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Appendices

Appendix 1

Matters to be included in a Hazardous Waste Facility Management Plan

- 1 General description of the site, including topography, natural water sources, and geotechnical investigations.
- 2 Description of the operation of the disposal facility.
- 3 Types of waste to be treated or disposed of.
- 4 Assessment of environmental effects including assessment of alternatives to the disposal of waste at the landfill.
- 5 Any implications of site management and operation of landfill for Iwi.
- 6 A manifest system identifying types and quantities received including the source, and where within the landfill any hazardous wastes are placed.
- 7 Identification of discharges and environmental effects and the safeguards in place to avoid or reduce the environmental effects.
- 8 Sensitivity of the receiving environment.
- 9 Procedures for monitoring (including detection of leakage of contaminants in contravention of resource consent) and controlling adverse effects of spillages and leachate on groundwater and any water body, as well as the monitoring and control of odours.
- 10 Outline of proposals to report to the Otago Regional Council regarding environmental compliance.
- 11 Outline of emergency response procedures and contingency plans including:
 - Power failure;
 - Fire; and
 - Emergency contacts.

Appendix 2

Matters to be included in Landfill Development and Management Plan

- 1 General description of the landfill site, including topography, natural water sources, and geotechnical investigations.
- 2 Works to be undertaken to establish the landfill.
- 3 Description of the waste collection, treatment, and disposal system.
- 4 Projected life of the landfill.
- 5 Reinstatement and possible end use of the site.
- 6 Closure and after-care including ongoing monitoring of leachate discharges and management of surface runoff, stormwater control, and site remediation.
- 7 Assessment of environmental effects including assessment of alternatives to the disposal of waste at the landfill.
- 8 Any implications of site management and operation of landfill for Iwi.
- 9 For hazardous wastes, a description of wastes which are acceptable and unacceptable, and wastes which can only be accepted under special (specified) conditions.
- 10 For hazardous wastes, an outline of a manifest system identifying types and quantities received including the source, and where within the landfill any hazardous wastes are to be placed.
- 11 Identification of discharges and environmental effects and the safeguards in place to avoid or reduce the environmental effects.
- 12 Sensitivity of the receiving environment.
- 13 A description of how litter, vermin and birds will be controlled.
- 14 Water control including stormwater and leachate.
- 15 Description of procedures for monitoring (including detection of leakage of contaminants in contravention of resource consent) and controlling adverse effects of spillages and leachate on groundwater and any water body, as well as monitoring and control of odours.
- 16 Outline proposals for audit and reporting to the Otago Regional Council regarding environmental compliance.

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- 17 Identification of corporate environmental performance standards, national or industry group codes of practice, or other recognised environmental safety standards with which the operation of the facility will comply, and a description of the means for auditing compliance.
- 18 Identification of management responsibilities for compliance with resource consents and environmental regulatory requirements.
- 19 Outline of emergency response procedures and contingency plans including:
 - Power failure;
 - Fire; and
 - Emergency contacts.
- 20 Outline of contingency plans to restore or remedy any potential adverse environmental effects caused by the operation of the landfill, including effects that may arise after waste disposal operations have ceased and details of proposed environmental trigger/action levels for implementation of the preferred contingency options.

Appendices:

- Aerial photograph or drawing showing the site layout
- Staged management plans
- Final landform plan

Appendix 3

Matters to be included in Landfill Closure Plan

- 1 General description of the landfill site, including topography, natural water sources, geotechnical investigations.
- 2 Description of the waste collection, treatment, and disposal system that has operated on the site, including, where known, the likely composition of material in the landfill.
- 3 End use of the site.
- 4 After-care including ongoing monitoring of leachate discharges and management of surface runoff, stormwater control, and site remediation.
- 5 Any implications of site management and operation of landfill for Iwi.
- 6 Identification of discharges and environmental effects and the safeguards in place to avoid or reduce the environmental effects.
- 7 Proposals for audit and reporting to the Otago Regional Council regarding environmental compliance.

Appendices:

- Aerial photograph or drawing showing the site layout
- Staged management plans
- Final landform plan

Appendix 4

Categories of wastes to be controlled

A Waste streams

- Y1 Clinical waste from medical care in hospitals, medical centres and clinics;
- Y2 Waste from the production and preparation of pharmaceutical products;
- Y3 Waste pharmaceuticals, drugs and medicines;
- Y4 Waste from the production, formulation and use of biocides and phytopharmaceuticals;
- Y5 Waste from the manufacture, formulation and use of wood preserving chemicals;
- Y6 Waste from the production, formulation and use of organic solvents;
- Y7 Waste from heat treatment and tempering operations containing cyanides;
- Y8 Waste mineral oils unfit for their originally intended use;
- Y9 Waste oils/water, hydrocarbons/water mixtures, emulsions;
- Y10 Waste substances and articles containing or contaminated with polychlorinated biphenyls (PCBs), polychlorinated terphenyls (PCTs) or polybrominated biphenyls (PBBs);
- Y11 Waste tarry residues arising from refining, distillation and any pyrolytic treatment;
- Y12 Waste from production, formulation and use of inks, dyes, pigments, paints, lacquers, varnish;
- Y13 Waste from production, formulation and use of resins, latex, plasticisers, glues/adhesives;
- Y14 Waste chemical substances arising from research and development or teaching activities which are not identified and / or are new and whose effects on man and / or the environment are not known;
- Y15 Waste of an explosive nature;
- Y16 Waste from production, formulation and use of photographic chemicals and processing materials;
- Y17 Waste resulting from surface treatment of metals and plastics; and
- Y18 Residues arising from industrial waste disposal operations.

B Constituents

- Y19 Metal carbonyls;
- Y20 Beryllium; beryllium compounds;
- Y21 Hexavalent chromium compounds;
- Y22 Copper compounds;
- Y23 Zinc compounds;
- Y24 Arsenic; arsenic compounds;
- Y25 Selenium; selenium compounds;
- Y26 Cadmium; cadmium compounds;
- Y27 Antimony; antimony compounds;
- Y28 Tellurium; tellurium compounds;
- Y29 Mercury; mercury compounds;

- Y30 Thallium; thallium compounds;
- Y31 Lead; lead compounds;
- Y32 Inorganic fluorine compounds excluding calcium fluoride;
- Y33 Inorganic cyanides;
- Y34 Acidic solutions or acids in solid form;
- Y35 Basic solutions or bases in solid form;
- Y36 Asbestos (dust and fibres);
- Y37 Organic phosphorous compounds;
- Y38 Organic cyanides;
- Y39 Phenols; phenol compounds including chlorophenols;
- Y40 Ethers;
- Y41 Halogenated organic solvents;
- Y42 Organic solvents excluding halogenated solvents;
- Y43 Any congener of polychlorinated dibenzo-furan;
- Y44 Any congener of polychlorinated dibenzo-p-dioxin; and
- Y45 Organohalogen compounds other than substances referred to in this appendix (eg, Y39, Y41, Y42, Y43, Y44).

C Wastes requiring special consideration

- Y46 Wastes collected from households;
- Y47 Residues arising from the incineration of household wastes;
- Y48 Radioactive substances;
- Y49 Contained gases.

Source: Corresponds to the classification system from “*Our Waste Our Responsibility*” [Centre for Advanced Engineering, 1993, Part 3, Appendix A, pages 240 - 241]

Appendix 5

List of hazardous characteristics

UN Class*	Code	Characteristics
1	H1	<p>Explosives</p> <p>An explosive substance or waste is a solid or liquid substance or waste (or mixture of substances or wastes) that is, in itself, capable by chemical reaction of producing gas at such a temperature and pressure, and at such a speed, as to cause damage to the surroundings.</p>
3	H3	<p>Flammable liquids</p> <p>The word “flammable” has the same meaning as “inflammable”. Flammable liquids are liquids, or mixtures of liquids, or liquids containing solids in solution or suspension (for example, paints, varnishes, lacquers, etc, but not including substances or wastes otherwise classified on account of their dangerous characteristics) which give off a flammable vapour at temperatures of not more than 61°C.</p>
4.1	H4.1	<p>Flammable solids</p> <p>Solids, or waste solids, other than those classed as explosives, which under conditions encountered in transport are readily combustible, or may cause or contribute to fire through friction.</p>
4.2	H4.2	<p>Substances or wastes liable to spontaneous combustion</p> <p>Substances or wastes that are liable to spontaneous heating under normal conditions encountered in transport, or to heating up on contact with air, and then being liable to catch fire.</p>
4.3	H4.3	<p>Substances or wastes which, in contact with water, emit flammable gases</p> <p>Substances or wastes which, by interaction with water, are liable to become spontaneously flammable or to give off flammable gases in dangerous quantities.</p>
5.1	H5.1	<p>Oxidising substances</p> <p>Substances or wastes which, in themselves are not necessarily combustible, but may, generally by yielding oxygen, cause or contribute to the combustion of other materials.</p>

5.2	H5.2	<p>Organic peroxides Organic substances or wastes which contain the bivalent O=O structure are thermally unstable substances which may undergo exothermic self-accelerating decomposition.</p>
6.1	H6.1	<p>Poisonous substances Substances or wastes liable either to cause death or serious injury or to harm human health if swallowed or inhaled or by skin contact.</p>
6.2	H6.2	<p>Infectious substances Substances or wastes containing viable micro-organisms or their toxins which are known or suspected to cause disease in animals or humans.</p>
7	H7	<p>Radioactive material Spontaneously emits radiation greater than background level. Includes alpha, beta, gamma, x-rays, neutrons, high energy electrons, protons and other atomic particles.</p>
8	H8	<p>Corrosives Substances or wastes which, by chemical action, will cause severe damage when in contact with living tissue, or, in the case of leakage, will materially damage, or even destroy, other goods or the means of transport; they may also cause other hazards.</p>
9	H10	<p>Liberation of toxic gases in contact with air or water Substances or wastes which, by interaction with air or water, are liable to give off toxic gases in dangerous quantities.</p>
9	H11	<p>Toxic (delayed or chronic) Substances or wastes, which, if they are inhaled or ingested or if they penetrate the skin, may involve delayed or chronic effects, including carcinogenicity. (See note).</p>
9	H12	<p>Ecotoxic Substances or wastes, which if released, present or may present immediate or delayed adverse impacts to the environment by means of bioaccumulation or toxic effects upon biotic systems. (See note).</p>
9	H13	<p>Capable of yielding another material Capable, by any means, after disposal, of yielding another material, eg, leachate, which possesses any of the characteristics listed above.</p>

A P P E N D I C E S

Corresponds to the hazard classification system included in the United Nations Recommendations on the Transport of Dangerous Goods (ST/SG/AC. 10/1/Rev.6, United Nations, New York, 1989)

- Note:** (1) In the above descriptions, where specific reference is made to conditions of transport in waste management, this should include all conditions of storage, transport and disposal.
- (2) These categories, in the absence of specific tests, are considered to contain, but are not limited to, all wastes having as constituents any substances listed in the four schedules of the New Zealand Toxic Substances Regulations at or above the concentrations listed in the schedule to these Regulations.

The potential hazards posed by certain types of wastes are not yet fully documented; tests to quantitatively define these hazards do not exist. Further research is necessary in order to develop the means to characterise potential hazards posed to man or the environment by these wastes.

Source: Corresponds to the classification system from “*Our Waste Our Responsibility*”, [Centre for Advanced Engineering, 1993, part 3, Appendix B, pages 243 - 244]