefore all activities involving the manufacture, storage, use, transportation and disposal of hazardous substances have the potential to create adverse environmental effects if the substances escape into the environment as a result of inadequate management or an accidental spillage. To avoid or mitigate these effects, activities storing or using hazardous substances need to be managed correctly and located appropriately.

Specific controls relating to the use and storage of hazardous substances, in particular, site design, layout and operational management procedures should prevent, or mitigate, the risk of hazardous substances escaping into the environment, thereby creating adverse environmental effects. This involves the on-site storage requirements and also the statutory requirements of the HSNO Act provisions. There are also New Zealand Standards, Codes of Practice and Regulations for the storage of hazardous substances.

The disposal of hazardous wastes involves risks to the health of the transporter, landfill operators and the community as well as risk for the receiving environment. The disposal of hazardous wastes to authorised facilities or those serviced by an approved waste contractor should avoid the risk of hazardous substances escaping into the environment thereby creating adverse environmental effects.

6.7 Anticipated environmental results

- (1) Safeguarding the life supporting capacity of air, water, soil and ecosystems from the adverse environmental effects, and an unacceptable level of risk, from the location and operation (use, storage, transportation and disposal of hazardous substances) of hazardous facilities and activities.

- (2) Protection of natural and physical resources from adverse environmental effects, and an unacceptable level of risk, from the location and operation (use, storage, transportation and disposal of hazardous substances) of hazardous facilities and activities.
- (3) Protection of human health from the potential adverse effects associated with the use, storage, transportation and disposal of hazardous substances and hazardous wastes.

6.8 Monitoring

In relation to hazardous substances, Council will monitor:

- (1) Compliance with rules and resource consent conditions.
- (2) Compliance with codes of practice, New Zealand Standards, guidelines and Regulations for hazardous substances.

6.9 Rules

- (1) It is a permitted activity to store or use hazardous substances provided that the quantities in storage or use do not exceed the amounts specified in Table 6.2.
- (2) Any storage or use of hazardous substances that exceeds the quantities specified in Table 6.2 is a restricted discretionary activity.

The matter over which the Council shall exercise its discretion shall be the environmental effects of storing or using hazardous substances in quantities in excess of those specified in Table 6.2.

- (3) Facilities for the disposal of hazardous substances are a discretionary activity.

NOTE: The storage, use or disposal of hazardous substances may also be subject to the provisions of a regional plan.

6.10 Information to accompany resource consent applications

In addition to all matters referred to in Section 1.3 in this District Plan, an application for a resource consent under this section shall contain:

- (1) An assessment of the adverse effects of the storage, use and transportation of hazardous substances on the quality of the environment and amenity values in the surrounding area.
- (2) Proposed location and containment protocols, site security, emergency response plans and monitoring systems.
- (3) Comment on the nearness of community activities such as schools, care or medical facilities.
- (4) Details of consultation with adjoining landowners and other potentially affected persons or organisations.

The assessment shall indicate how the applicant intends to avoid, remedy, or mitigate the potential and adverse effects on the quality of the environment and amenity values.

Table 6.1 Classification of hazardous substances

Class	Characteristics	Examples (including, but not limited to):
1. Explosives	1. Explosives	
	<p>1.1 Mass explosion hazard</p> <p>1.2, 1.3, 1.4 Present no mass explosion hazard but may present a projection and / or fire hazard</p>	<p>1.1 Blasting explosives including detonators and detonating cord</p> <p>1.2 Reloading powders, safety ammunition, airbag initiators, flares and fireworks</p>
2. Gases	2.1 Flammable gases	
	<p>2.1.1A Liquefiable, dissolved or permanent flammable gases contained in cylinders, tanks or cryogenic containers</p> <p>2.1.2A This class includes aerosols containing flammable propellants if the contents include more than 45% by mass or more than 250g of flammable components.</p>	<p>2.1.1 LPG, Acetylene, Hydrogen, Methane, Propane, Butane, Anhydrous ammonia</p> <p>2.1.2 Propane and other liquefiable gases used as propellant in aerosol containers</p>
	2.3 Non-flammable, non-toxic gases Gases which are stored or transported under a pressure, or as refrigerated liquids, and which are Included due to the risks presented by pressure energy, refrigerant or asphixiants	2.3 Argon, Helium, Nitrogen, Carbon, Carbon dioxide, compressed air, Freons,
3. Flammable Liquids	3. Flammable liquids Liquids, or mixtures of liquids containing solids in solution or suspension, having the following flammability limits:	
	3.1A & B Flash point less than 23°C	3.1A&B Petrol, adhesives, Ethyl & Methyl alcohols, Acetone, Benzene, Butyl
	3.1C Flash point between 23°C and 61°C	3.1C Kerosene, Styrene monomer, Cyclohexanone, Turpentine, Butyl methacrylate, Chloro-benzene, Ethoxyethanol.
	3.1D Flash point between 61°C and 93°C	3.1D Diesel, petroleum fuel oils.
	3.2A-C Liquid Desensitised Explosives	3.2 High to low hazard
4. Flammable Solids	4.1.1A & B Readily combustible	4.1.1 Red Phosphorus, Thermit welding powder, Sulphur (excluding formed sulphur)
	4.1.2A – G Self Reactive high to low hazard	4.1.2 Propanenitrile (relatively rare as classified substances)
	4.1.3A – C Solid Desensitised Explosives	4.1.3 Cellulose nitrate
	4.2A – C Spontaneously Combustible	4.2 White or Yellow Phosphorus, Magnesium powders packaging groups I, II, III
	4.3A – C Substances that emit flammable gas	4.3 Sodium, Sodium hydride, lithium, calcium when in contact with water carbide

Table 6.1 Classification of hazardous substances cont.

Class	Characteristics	Examples (including, but not limited to):
5. Oxidising Substances	5.1.1A - C Oxidising substances Substances (liquid or solid) or wastes which, in themselves are not necessarily combustible, but may by yielding oxygen, chlorine or fluorine cause or contribute to the combustion of other materials.	5.1.1 Chromates, Bromates, Chlorates, Chlorites, Nitrates, Hydrogen peroxide, Permanganates, HTH (swimming pool chlorine)
	5.1.2A Oxidising Gases	5.1.2 Oxygen, Nitrous oxide, Chlorine, Fluorine
	5.2A - G Organic peroxides Organic substances or wastes which contain the bivalent O=O structure unstable substances which may undergo and are thermally exothermic selfaccelerating decomposition.	5.2 Any organic peroxide - (includes peroxy and per compounds). E.g. Methyl ethyl ketone peroxide (MEKP)
6. Poisonous Substances	6.1A - E Acutely toxic substances – solids, liquids liquids or gases	6.1 Cyanide, 1080, Anhydrous ammonia, Chlorine, Petrol, Benzene
	6.2 Infectious substances controlled under the Health Act exempted from HSNO	6.2 Medical wastes, hypodermic needles
	6.3 Toxic to the skin	6.3 Benzene, Petrol, Turpentine
	6.4 Toxic to the eye	6.4 Ethanol, Turpentine
	6.5 Toxic as respiratory sensitizers	6.5 Formic Acid, Formaldehyde
	6.6 Toxic as mutagens	6.6 Formaldehyde, Phenol
	6.7 Toxic as carcinogens	6.7 Formaldehyde, Petrol
	6.8 Reproductive or developmental toxicants	6.8 Methylated spirits, Petrol
	6.9 Target organ systemic toxicants	6.9 Nitric acid, hydrogen peroxide
7. Radioactive	Radioactive sources or wastes excluding radioactivity generated as X-Rays through electrical excitation	7 Caesium, Cobalt
8. Corrosives	Substances or wastes which by chemical action, will cause severe damage when in contact with living Trichloro tissue or, in the case of leakage will damage or destroy other material and goods or cause other hazards	8 Acids such as: Nitric, Sulphuric, Hydrochloric, Hydrofluoric and acetic. Alkalis such as: Sodium, and Lithium hydroxides. Zinc chloride, Potassium Zirconium tetrachloride, Phosphorus pentoxide, Ferric chloride, Sulphur chlorides, Silicon tetrachloride Pheno-lsulphonic acid, Hydroxylamine sulphate, Hexyltrichlorosilane, ethanolamine.
9. Agrichemicals No specific class is assigned to agrichemicals. Substances are assigned classes as toxic, ecotoxic, etc	Substances having a toxicity as specified in 6, but formulated specifically for agricultural activities, (including aquaculture), and including, but not limited to herbicides, fungicides, pesticides.	9. Bipyridyls, di-nitrophenols, phenoxy compounds, organo-phosphates, carbonates, organ chlorines.

Table 6.2 Permitted quantities of hazardous substances

Class	Residential	Rural	Commercial Mixed Use	Industrial
1. Explosives				
1.1	0 kg	2.5 kg	2.5 kg	50 kg
1.2, 1.3, 1.4	15 kg	15 kg	50kg (See Note A)	50 kg
2. Gases				
2.1.1A LPG in cylinders less than 250kg In tanks greater than 250kg	180kg 2,000kg	450kg 6,000kg	270kg 2,000kg	450kg 6,000kg
2.1.1A Acetylene cyls	2m ³	100m ³	100m ³	100m ³
2.1.2A Aerosols	50 litres	3,000 litres	3,000 litres	3,000 litres
2.3 Non flammable non toxic	50m ³	200m ³	200m ³	400m ³
3. Flammable Liquids				
3.1A & B Non bulk Aboveground Storage Underground Storage	50 litres 2,000 litres	2,000 litres 2,000 litres	1,000 litres 10,000 litres	1,000 litres 60,000 litres
3.1C Non bulk Aboveground Storage Underground Storage	100 litres 450 litres 2,000 litres	2,000 litres 10,000 litres	2,000 litres 2,000 litres	2,000 litres 60,000 litres
3.1D Aboveground Storage Underground Storage	450 litres 2,000 litres	2,000 litres 30,000 litres	2,000 litres 30,000 litres	5,000 litres 60,000 litres
4. Flammable Solids				
4.1.1A & B	0 kg	1.0 kg	25 kg	1,000 kg
4.1.2	0 kg	1.0 kg	25 kg	50 kg
4.1.3	0 kg	1.0 kg	25 kg	50 kg
4.2A	0 kg	1.0 kg	25 kg	50 kg
5. Oxidising Substances				
5.1.1	50 kg	50 kg	1,000 kg	2,000 kg
5.1.2 Gases	5.5m ³	200m ³	200m ³	400m ³
5.5 Organic Peroxides	1 kg	1 kg	25 kg	200 kg
6. Poisonous Substances	1.0 kg	1.0 kg	200 kg	1,000 kg
7. Radio Active	Administered by the National Radiation Laboratory			
8. Corrosives	10 kg	10 kg	1,000 kg	1,000 kg
9. Agrichemicals	10 kg	200 kg	500 kg	5,000 kg
10. Eco-Toxic	Any discharges are the responsibility of Environment Southland			

Notes:

Note A: 50kg of Class 1.2, 1.3, 1.4 relates to the potential storage and retail sale of safety ammunition, reloading powders and marine flares at sporting goods outlets.

None of the provisions in this table place any restrictions on, or apply to:

- (1) X-ray machines;
- (2) The incidental use and storage of hazardous substances in domestic quantities;
- (3) Fuel in motor vehicles, boats and small engines;
- (4) Retail outlets for the domestic use of hazardous substances (i.e. supermarkets, hardware shops, pharmacies, home garden centres), except that restrictions on the bulk storage of hazardous substances for supply to retail outlets shall apply;
- (5) Trade waste sewers;
- (6) Temporary military training, provided that the use and transportation of hazardous substances associated with temporary military training activities shall comply with NZDF orders as contained in Ammunition and Explosives Regulations (Volume 1) for the storage of ammunition and explosives, and NZ P2, Safety in Training;
- (7) Service stations, except that the following standards shall apply:
 - (a) Class 3.1 liquids (i.e., Petrol) up to 100,000 litres; and
 - (b) Class 3.3 liquids (i.e., diesel) up to 50,000 litres;
 - (c) Subject to compliance with Occupational Safety and Health Code of Practice for the "Design, Installation and Operation of Underground Petroleum Storage Systems (1992)".