

Regional Waste Strategy for Taranaki

Regional Waste Management Forum
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Regional Waste Strategy for Taranaki

Executive Summary

This is the Regional Waste Strategy for Taranaki, prepared by the Regional Waste Management Forum to plan together regionally to achieve efficiencies and meet agreed targets in implementing waste management policy in Taranaki.

While the Regional Waste Strategy is based on the goals and objectives of the New Zealand Waste Strategy, the Regional Waste Strategy is specific to the Taranaki region. The Strategy provides specific waste minimisation and management goals for local authorities, industry and the community on the three priority waste areas outlined in the New Zealand Waste Strategy and includes targets for the following specific waste streams and issues:

- Waste minimisation
 - Organic wastes
 - Special wastes
 - Construction and demolition waste
- Hazardous wastes
 - Contaminated sites
 - Organochlorines
 - Trade wastes
- Waste disposal.

The targets have been modified from the New Zealand Waste Strategy to reflect the Taranaki situation and make the Strategy a working document.

Key elements included in the Regional Waste Strategy for achieving these targets are:

- By December 2005 it is anticipated that there will only be one operational landfill in Taranaki at Colson Road that will:
 - continue to meet industry best practice standards;
 - continue to enforce the policy of non-acceptance of hazardous waste at landfills;
 - continue to divert inert material where possible; and
 - New Plymouth District Council will review its cost pricing policy from time to time.
- By December 2003 a Regional Waste Minimisation Officer will be appointed to facilitate reaching the targets of the Regional Waste Strategy.
- By January 2004 all cleanfill consents will be reviewed to comply with cleanfill disposal guidelines.
- District councils will continue to make provision for transfer stations throughout Taranaki that provide:
 - cost incentives for the diversion of recyclables and green waste from landfill; and
 - at least one dedicated hazardous waste collection facility per district.
- By December 2005 all three district councils will have implemented and be monitoring Model General Trade Waste by-laws.
- All identified high-risk contaminated sites have been remediated and by December 2008 all identified medium risk contaminated sites will be effectively managed or remediated by the Taranaki Regional Council.

- The district councils will acknowledge within 5 working days an enquiry for information concerning contaminated sites.
- The Taranaki Regional Council contaminated sites database will conform with the Ministry for the Environment Classification and Management Protocols and district councils will have access to this database and subsequent updates.
- All councils will develop and implement in-house waste minimisation programmes for the facilities they manage to show lead initiatives toward achieving the targets of the Regional Waste Strategy.
- Develop waste minimisation and management programmes and initiatives with industry in Taranaki including:
 - conduct research into the dairy and petrochemical industry waste to obtain and make available information on volume and types of wastes arising and the disposal methods used;
 - encourage extended producer responsibility pilot programmes for the collection and reuse, recycling or appropriate treatment and disposal of dairy and petrochemical wastes; and
 - work with the commercial sector to reduce organic waste going to landfill by 50% of 2002 levels by December 2007.

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1. Introduction

The Ministry for the Environment and Local Government New Zealand jointly released the *'New Zealand Waste Strategy – Towards zero waste and a sustainable New Zealand'* in March 2002. The Strategy deals with all forms of waste whether solid, liquid or gas, defining waste as *"any material, solid, liquid or gas, that is unwanted and/or unvalued, and discarded or discharged by its owner"*.

The New Zealand Waste Strategy (NZWS) emphasises minimising waste and managing it better. It is the result of central government's intention to reduce the waste stream, and local government's desire for more effective and efficient waste minimisation and management. The development of the Strategy was also motivated by public concern about New Zealand's growing waste problem.

In spite of significant progress in areas of waste reduction and recycling New Zealand's waste problem continues to grow. Like other OECD countries New Zealand has seen an increase in waste generation in direct proportion to economic growth, with over 3.4 million tonnes of waste disposed to landfill each year¹. Waste policies have traditionally focussed on 'end of pipe' solutions by dealing with disposal of waste rather than prevention. The long-term challenge for New Zealand is seen as the need to break the link between economic growth and the production of waste and to achieve sustainable growth by the more effective use of resources.

While it was prepared at the request of and on behalf of local and central government, the NZWS is not a statutory document and therefore relies on the voluntary actions of central and local government, industry associations, businesses, Maori and community and voluntary sectors to implement the Strategy programmes and achieve the national targets. The NZWS encourages and anticipates regional waste management planning where it might achieve efficiencies in implementing policies. In line with this encouragement, this Regional Waste Strategy for Taranaki has been prepared to apply key components of the national NZWS to Taranaki, and to assess Taranaki's progress in achieving the NZWS's objectives.

A key element of the NZWS, and therefore the Regional Waste Strategy, is that although in principle it deals with all forms of waste there is a strong focus on the solid waste element of the total waste stream, and particularly that handled by local government. There is little discussion on liquid and gaseous wastes, which are potentially more harmful to the New Zealand environment, however the NZWS is a positive step forward and is therefore fully supported by the Regional Waste Strategy.

Neither the NZWS nor the regional waste strategy is a statutory plan with rules or requirements. Its aim is to achieve integration and co-ordination of waste management activities in the region consistent with the current national framework as set out in the NZWS, while focussing on regional priorities.

This Regional Waste Strategy for Taranaki has been prepared by the Regional Waste Management Forum, comprising representatives of the Taranaki Regional Council, New Plymouth District Council, South Taranaki District Council and Stratford District Council. This forum has been operating successfully and informally for some years, tackling such

¹ Ministry for the Environment and Local Government New Zealand, 2002. *The New Zealand Waste Strategy – Towards zero waste and a sustainable New Zealand*. Ministry for the Environment, March 2002.

issues as hazardous waste collections and landfill operating standards. The collaboration of Taranaki's local authorities in the preparation of the strategy is crucial to its success.

The Regional Waste Strategy is based on and draws from the goals and objectives of the NZWS which have been considered, along with community aspirations and technical constraints for waste minimisation and management in Taranaki.

The Regional Waste Strategy is structured on three priority "waste areas" outlined in the NZWS. Each of the three priority waste areas incorporates national targets for specific waste streams and issues. The priority areas and related streams and issues are:

- Waste minimisation
 - Organic wastes
 - Special wastes
 - Construction and demolition waste
- Hazardous wastes
 - Contaminated sites
 - Organochlorines
 - Trade wastes
- Waste disposal.

For each of these waste areas the Regional Waste Strategy comments on the national perspective, before describing what the Taranaki region has been doing in respect of each, and assessing each of the national targets. The NZWS encourages local government to set local targets in line with the national targets. The Regional Waste Strategy lists the national target, comments on the degree to which Taranaki has met or is meeting those targets, and then rewrites the target in terms of how it should be modified to ensure it represents and/or can be appropriately applied to the Taranaki region and community. These 'Taranaki targets' regionalise the NZWS making them more appropriate for Taranaki and provide more specific waste minimisation and management goals for local authorities, industry and the community. In most cases these Taranaki targets go further than the national targets and specific additional targets are identified where appropriate.

It is recognised that the inclusion of numerical targets in the NZWS and the Regional Waste Strategy pose some difficulties, as there are no standard measures for these waste streams. However, in achieving the Taranaki targets of the Regional Waste Strategy work on determining how to measure both baselines and progress toward these targets is anticipated.

The symbols used throughout the Regional Waste Strategy clearly show Taranaki's progress on meeting each target:



The Taranaki region has achieved the national target



The Taranaki region is "almost there" in achieving the national target i.e. programmes etc are in place to meet the target



This is on-going but the target can be reached i.e. further work is required



This is a national target to be achieved by central government.

The key steps to the successful implementation of the regional waste strategy include its adoption by the regional council and the three district councils. A Regional Waste Minimisation Officer will be appointed to assist the councils in the implementation of the strategy. The strategy will also be a useful tool for district councils to use in the preparation of their district waste management plans. These plans are a statutory requirement under the Local Government Act 2002 and must be in place by 30 June 2005. It is envisaged that over time the three waste management plans will be reviewed to be consistent with the Regional Waste Strategy (and therefore the NZWS) and each other.

The NZWS itself is considered to be an evolving document, and many of the policies and proposals as currently stated will require further consideration and consultation. By February 2003 the Ministry for the Environment intended to have an agreed system in place for evaluating and monitoring the progress of the NZWS, and a first review of the national targets is timed for 2003. In recognising potential changes to the NZWS and the proposed Ministry for the Environment review of the NZWS in 2008, the Regional Waste Management Forum will review the progress and targets sections of this document in 2009 and then every five years.

2. Waste minimisation

2.1 Introduction

2.1.1 National perspective

In the past, waste policies have tended to focus on “end of pipe” solutions, dealing with the effects of disposal rather than prevention of waste. These policies are no longer sufficient if we are to meet the challenge of de-coupling economic development and the generation of waste, and to close the loop on resource use and waste generation. In addition other factors such as greater environmental awareness, increased cost of disposal as a result of higher landfill standards, and the NIMBY (not in my backyard) response to landfills, have driven serious consideration of waste minimisation as an alternative to continued disposal.

There is a strong emphasis on waste minimisation in the NZWS. The related targets are general, addressing capacity building rather than specific waste streams. They encourage policies that drive resource efficiency and waste reduction. Such policies include:

- Green purchasing – favouring products and services that minimise their environmental effects throughout production, use and disposal. Buying environmentally preferable products and services increases the size of the market for them, and encourages other producers to improve products and processes in order to compete.
- Waste minimisation programmes – assessing an organisation’s procedures to develop ways to reduce the volume of waste the organisation produces.
- Triple Bottom Line Reporting – accounting that measures an organisation’s social, environmental and financial performance, informing better waste minimisation and management decisions.
- Extended Producer Responsibility (EPR) – encouraging producers and importers to consider the entire lifecycle of their products preventing wastes at source, practising design for the environment and setting up take-back and recycling schemes.
- Design for the Environment – covers elements of product design that reduce waste and other environmental effects.
- Cleaner Production programmes – focuses on production processes rather than on the product itself, aiming to improve resource efficiency and reduce waste generated during production.

There are a number of groups that have roles or interests in waste minimisation. Businesses have a role in waste reduction, directly as waste generators, and indirectly as designers, manufacturers and distributors of the products and services we use. Organisations such as Business Care have roles to play in promoting ‘triple bottom line’ reporting and the economic advantages of waste minimisation practices. Some industry associations such as the Waste Management Institute of New Zealand (WasteMINZ), New Zealand Water and Wastes Association (NZWWA) and Recycling Operators of New Zealand (RONZ) have a direct interest in waste. Many others such as Plastics NZ, Packaging Council of New Zealand, New Zealand Business Council for Sustainable Development, and Business New Zealand also have an interest. Many of these associations facilitate discussion, consultation and training on industry waste and waste minimisation issues.

A number of community and voluntary groups are involved in the provision of recycling services, resource recovery parks and education programmes for waste reduction and recycling. These groups represent a range of concerns, including employment trusts,

environmental groups and groups with specific interests such as worm composting. Examples of these organisations are the Zero Waste New Zealand Trust and the Environmental Business Networks. The Zero Waste New Zealand Trust is a funding and advocacy, support and information group fostering community development projects for minimising waste. The Environmental Business Networks provide solutions for greener, more sustainable business.

2.1.2 Taranaki perspective

Territorial local authorities in Taranaki have all reported on waste minimisation in their annual reports and annual plans as described below:

Targets and reporting

New Plymouth District Council

The New Plymouth District Council annual report for 2001/2002 identified community education and working with business and industry to encourage waste minimisation as an aspect of their activities in solid waste management. The 2003/2004 annual plan has the following waste minimisation targets:

- Tonnage of recycled waste from kerbside collection to increase by 5% above 2002/2003 year; and
- Total solid waste landfilled not to exceed 40,000 tonnes.

Stratford District Council

Stratford District Council reported on waste minimisation and recycling in their 2001/2002 annual report and set the objective of encouraging recycling by offering a kerbside recycling collection. They reported a domestic recyclable collection of 100 tonnes and refuse collection of 2,000 tonnes per annum. In their 2003/2004 annual plan they expect that the volume of refuse collected will reduce by 40% and the amount of recycling collected will increase from 100 m³ to 4,800 m³ per annum. The Stratford District Council Solid Waste Management Plan, July 2001 set the following targets:

- Short-term (12 months) – 27% reduction in landfilled waste;
- Medium-term (3 years) – a further 26% reduction in landfilled waste; and
- Long-term – a further 10% reduction in landfilled waste leading to an overall reduction of 60%.

South Taranaki District Council

South Taranaki District Council has reported on progress toward waste minimisation in their 2001/2002 annual report. The report states that about 400 tonnes of recyclable materials are currently diverted from the waste stream and sets an objective to reduce the current amount of waste going to landfills by 50% by 30 June 2006. The South Taranaki District Council is currently preparing a waste minimisation strategy to achieve this target. The strategy will address domestic recycling, composting and the beneficial use of organic waste, separation of greenwaste at source, and the minimisation of industrial wastes.

Recycling

95% of the population of Taranaki have access² to community recycling at transfer stations and landfills. There are also a number of other private facilities throughout Taranaki that offer recycling services of various sorts.

There are eleven transfer stations and four landfills in the region which provide public recycling facilities. Three transfer stations are within New Plymouth District at the following locations:

- New Plymouth (Colson Road);
- Waitara (Norman Street); and
- Tongaporutu (Hutiwai Road) – limited recycling options.

There are also facilities for the drop off of recyclables at the Inglewood (King Road) and Okato (Hampton Road) landfills. Serious consideration is being given to closing these landfills over the next few years and as to how these communities may be serviced.

There are five transfer stations in South Taranaki District at the following locations:

- Waverley (Beach Road);
- Opunake (Aytoun Road);
- Hawera (Scott Street);
- Eltham (Pinney Drive); and
- Waitotara (Kaipo Street).

There are also facilities for the drop off of recyclables at the Patea (Scotland Street) and Manaia (Cemetery Road) landfills in South Taranaki. Consents for these landfills are due to expire by December 2005 and it is anticipated that they will be replaced with transfer stations.

There is one transfer station in the Stratford district located at Cordelia Street. The location of these 13 recycling facilities can be seen in Figure 1.

² Access is defined for the purpose of this Strategy as being no more than a 40 minute round trip by car away from a transfer station at which during operating hours the public can drop off recyclables, including glass, paper, cans, tins and plastics, free of charge.

to a consideration of the efficiency of the production, use, and recovery of packaging materials generally. Attention is given to the:

- extraction and processing of the materials used to make packaging;
- design of packaging;
- manufacture of packaged goods and packaging;
- marketing and selling of packaged goods;
- consumption and end use of packaged goods; and
- post-consumption recovery or disposal of packaging.

The Taranaki Regional Council supports Local Government New Zealand being a signatory to the Packaged Goods Accord. Local government's primary role is in post-consumption recovery and/or disposal, playing a vital role in ensuring that recyclable packaging is collected throughout New Zealand. The Taranaki Regional Council also supports a packaging "action plan" prepared with and for local government to work towards waste minimisation goals.

The additional transportation costs associated with the isolation from key markets can make the recycling of some products more expensive than existing waste disposal costs, and the opportunities to market reusable products to other organisations throughout New Zealand are reduced. There is also no co-ordinated network in place in Taranaki to deal with the small and dispersed volumes of recyclable materials produced by local businesses.

Many small to medium sized businesses in Taranaki do not have staff resources available to recognise, develop and implement effective waste minimisation programmes. Both management and employees require knowledge of the waste streams and the best practice options for their management, for waste minimisation to be successfully implemented.

In addition, some key waste minimisation practices require capital outlay before there are any financial and/or environmental benefits. This may restrict some Taranaki businesses from becoming involved in any programme of waste minimisation. There is a widespread lack of publicly available information on the processes that generate wastes and what the waste consists of, and there is a need for better integration between local government and businesses for information sharing about waste and waste management.

In November 2001 the Taranaki Regional Council carried out a waste minimisation pilot study with the support of the Regional Waste Management Forum⁴. The study focused on small to medium sized businesses as it was recognised that these establishments were less likely to have access to waste minimisation expertise. Most significant industries in Taranaki already operate Environmental Management Systems (EMS) which make provision for waste minimisation and many have access to expertise in the area of waste management.

The pilot study found that all 13 of the small businesses analysed had methods in place either to reduce waste produced, re-use wastes generated, or recycle some waste streams. This business focus on the recycling and reuse of products parallels the New Zealand situation, and the study identified additional opportunities for businesses to reduce the amount of waste produced, reuse any waste streams, and to increase recycling. Possible savings of up to \$12,000 per annum were identified for some businesses resulting from

⁴ Taranaki Regional Council, 2001. *Waste Minimisation: report on pilot study in Taranaki*. Taranaki Regional Council, November 2001.

waste minimisation practices. The study concluded that due to the nature of industries in Taranaki, and their size, location and number there are benefits to be gained from co-ordination among all interested stakeholders to address common waste management themes.

Sustainable recycling in New Zealand requires strong central government guidance in the short term to ensure current progress does not reverse. Due to reliance on the private sector and on often-fragile end markets for recyclables, Taranaki has experienced difficulties associated with the disposal of recyclable materials such as glass, plastic and oil. The responsibility for ensuring availability and security of end markets for recyclables needs to be taken on a national level.

Taranaki Regional Council encourages recycling and exchange of wastes between industry. A low level regional waste exchange advisory initiative is run by the Taranaki Regional Council and a 'recycling directory' containing information on where and how to recycle is regularly delivered to all ratepayers.

Taranaki Regional Council has a comprehensive in-house waste minimisation programme in place at the council offices in Stratford. This programme includes the segregation and recycling of canteen waste, composting of organic waste, paper recycling bins at each desk and setting defaults of printers to double sided printing. The Regional Council also manages two regional gardens that have integrated waste minimisation policy into their management plans. The council also has a green purchasing policy.

New Plymouth District Council has an in-house waste minimisation programme at the civic offices in New Plymouth. Paper, bottles, plastic and card are segregated in separate bins and recycled. Similar recycling facilities are provided at wastewater treatment plants. New Plymouth District Council will promote the inclusion of waste minimisation in management plans of other facilities including parks, pools and libraries.

Stratford District Council is currently addressing waste minimisation at its facilities, starting with establishing systems in the civic offices, the library and war memorial centre. Waste minimisation programmes will be incorporated into contracts for the management of other facilities including the art gallery, pool and the holiday camp as these contracts are renewed.

South Taranaki District Council has an in-house waste minimisation programme at the civic offices in Hawera. They are addressing the possibility of establishing such programmes in facilities such as wastewater treatment facilities and will promote the inclusion of waste minimisation in management plans of other facilities including parks, pools and libraries as these contracts come up for renewal.

Taranaki Regional Council, together with nine regional councils and the Ministry for the Environment supported a pilot national six-week television marketing campaign to encourage householders to reduce their waste. The district councils in Taranaki initiated programmes to further support the national campaign to ensure maximum impact and effect in the region. Local initiatives included:

- a six-week regional radio advertising campaign;
- an eight-week regional television advertising campaign;
- local media coverage of the campaign;
- a 12-page 'Reduce Your Rubbish' supplement to the Daily News;
- a regional colouring competition; and

- targeted school programmes and promotions.

Waste minimisation, and to a lesser extent recycling, are areas where there is potential for significant further progress in the Taranaki Region, with both environmental and economic benefits for the region. Although local authorities are limited in their ability to require companies to adopt waste minimisation practices, waste minimisation can be promoted on a voluntary basis to all industries through the appointment of a Regional Waste Minimisation Officer working on behalf of district councils and the regional council. Regional Waste Minimisation Officer would also actively promote recycling, attempt to remove barriers to recycling, and provide advice and assistance to recycling operators.

2.2 Taranaki's progress on targets from NZWS

1. **Local Authorities will report their progress on waste minimisation and management for their annual report in 2001/2002 and quantitatively on an annual basis from then onwards**



Local Authorities in Taranaki reported their progress on waste minimisation and management for their annual reports in 2001/2002 and will report quantitatively on an annual basis from 2002/2003 onwards.

2. **By December 2005, all regional councils will ensure that new or renewed industrial resource consents include a recognised waste minimisation and management programme and will report on the percentage of all consents under their jurisdiction that have such a clause.**



Taranaki Regional Council believes it is not always lawful to require industrial resource consents to include a waste minimisation and management programme. This requirement would only be appropriate for certain consent purposes. Where it is appropriate, Taranaki Regional Council supports the introduction of a requirement for such programmes to be included with applications for new or renewed resource consents.

3. **By December 2005, at least 10 major businesses will be participating alongside central and local government in developing and promoting waste minimisation programmes within their sector.**



This is a national target and Taranaki Regional Council will look to participate alongside central government in the investigation of waste minimisation opportunities for the petrochemical and dairy industries (as discussed in the 'special wastes' chapter of this document).

4. **Ninety-five percent of the population will have access to community recycling facilities by December 2005.**

As of January 2003, 95 percent of the Taranaki population have access to



community recycling facilities.

- 5. By December 2005, territorial local authorities will ensure that building regulations incorporate reference to space allocation for appropriate recycling facilities in multi-unit residential and commercial buildings.**



Territorial local authorities do not write the building regulations and therefore cannot enforce a condition that is not written in the building code. The district councils will however actively encourage designers to include space for recycling facilities as part of the consent application.

- 6. By December 2005, all councils will ensure that procedures for waste minimisation have been addressed for all facilities and assets they manage and will have set target reductions based on public health, environmental and economic factors.**



Taranaki Regional Council has an in-house waste minimisation programme which is working effectively. The Council also manages two regional gardens that have integrated waste minimisation policy into their management plans.



New Plymouth District Council has an in-house waste minimisation programme at the civic offices in New Plymouth. Paper, bottles, plastic and card are all segregated and recycled. Similar recycling facilities are provided at wastewater treatment plants managed by the Council. New Plymouth District Council will promote the inclusion of waste minimisation programmes in management plans of other facilities including parks, pools and libraries.



Stratford District Council is currently addressing waste minimisation at its facilities, starting with establishing systems in the civic offices, the library and war memorial centre. As contracts for the management of other facilities including the art gallery, pool and the holiday camp come up for renewal the incorporation of waste minimisation programmes will be encouraged.



South Taranaki District Council has an in-house waste minimisation programme at the civic offices in Hawera. They are addressing the possibility of establishing such programmes in facilities such as waste water treatment facilities and will promote the inclusion of waste minimisation in management plans of other facilities such as parks, pools and libraries as these contracts come up for renewal.

- 7. By December 2010, all regional councils will ensure that at least 25 percent of all existing industrial resource consent holders have in place a recognised waste minimisation and management programme.**



In Taranaki not all industrial operations require a resource consent under the Resource Management Act 1991. It is the view of the Taranaki Regional Council that although it cannot use the resource consent process to ensure the adoption of waste minimisation and management programmes, the encouragement of industrial operators to adopt such programmes should be pursued and should not be restricted to consent holders.

2.3 NZWS targets modified/regionalised for Taranaki

1. Local authorities in Taranaki will report quantitatively on waste minimisation and management in their annual reports from 2002/2003 onwards.
2. As of June 2003, Taranaki Regional Council will, where the purpose of the consent makes it appropriate and legally possible, require by way of condition new or renewed resource consent holders to include a recognised waste minimisation and management programme. Taranaki Regional Council will report on the percentage of all consents under their jurisdiction that have such a condition.
3. By December 2005, Taranaki Regional Council will have investigated waste minimisation opportunities for the petrochemical and dairy industries and will report on findings to central government.
4. District councils will maintain the level of access of the population to community recycling facilities at a minimum of 95 percent⁵. The extent of the use of these facilities will be measured with a view to increasing the number of people using them and the volume of recyclables deposited, with the further objective of increasing the ratio of recyclables recovered (whether by kerbside or drop-off facility) to landfilled volumes.
5. Territorial local authorities do not write the building regulations and therefore cannot enforce a condition that is not written in the building code. The district councils will however actively encourage designers to include space for recycling facilities as part of the resource consent application.
6. By December 2005 Taranaki Regional Council and the district councils will ensure that procedures for waste minimisation have been addressed for all facilities and assets they manage and will have set target reductions based on public health, environmental and economic factors.
7. Taranaki Regional Council will encourage the adoption of waste minimisation and management programmes and endeavour for at least 25% of all industrial operations to have addressed waste minimisation and management by December 2010. This may be done through informal means if there are no legal processes that allow this.

2.4 Additional targets for Taranaki

1. By December 2003 a Regional Waste Minimisation Officer will be funded to facilitate reaching the waste targets adopted by regional and district councils in Taranaki.

⁵ This target is for the Taranaki region. The large area and small, dispersed population of the Stratford district make the target of 95% of the district's population having "access" to facilities an unrealistic target. However, the Stratford district transfer station is open 7 days a week.

3. Organic wastes

3.1 Introduction

3.1.1 National perspective

Organic waste makes up a significant proportion of the waste stream. Organic waste includes wastes from agricultural sources, garden waste (green waste), kitchen waste, food-processing wastes and sewage sludge. It is estimated that organic wastes accounted for 50% of residential landfilled waste and 24% of industrial landfilled waste in New Zealand in 1995⁶. When organic waste is landfilled, it degrades, and leachate and landfill gases (predominantly methane) are produced. If not collected and treated appropriately leachate can contaminate groundwater and surface waters, while methane is a greenhouse gas 21 times more damaging than carbon dioxide. Diverting organic waste from landfills significantly decreases the volume of waste being disposed of and potentially reduces the adverse effects on the receiving environment. Organic waste can also be a useable resource in its own right.

There are a number of options for the diversion of organic waste from landfills, including:

- home composting/worm farms;
- mulching/chipping;
- central composting;
- large-scale commercial worm farms;
- pyrolysis; and
- anaerobic digestion.

Currently in New Zealand, composting is the main diversion route for organics. Garden waste can either be composted by the householder in the garden, or transported to transfer stations or landfills for commercial windrow composting. Certain kitchen wastes can also be added to the compost heap at home. Central composting plants can be designed specifically to deal with particular types of organic wastes. For example, biosolids from wastewater treatment plants or food processing wastes can be composted in specially designed composting plants.

Diversion to composting has many benefits, including reducing the quantity of waste to be disposed of by the householder, reducing the need for landfill space, and converting organic waste to valuable end products.

A worm farm is a simple and efficient way for households to convert kitchen and garden waste into liquid fertiliser and compost. A range of kitchen wastes can be put into a worm farm including vegetable and fruit peelings, cooked and uncooked food scraps, egg shells, tea bags, paper kitchen towels, shredded newspaper and garden waste.

3.1.2 Taranaki perspective

In Taranaki the main sources of organic wastes are rural based industries such as dairy and poultry farming, meat processing and piggeries, together with abattoirs and wastewater treatment facilities. Smaller quantities of organic waste also arise from commercial and

⁶ Ministry for the Environment, 1997. *National Waste Data Report*

domestic sources. The following section discusses the major sources of organic waste and how they are managed in Taranaki.

- **Dairying**

Dairying dominates farming in Taranaki, particularly on the ring plain. There are approximately 2270 dairy farms in Taranaki – 17% of the New Zealand dairy farm total – with over 500 000 dairy cows producing approximately 20% of New Zealand’s total milk solids⁷.

Milk processing in Taranaki is now concentrated at one site – the NZMP Whareroa plant near Hawera. At peak production this facility processes over 14 million litres of milk per day. It is estimated⁸ that dairying in Taranaki produces 34 million litres of effluent every day. All dairy farms have licensed effluent treatment systems that are monitored annually. Approximately 40% of effluent treatment systems discharge to land, where the nitrogen fertiliser properties of the effluent are utilised on the property, and no dairy effluent waste is disposed to landfill. Fallen stock is also a significant dairying organic waste. Over 50,000 tonnes per year is transported to Taranaki By-Products and used to produce fertiliser, tallow and animal meal. Graeme Lowe Protein Ltd processes 27,000 tonnes of dead stock per year to meat and bone meal, dried blood and tallow.

- **Poultry**

Taranaki has a significant poultry industry (47 poultry farms), and is the major poultry meat producing region in New Zealand involving all aspects of the industry from breeding and growing to production and distribution. Chicken manure is the main source of organic waste from the poultry industry. In Taranaki, Osflo Spreading Industries use approximately 24,000 tonnes per year of chicken manure to produce fertiliser, avoiding the need to landfill this waste.

- **Piggeries**

There are some 22 piggeries in Taranaki, mostly concentrated in the New Plymouth district. The main piggeries in the region use pig manure from their own operations to produce compost, diverting large quantities of pig manure from landfill.

- **Beef and sheep farming**

Sheep and beef farming in Taranaki is concentrated in the hill country. There are approximately 1150 sheep and beef farms in Taranaki, stocking approximately 817 000 sheep and 123 000 beef cattle⁹. Dead stock from these operations are also diverted to Taranaki By-Products and Graeme Lowe Protein Ltd.

- **Meat processing**

A number of companies are involved in meat processing associated with the beef and sheep farming industry in Taranaki. These operations result in organic by-products including stick water, paunch and screenings which are often used by the meat processors to produce fertiliser as opposed to disposal to landfill.

- **Wastewater treatment plants**

Other than agriculture, the main source of organic wastes in Taranaki is from wastewater treatment facilities. Since 1986 no sewage sludge has been disposed of to landfill in Taranaki

⁷ Livestock Improvement Corporation, 2003. *2001/2002 Dairy Statistics*.

⁸ Farm dairy treatment systems are designed based on 68 litres per cow per day.

⁹ Ministry of Agriculture and Forestry, 2000. *North Central Monitoring Report*, July 2000

apart from in cases of emergency. The largest wastewater treatment plant in the region is New Plymouth District Council's wastewater treatment plant for New Plymouth. The sewage sludge at this plant is dried to form biosolid pellets. The sludge is dried from around 14% solids content to over 90%. The removal of water from the sludge reduces the volume by about five-sixths, and the exposure to heat sterilises the sludge. The sludge is then pelletised and used as a fertiliser predominantly in the sports turf and ornamental horticultural markets. The product satisfies US EPA 503 Class A biosolids requirements, and all the requirements of the Department of Health 1992 guidelines for the safe use of sewage effluent and sewage sludge on land. In addition, it also meets the proposed guidelines for the beneficial use of sewage sludge where the product meets the Aa Grade - meeting criteria for pathogen reduction and organic pollutants. The product is also expected to be fully compliant with the new guidelines for heavy metal and the quality control criteria.

As can be seen from the above, despite the large volumes of organic wastes produced as a result of the above activities, most of these industries do not dispose of organic wastes to landfill. Due to the development of methods of reusing or recycling organic waste by many companies a large proportion of this organic waste is currently diverted from landfill to beneficial end use.

The success of various industries in diverting organic waste to beneficial use is reflected in the fact that in 1997 it was estimated that, although agriculture is the mainstay of the local economy, organic waste made up only 29.8% of waste from industrial sources going to landfill¹⁰. In the Taranaki Regional Council 1991 study of industrial wastes¹¹ the proportion of material being recycled or re-used (including organic waste) was found to be very high for the industries surveyed - 10 times the volume of wastes discarded in south Taranaki, twice the volume in central Taranaki, and 0.8 of the volume in north Taranaki. While the exact numbers should be treated with some caution it is clear that industry in Taranaki adopted the principles of waste minimisation as a significant waste management strategy as early as 1991.

- **Domestic and commercial organic waste**

Domestic and commercial waste also contains quantities of organic waste. In 1997 it was estimated that in Taranaki, organic waste made up 55.2% of the waste from residential sources that was landfilled. This domestic organic waste includes both green waste and kitchen waste.

Waste Analysis Protocol (WAP) studies are a useful tool to characterise wastes. Two such studies have previously been carried out in Taranaki in 1992¹² and 1994¹³

The 1992 study comprised three parts. The aim was to characterise domestic waste for kerbside collection by the district council, domestic wastes landfilled by private transportation, and commercial refuse disposed at landfill. This report is an excellent source of data on the proportion of these waste streams of organic waste. From the study of both the domestic kerbside collection and the domestic waste landfilled by private transportation, organic wastes appears to make up approximately 50% of the total waste. The nature of this

¹⁰ Ministry for the Environment, 1997. *National Waste Data Report*, May 1997

¹¹ Taranaki Regional Council, 1991. *The Management of the Disposal of Industrial Wastes within Taranaki*, 1991.

¹² Taranaki Regional Council, 1992. *New Zealand Waste Classification Project, Results of Pilot Trials Undertaken by the Taranaki Regional Council*, April 1992.

¹³ Taranaki Regional Council, 1994. *Analysis of kerbside refuse composition New Plymouth Urban Area*. Technical Report 94-11, October 1994.

organic waste differed however with the domestic kerbside organic waste being almost completely composed of kitchen waste while the privately transported landfilled organic waste was predominantly green waste. In the study of commercial refuse disposed at landfill proportion of organic waste was low in comparison with domestic waste, accounting for only 9% of the waste stream. One contributing factor to this low organic waste content is the opportunities in Taranaki for the diversion of commercial organic waste from landfill to commercial composting companies. Global Vermiculture Ltd utilises over 30,000 tonnes of organic waste each year.

The 1994 study concentrated on the characterisation of household waste collections in New Plymouth. In this study organic waste made up 50.1% of rubbish (recyclables removed) and 43.9% of the total waste stream.

A mobile garage bin survey was carried out in June 2001 by New Plymouth District Council. The survey involved 90 bins from a residential area in New Plymouth. Analysis of the refuse estimated that greenwaste accounted for 30% of the waste stream and other organic waste 24%.

The landfill operator at Colson Road, New Plymouth is required by contract to weekly examine the contents of one commercial truck depositing waste at the landfill for the purpose of checking against the landfilling of hazardous waste. In doing this the landfill operator also provides an estimate of the percentage of types of waste (including organic waste) going to landfill.

Approximately 56,000 tonnes of waste is disposed to landfill each year in Taranaki¹⁴. If it is assumed that 50% of this is organic, then approximately 28,000 tonnes of organic waste are disposed to landfill each year. This figure is small in comparison with the large quantity of organic waste already diverted from landfill for beneficial use. More than 150,000 tonnes each year is diverted to end-uses such as production of compost, fertiliser and animal meal.

- **Green waste**

A significant proportion of the organic waste from commercial and domestic sources is green waste. It is also a portion that can be easily diverted from landfill. In Taranaki, there is a clear incentive for the community to segregate green waste as the charge for the drop off of segregated green waste at transfer stations is significantly less than for general refuse. Segregated green waste is accepted at ten out of the eleven transfer stations in the region, the exception being Waitotara transfer station in South Taranaki.

For the most part the green waste accepted at transfer stations and landfills is composted. This applies to green waste deposited at New Plymouth, Waitara, Tongaporutu transfer stations and Inglewood and Okato landfills in New Plymouth District and the transfer station in Stratford. Green waste collected at Hawera, Eltham and Waverley transfer stations in South Taranaki is currently utilised for sand dune stabilisation works in Patea. This is a short-term measure and South Taranaki District Council is looking at more long-term options for the management of green waste.

A small proportion of the segregated green waste is disposed of to landfill. The green waste accepted at the Opunake transfer station is currently disposed of at Manaia landfill, however

¹⁴ Montgomery Watson Harza, 2002. *New Plymouth, Stratford and South Taranaki District Councils Regional Solid Waste Study for Taranaki*.

this is a very small proportion of the green waste collected in transfer stations in Taranaki. In the year July 2000 to June 2001, 195 tonnes of green waste was deposited at Opunake. This is less than 5% of the green waste collected at transfer stations in South Taranaki and less than 2% of the green waste collected at transfer stations throughout the whole region¹⁵. Segregated green waste is mostly diverted to beneficial use.

In August 2001 the New Plymouth District Council began to provide an alternative waste stream targeting green waste. However, prior to that date no data has been collected for green waste.

Since June 2001 there has been a number of changes to waste management infrastructure in Taranaki which have had a positive effect on the diversion of green waste from landfill, especially the establishment of transfer stations and the closure of public access to landfills in the region. This positive reduction in waste quantities is attributed primarily to further segregation of green wastes and is considered to reflect a pricing incentive introduced by transfer stations to encourage customers to separate their green waste stream from other residual waste streams.

Since the figures for the regional solid waste study¹⁶ were generated, the refuse collection system in Stratford district has changed from a 240 litre MGB to a 120 litre MGB. Since this change it is estimated that the volume of domestic refuse collected in Stratford has decreased from 2,300 tonnes to 1,530 tonnes per annum with a decrease in the green waste component from 40% to just 15%.

All councils in Taranaki encourage home composting, and information and advice is readily available. The national 'Reduce your Rubbish' television advertising campaign in April/May 2003 will encourage householders to reduce waste and will largely be focused on the reduction of organic waste going to landfill. The district councils in Taranaki intend to initiate programmes to further support this national campaign to ensure maximum impact and effect of the campaign.

3.2 Taranaki's progress on targets from NZWS

1. **By December 2003, all territorial local authorities will have instituted a measurement programme to identify existing organic waste quantities, and set local targets for diversion from disposal.**

As outlined above, territorial local authorities are responsible for a very small portion of the total organic waste stream in Taranaki. Most is from the agricultural sector and is beneficially re-used and/or does not require disposal at landfill. For the proportion of the waste stream which is under local authority control and disposed to landfill there is already a good deal of information available on waste



¹⁵ Montgomery Watson Harza, 2002. *New Plymouth, Stratford and South Taranaki District Councils Regional Solid Waste Study for Taranaki*.

¹⁶ Montgomery Watson Harza, 2002. *New Plymouth, Stratford and South Taranaki District Councils Regional Solid Waste Study for Taranaki*, September 2002.

quantities from the Regional Solid Waste Study for Taranaki and waste characterisation from the two Waste Analysis Protocols(WAP) and the mobile garbage bin survey carried out by NPDC. The Taranaki Regional Council, in conjunction with the district councils, will carry out an analysis of the organic waste stream. Local targets for diversion from landfill disposal will be established and reviewed as new information on waste quantities and waste characterisation becomes available.

- 2. By December 2005, 60 percent of garden wastes will be diverted from landfill and beneficially used, and by December 2010, the diversion of garden wastes from landfill to beneficial use will have exceeded 95 percent.**



As of January 2003, at least 60 percent of garden waste is diverted from landfill and beneficially used. It is the aim of the territorial authorities that by December 2010 the diversion of garden wastes from landfill to beneficial use will have exceeded 95 percent.

- 3. By December 2007, a clear quantitative understanding of other organic waste streams (such as kitchen wastes) will have been achieved through the measurement programme established by December 2003.**



In Taranaki, kitchen waste does not represent a significant proportion of the organic waste stream. However, by December 2007 organic waste streams will have been analysed by Taranaki Regional Council in conjunction with the district councils.

- 4. By December 2007, more than 95 percent of sewage sludge currently disposed of to landfill will be composted, beneficially used or appropriately treated to minimise the production of methane and leachate.**



As of January 2003, no sewage sludge produced in Taranaki is disposed of to landfill other than in the case of emergency or following desludging of oxidation ponds where the high heavy metal levels make the sludge unsuitable for composting. Sewage sludge will continue to be diverted from landfill, however if factors such as compost markets or treatment processes change this policy will be reviewed.

- 5. By December 2010, the diversion of commercial organic wastes from landfill to beneficial use will have exceeded 95 percent.**



A large proportion of commercial organic waste is already diverted from landfill so that organic waste only accounts for 9 percent of the residual waste stream disposed to landfill. To divert 95 percent of the remaining (current) organic waste going to landfill is not a realistic target. Taranaki Regional Council along with the district councils will endeavour to reduce commercial organic waste going to landfill to 50 percent of 2002 levels by December 2007.

3.3 NZWS targets modified/regionalised for Taranaki

1. By December 2003, Taranaki Regional Council, in association with the district councils, will establish programmes to analyse residential, commercial and rural waste.

2. The local authorities in Taranaki will continue to encourage diversion of garden waste from landfill so that by December 2010 the diversion of garden wastes from landfill to beneficial use will have exceeded 95 percent.
3. By December 2007, an analysis of residential, commercial and rural wastes will have been carried out by the Taranaki Regional Council in association the district councils, and a clear quantitative understanding of organic waste streams will have been achieved.
4. The local authorities in Taranaki will continue to divert sewage sludge from landfill other than in the case of emergency or following desludging of oxidation ponds where high heavy metal levels make the sludge unsuitable for composting. However, if factors such as the local market for compost or treatment processes change and landfilling becomes the most appropriate means of disposal this policy will be reviewed.
5. By December 2007, Taranaki Regional Council along with the district councils will aim to reduce commercial organic waste going to landfill to 50 percent of 2002 levels. The Regional Waste Minimisation Officer working in association with the commercial sector will aim to achieve this target.

4. Special wastes

4.1 Introduction

4.1.1 National perspective

The NZWS defines special wastes as *'wastes that cause particular management and/or disposal problems and need special care'*. Examples of special wastes include used oil, tyres, end-of-life vehicles, batteries and electronic goods. It is recognised in the NZWS that initiatives to address special wastes should be initiated by the relevant business sector or central government, so that the same rules are applied consistently throughout the country.

4.1.2 Taranaki perspective

In Taranaki there are two sectors of particular importance with respect to special waste management issues – dairying and petrochemical. The waste arising from these two industries can be considered as special waste due to the particular management and/or disposal problems associated with it. Work with these two sectors will involve input from all areas of the industry, including producers, suppliers and users.

Dairy

As outlined in the organic waste section of this document, the dairy industry dominates the Taranaki economy, and with over 500,000 dairy cows in Taranaki a large proportion of the waste stream from the dairy industry is organic waste. Although organic wastes make up the greatest volume of waste, there are other waste streams associated with the dairy industry. A 1998 WaiPAC survey¹⁷ of a Waikato dairy farm identified a wide range of waste types, including agrichemical and solvent containers, surplus agrichemicals, silage wrap and hay twine, shed rubberware, animal treatment wastes, workshop waste, pipe and concrete, domestic waste and other assorted solid wastes. It is noted that the volumes and types of wastes produced are often seasonally influenced.

Petrochemical

Taranaki has the only producing oil and gas reserves in New Zealand which are of national and regional strategic importance. The Kapuni, and the much larger offshore Maui field, contribute the major part of New Zealand's natural gas resources, supplying gas for domestic and industrial use throughout the North Island as well as for the local petrochemical industry. Natural gas is also used to produce electricity. As existing fields mature it is likely that other reserves such as the Pohokura field will be developed.

There are significant national and regional downstream benefits from the oil and gas industry in the processing, distribution, use and export of hydrocarbons. Within Taranaki there are gas treatment plants at Oaonui, Kapuni, Waihapa, Kaimiro and McKee oil and gas fields. There are two methanol plants at Motunui and Waitara Valley. There is also an ammonia urea plant at Kapuni, a UF resin plant at Bell Block and gas-fired power stations at Stratford and New Plymouth.

Wastes produced as a result of oil and gas exploration include drilling muds and cuttings and produced waters (formation water, brine, injection water and other technological

¹⁷ WaiPAC, 1998. *Solid waste in rural New Zealand – A black hole?* Paper presented to WasteMINZ 10th Annual Conference, November 1998.

waters)¹⁸. There are a number of wastes produced from downstream petrochemical industries. These can include treatment sludges, ashes, fly ash and incinerator residue, plastics, ferrous and non-ferrous metals, catalysts, organic chemicals, inorganic chemicals, filter cakes and viscous solids.

4.2 Taranaki's progress on targets from NZWS

1. **By December 2005, businesses in at least eight different sectors will have introduced extended producer responsibility pilot programmes for the collection and reuse, recycling, or appropriate treatment and disposal of at least eight categories of special wastes.**



This is a national target. To assist the government achieving this target, by December 2005, the dairy and petrochemical sectors in Taranaki will have been encouraged to introduce extended producer responsibility pilot programmes for the collection and reuse, recycling, or appropriate treatment and disposal of dairy and petrochemical wastes.

4.3 NZWS targets modified/regionalised for Taranaki

1. Taranaki Regional Council will conduct or participate in research into the dairy and petrochemical industry waste streams in Taranaki to obtain and make available information on volume and types of wastes arising and the disposal methods used. The Council will work alongside these sectors to encourage appropriate management of their wastes, with particular emphasis on special wastes.

¹⁸ Environmental impact of the offshore oil and gas exploration and production. www.offshore-environment.com

5. Construction and demolition wastes

5.1 Introduction

5.1.1 National perspective

Construction and demolition waste consists of waste building materials, packaging, and rubble from the construction, renovation, and demolition of buildings and roads (e.g. concrete, wood, metals, asphalt).

Construction and demolition wastes make up a significant proportion of the solid waste stream in New Zealand. In 1995 construction and demolition waste accounted for 17% of waste going to landfill in New Zealand¹⁹. However, this figure does not represent all the construction and demolition waste produced as some is diverted to cleanfills or otherwise reused and not landfilled. Due to a national increase in residential and commercial building construction, contractors, local authorities and waste operators are increasingly facing construction and demolition waste reduction, recycling, disposal and management issues. These issues affect larger cities more than rural communities as there are great differences between the quantities of waste being produced in the different areas.

Construction and demolition waste includes inert wastes such as soil, rock, concrete and bricks that when placed in the ground have minimal adverse effects on the surrounding environment. With modern landfill standards and the costs of appropriate engineering of landfills, the placement of the inert portion of construction and demolition waste in landfill takes valuable space better utilised for the disposal of other wastes. The disposal of this waste is more appropriately managed at consented, well managed cleanfill sites.

It is noted that not all construction and demolition waste is suitable for disposal in cleanfills. The Ministry for Environment released 'A Guide to the Management of Cleanfills' in January 2002. This document details the waste acceptance criteria for cleanfills. Table 1 below outlines materials acceptable for disposal in cleanfills.

Table 1 Cleanfills – acceptable materials²⁰

Material	Discussion
Asphalt	Weathered (cured) asphalt is acceptable: After asphalt has been exposed to the elements for some time, the initial oily surface will have gone and the asphalt is considered inert.
Bricks	Inert – will undergo no degradation
Ceramics	Inert.
Concrete – un-reinforced	Inert material. Ensure that other attached material is removed.
Concrete – reinforced	Steel reinforcing bars will degrade. However, bars fully encased in intact concrete will be protected from corrosion by the concrete. Reinforced concrete is thus acceptable provided protruding reinforcing steel is cut off at the concrete face.
Fibre cement building products	Inert material comprising cellulose fibre, Portland cement and sand. Care needs to be taken that the product does not contain asbestos which is unacceptable.
Glass	Inert, and poses little threat to the environment. May pose a safety risk if placed near the surface in public areas, or if later excavated. The safety risk on excavation should become immediately apparent, so glass is considered acceptable provided it is not placed immediately adjacent to the finished surface.
Road sub-base	Inert.
Soils, rock, gravel, sand, clay etc	Acceptable if free of contamination

¹⁹ Ministry for the Environment, 1997. *National Waste Data Report*. May 1997.

²⁰ Ministry for the Environment, 2002. *A Guide to the Management of Cleanfills*, Beca Carter Hollings & Ferner Ltd, January 2002.

Tiles	Inert
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Construction and demolition wastes which are not acceptable as cleanfill include asbestos, abrasive blasting sand/agents, new asphalt, bark, cables, carpet, containers, corrugated iron, electrical equipment and insulation, formica, greenwaste, hardboard, MDF, metals, paint and painted materials, paper and cardboard, chipboard, plywood, sawdust, tar, processed timber and wood chips. Other alternatives to cleanfilling or landfilling are required for these wastes.

There is presently little or no information on the volume and category of waste arising in the area of construction and demolition. The Ministry for the Environment has initiated a Waste Management Planning project that will provide a base for establishing information on construction and demolition waste in the near future. A national waste-licensing system may be a suitable vehicle for measuring quantities in this sector.

5.1.2 Taranaki perspective

The current population of Taranaki is 101,787, declining from 107,124 in 1991²¹. As a result of low population and relatively low levels of commercial and residential building construction the amount of construction and demolition wastes are low compared with other areas of New Zealand.

Through visual surveys at Colson Road landfill it is known that the amount of construction and demolition type waste disposed to this landfill is small. It is landfill policy to divert the inert portion of the waste stream to cleanfill sites where possible, but when customers insist on disposing at the New Plymouth transfer station the waste is accepted. As part of the contract with the landfill operator at Colson Road, the contents of one commercial truck depositing waste at the landfill is examined weekly and estimates of the percentages of types of waste (including construction and demolition waste) it contains made.

Throughout the region the inert portion of most of the construction and demolition waste stream is diverted to cleanfills. Most cleanfills are owned and operated by general earthmoving, demolition and roading contractors that operate in the region. As such territorial local authorities do not handle these wastes and their power and ability to measure such wastes are constrained.

There are currently 13 consented cleanfills operating in Taranaki – 12 in North Taranaki and one in South Taranaki. The Taranaki Regional Council annually monitors the environmental effects of each of these cleanfills under site-specific monitoring programmes. It is anticipated that as the remaining operative district landfills close and are replaced by transfer stations operating on full cost recovery, the development of further cleanfills will be driven by increased disposal costs. Cleanfill material deposited at transfer stations is subsequently taken to cleanfill facilities for disposal.

There are a number of demolition yards in Taranaki where a variety of building materials including doors, windows, bathroom and kitchen units are bought and sold. These outlets divert components of the construction and demolition waste stream to re-use. There are also a large number of scrap metal dealers in Taranaki who pay for scrap metal and therefore divert the metal component of the construction and demolition waste from landfill to re-use

²¹ Statistics New Zealand Census of Population and Dwellings, 1991. Provisional results of 2001 Census from www.statistics.govt.nz

or recycling. Also, on farms in Taranaki there is widespread reuse of fencing materials, gates, steel pipes and corrugated iron.

The green waste component of the construction and demolition waste can be deposited at any of the transfer stations in the region where the green waste is composted. There is an incentive to deposit at transfer stations rather than to landfill due to lower costs.

When these portions of the construction and demolition that are re-used, composted or cleanfilled are taken out of the Taranaki waste stream there are very small quantities requiring disposal to landfill. Most of the construction and demolition waste which is disposed to landfill has no re-use or recycle alternative.

5.2 Taranaki's progress on targets from NZWS

1. **By December 2005, all territorial local authorities will have instituted a measurement programme to identify existing construction and demolition waste quantities and set local targets for diversion from landfills.**



As it is envisaged that by December 2005 there will be one regional landfill in Taranaki at Colson Road there is a clear opportunity to establish a strategy for the measurement of construction and demolitions wastes going to the landfill. A study of the volume of construction and demolitions wastes going to the landfill will be carried out by February 2005.

2. **By December 2008, there will have been a reduction of construction and demolition waste to landfills of 50 percent of December 2005 levels measured by weight.**



As of January 2003, a large proportion of construction and demolition waste has been diverted from disposal at landfill in Taranaki, with most landfilled wastes having no re-use or recycling option. When the quantities of construction and demolition waste going to landfill has been established a realistic target for diversion will be set.

5.3 NZWS targets modified/regionalised for Taranaki

1. By December 2005 there will be one regional landfill, namely Colson Road having in place a programme to estimate construction and demolition waste quantities being disposed to landfill.
2. By December 2008, 95 percent of cleanfill will have been diverted from landfill and there will have been a reduction of other construction and demolition waste to landfills of 50 percent of December 2005 levels measured by weight.

5.4 Additional targets for Taranaki

1. By December 2005, through the resource consents process the Taranaki Regional Council will determine an estimate of the quantities of construction and demolition waste going to cleanfill.

2. Taranaki Regional Council will continue compliance monitoring of all cleanfills in Taranaki and will ensure, through the consent process, that only inert cleanfill material is being deposited at cleanfills and that the volume of waste being deposited is appropriate for each particular site.

6. Hazardous wastes

6.1 Introduction

6.1.1 National perspective

A waste is considered hazardous if it poses a risk to people or the environment. Hazardous wastes are by-products of many industrial and commercial processes and can be solids, liquids or gases.

In 1997 the Ministry for the Environment established the New Zealand Hazardous Waste Management Programme to review and develop proposals to improve the management of hazardous waste. One of the barriers to the successful management of hazardous waste is the lack of a national definition of hazardous waste. At present several different hazardous waste definitions are used throughout the country, making it difficult to obtain a clear picture of the amount and types of hazardous waste being generated, and of current management practices. A consistent national definition of hazardous waste is a priority for the Hazardous Waste Management Programme and will ensure that everyone who generates, transports, stores or disposes of hazardous waste is using the same terms and is aware of the potential risks involved in managing these materials.

The Ministry for the Environment has prepared the following draft definition of hazardous waste.

Hazardous waste is any waste that:

- Contains hazardous substances at sufficient concentrations to exceed the minimum degrees of hazard specified by *Hazardous Substances (Minimum Degrees of Hazard) Regulations 2000* under the *Hazardous Substances and New Organism Act 1996*; or
- Meets the definition for infectious substances included in the *Land Transport Rule: Dangerous Goods 1999* and *NZ Standard 5433: 1999 - Transport of Dangerous Goods on Land*; or
- Meets the definition for radioactive material included in the *Radiation Protection Act 1965 and Regulations 1982*.

The definition, together with the New Zealand Waste List will provide a consistent method to identify hazardous waste. The classification system of the New Zealand Waste List will also form the basis for an important hazardous waste management control – record keeping and tracking.

National *Hazardous Waste Management Policy and Guidelines for the Management of Hazardous Waste* are also being developed as part of the Hazardous Waste Management Programme to meet targets for hazardous waste in the NZWS. The Guidelines will be developed in modules and to date *Module 1: Identification and record keeping* has been completed. Landfill Waste Acceptance Criteria are also being developed to ensure environmentally sound and consistent criteria for the acceptance of hazardous waste at landfills. The Hazardous Waste Management Programme will use a mix of regulatory and non-regulatory tools to address the different aspects of hazardous waste management.

Increasingly, New Zealand landfills do not accept hazardous waste and therefore other treatment and/or disposal methods have to be sought. In 1995 hazardous waste was not accepted at 92% of New Zealand landfills²².

A large proportion of hazardous waste produced in New Zealand is in liquid form. Liquid waste (mainly trade waste) represented 97.7% of hazardous waste generated by 609 businesses in the Auckland Region in 1995.

6.1.2 Taranaki perspective

Industrial and commercial hazardous waste is not accepted at landfills in Taranaki. The only hazardous waste that may be disposed of to landfill is small quantities mixed in general domestic refuse collected from households. In 1992²³ and again in 1994²⁴ Taranaki Regional Council conducted studies of residential wastes disposed of to landfill. The analysis included determining the proportion of 'hazardous' wastes (e.g. paint cans, aerosols, batteries, medicines, garden sprays, kitchen cleaners, and take-home oil packs). These wastes were found to comprise only 1% of all kerbside collections. The proportion was unchanged between the two surveys and is unlikely to have changed significantly since that time.

There have been a number of successful hazardous waste collections undertaken in Taranaki in the past 10 years, which have helped divert hazardous wastes from landfills. In 1991/1992, 8.7 tonnes of agricultural (rural) hazardous waste was collected. In 1995/1996 more than 10.4 tonnes of mixed (urban) hazardous waste was collected. Further urban hazardous waste collections were carried out throughout the region between October 1996 and May 1997, the results of which are in Table 2 below.

Table 2 Quantity and type of hazardous wastes collected during the 1996/1997 urban hazardous waste collections²⁵

Waste type	Quantity (kg)	% total
Agrichemicals	2892	49
Paints	1056	18
Oils and batteries	367	6
Automotive fluids	227	4
Medicines	42	0.7
Household cleaners	16	0.3
Metals	117	2
PCBs	242	4
Explosives and flammables	311	5
Unknown	292	5
Other and miscellaneous	317	6
Total	5879	100

Of the hazardous waste collected in the 1996/1997 collections, 27% was reused or recycled, 2% was disposed of to sewer, 26% was disposed of to landfill, 12% was returned to manufacturers, 14% sent for specialised treatment and disposal, and the remaining 14% was

²² Ministry for the Environment, 1997. *National Waste Data Report*

²³ Taranaki Regional Council, 1992. *New Zealand Waste Classification Project: Results of pilot trials undertaken by the Taranaki Regional Council*, April 1992.

²⁴ Taranaki Regional Council, 1994. *Analysis of Kerbside Refuse Composition in New Plymouth Urban Area*. Technical Report 94-11, October 1994.

²⁵ Taranaki Regional Council, 1997. *Urban hazardous wastes collections 1996/97*. Technical Report 97-65.

held in secure storage until appropriate disposal options became available. Wastes stored in the Taranaki Regional Council's secure storage facility were shipped to Europe in October 1999 for destruction in a purpose-built, high temperature incinerator.

A comprehensive region-wide collection was carried out during April and May 2001. These collections were well promoted in both rural and urban areas. The results of the collection are presented in Table 3. All wastes recovered in this collection were recycled, re-distributed for re-use, returned to manufacturers, or sent to appropriately licensed agencies for treatment and disposal.

Table 3 Quantity and type of hazardous wastes collected during the 2001 urban hazardous waste collections²⁶

Waste type	Quantity (kg)	% total
Agrichemicals	6,500	50
Paints	1,820	14
Batteries	780	6
Waste oils and solvents	1,690	13
Household cleaners	650	5
Metals	260	2
PCBs	819	7
Miscellaneous	389	3
Total	13,000	100

A 1991 survey by the Taranaki Regional Council showed that hazardous liquid wastes make up the largest volume of hazardous wastes in Taranaki and that most of this waste is disposed of to sewer²⁷. The wastes were deemed 'hazardous' because they were biologically active abattoir and dairy factory wastes. There is therefore an obvious link between some hazardous waste components and trade wastes.

The New Plymouth District Council and South Taranaki District Council have a dedicated dangerous goods store for the storage of hazardous waste at a transfer station in their districts. Staff at transfer stations with such facilities are trained in the handling and storage of hazardous substances for compliance with New Zealand Standard 4452 for the '*storage and handling of toxic substances*'. The hazardous wastes are collected by an approved dangerous goods carrier and transported to appropriate disposal or recovery facilities. Details of the type, class, weight and destination of each waste are recorded. Stratford District Council has a facility at its transfer station for the temporary storage of hazardous goods. Hazardous materials deposited at the temporary storage facility are transported to the New Plymouth District Council facility on a regular basis, from which the approved hazardous goods carrier collects them.

²⁶ Taranaki Regional Council, 2001. *Taranaki hazardous waste collections*. Report to Policy and Planning Committee, Taranaki Regional Council, June 2001.

²⁷ Taranaki Regional Council, 1991. *The management and disposal of industrial wastes within Taranaki*. Taranaki Regional Council, December 2001.

6.2 Taranaki's progress on targets from NZWS

1. **By December 2005, an integrated and comprehensive national hazardous waste management policy will be in place that covers reduction, transport, treatment and disposal of hazardous wastes to effectively manage risks to people and the environment.**



Taranaki Regional Council and the three district councils look forward to the introduction of a national hazardous waste management policy and will, where appropriate, aim to be consistent with it.

2. **By December 2004, hazardous wastes will be appropriately treated before disposal at licensed facilities, and current recovery and recycling rates will be established for a list of priority hazardous wastes.**



As of January 2003, hazardous waste is not accepted at landfills in Taranaki and all three districts have access to a dedicated non-industrial hazardous waste collection area from which hazardous waste is transported to appropriate disposal/recovery facilities. With the introduction and monitoring of trade waste by-laws in the three districts, the disposal of potentially hazardous wastes to sewer will be more closely monitored.

3. **Recovery and recycling rates for priority hazardous waste will increase 20 percent by December 2012.**



This is a national target. The NZWS does not state a baseline to use, and therefore further definition of this target by central government is required. Following this direction the Taranaki Regional Council and the three district councils will, in a manner consistent with their statutory functions, endeavour to assist central government in reaching this target.

6.3 NZWS targets modified/regionalised for Taranaki

1. Local authorities in Taranaki will, in a manner consistent with their statutory functions, be consistent with the national hazardous waste management policy and assist the government in meeting its targets in relation to hazardous waste.
2. District councils in Taranaki will continue to enforce the policy of non-acceptance of hazardous waste at landfills. They will continue to provide and maintain a dedicated hazardous waste collection area for drop-off of hazardous waste at major transfer stations and ensure that this waste is treated and disposed of appropriately.
3. Following clarification of the basis for the national target for recovery and recycling for priority waste streams, Taranaki Regional Council and the three district councils will, in a manner consistent with their statutory functions, endeavour to assist central government in reaching its target by December 2012.

7. Contaminated sites

7.1 Introduction

7.1.1 National perspective

The issue of contaminated sites has become of increasing priority in New Zealand in the last 10 years as awareness of the associated problems has grown. Land is considered contaminated when hazardous substances are present at concentrations above background levels, and are likely to pose an immediate or long-term risk to human health or the environment. This contamination may have occurred as a result of past, present, or historical uses of the site. Typical land uses that result in contamination include those involving the manufacture, use, or storage of chemicals, industrial residues or waste products. As well as endangering health, the presence of these substances can limit the subsequent land use, cause corrosion that may threaten building structures, reduce land value, and adversely affect water, vegetation and associated ecology. The contamination may not be limited to within the site boundaries as it has the potential to enter the wider environment as a surface-water, groundwater or air discharge, including the contamination of adjacent coastal waters and habitats.

A preliminary survey in 1992 identified over 8,000 sites in New Zealand that were recommended for assessment²⁸. Central government has established a fund of \$2.59 million for the clean-up of 'orphan-sites' where no party can be fixed with legal liability or where the liable party is unable to fund clean-up. Priority is given to sites considered to be a high risk to human health or the environment, or are located in environmentally sensitive areas.

The Ministry for the Environment is working in partnership with regional councils and unitary authorities to produce a series of contaminated site management guidelines. Industry representatives and environmental consultancies are also being consulted. The aim is to develop a national approach to the management of contaminated sites in New Zealand and to provide consistency in contaminated site assessment and management throughout the country.

As part of this series of guidelines the *Classification and Information Management Protocols for Contaminated Land* was prepared to assist in the initial identification of potentially contaminated sites. It identifies 50 'Hazardous Activities and Industries' that are considered to have a higher potential for causing land contamination due to the fact that the use, storage or disposal of hazardous substances was typically associated with those activities. Under this guideline sites are classified on the database according to the following categories:

Category U – Unverified history of hazardous activity or industry

Category V – Verified history of hazardous activity or industry

Category 1(a) – Hazardous substances present: risk unacceptable

Category 1(b) – Hazardous substances present: risk acceptable for land use

Category 2(a) – Hazardous substances not present: remediation undertaken

Category 2(b) – Hazardous substances not present: no identified contamination

²⁸ Ministry for the Environment, 1992. *Potentially contaminated sites in New Zealand; a broadscale assessment*. Prepared by Worley Consultants Ltd.

Category E – Entered on register in error.

A Risk Screening System for Contaminated Sites²⁹ has been prepared by Ministry for the Environment to assist in the classification of sites.

7.1.2 Taranaki perspective

The 1992 report commissioned by the Ministry for the Environment identified a total of 272 potentially contaminated sites in Taranaki. Driven by public concerns and the need for a degree of certainty about the extent of any site contamination in the region, the Taranaki Regional Council prepared a database of all properties where land uses may result or have resulted in contamination. Numerous site inspections and site investigations have been carried out since 1992 by the Council to assess possible contaminated sites. A variety of reports have been prepared such as investigations on dieldrin sites, past landfill sites, timber treatment premises, drycleaning, railyards, gasworks and scrap metal yards. A lot of this work was carried out prior to the introduction of the Ministry for the Environment guidelines. With the introduction of *the Classification and Information Management Protocols* the Taranaki Regional Council took steps to convert its database to conform to these guidelines. This conversion is almost complete. On completion, district councils will be given access to the property database and may use it when preparing Land Information Memoranda (LIM) on specific properties.

A summary of the status of ‘contaminated’ sites currently on the Taranaki Regional Council’s property database is set out in Table 4 below.

Table 4 Summary of contaminated site information held on TRC’s property database

Classification categories	Number of sites
Category U – Unverified history of hazardous activity or industry	0
Category V – Verified history of hazardous activity or industry	119
Category 1(a) – Hazardous substances present: risk unacceptable	10
Category 1(b) – Hazardous substances present: risk acceptable for land use	129
Category 2(a) – Hazardous substances not present: remediation undertaken	22
Category 2(b) – Hazardous substances not present: no identified contamination	689
Category E – Entered on database in Error	0
Total number of properties on database	969

All sites in Taranaki where there is currently an activity that is on the Ministry’s ‘Hazardous Activities and Industry’ list are routinely monitored or inspected on an ongoing basis by the Taranaki Regional Council, either because they hold consents for discharges or as a proactive measure to address the possibility of spill or other contamination event. There are nine remediated sites in Taranaki that would have been potentially considered high risk.

In the 2002/2003 year, Council staff undertook 847 inspections of ‘minor’ industrial operations (e.g. hydrocarbon exploration wells, sandblasters, light engineering operations and sawmills) and 671 inspections of sites monitored according to site-specific compliance monitoring programmes. It is Taranaki Regional Council policy that such inspections will continue. This approach, together with implementation of Council policies and rules for activities and discharges set out in its regional plans, the setting of appropriate consent requirements, and the increasing prevalence of contingency planning on industrial sites,

²⁹ Ministry for the Environment, 2001. *Risk Screening System for Contaminated Sites*. Prepared for Sustainable Management Fund. Pattle Delamore Partners Ltd. July 2001

means that the likelihood of new contaminated sites being created is minimised. Should contamination occur, procedures are in place for early detection and remediation.

7.2 Taranaki's progress on targets from NZWS

1. **By December 2008, all sites on the Hazardous Activities and Industry List will have been identified and 50 percent will have been subject to a rapid screening system in accordance with Ministry guidelines.**



As of June 2003 all sites in the Taranaki region on the Hazardous Activities and Industry List have been identified and screened.

2. **By December 2010, all sites on the Hazardous Activities and Industry List will have been subject to a rapid screening system in accordance with Ministry guidelines, and a remediation programme will have been developed for those that qualify as high risk.**



As of June 2003 all sites on the Hazardous Activities and Industries List in the Taranaki region have been inspected, investigated (pre-guidelines) or subject to a rapid screening system in accordance with Ministry guidelines and all high-risk contaminated sites have been remediated

3. **By December 2015, all high risk contaminated sites will have been managed or remediated. A timeframe will also have been developed to address the management or remediation of remaining sites.**



As of June 2003, all identified high-risk contaminated sites have been managed or remediated. Timeframes will be developed by December 2003 for all medium-risk contaminated sites (category 1(b)) requiring development of timeframes for management or remediation.

7.3 NZWS targets modified/regionalised for Taranaki

1. As of June 2003 all sites in the Taranaki region on the Hazardous Activities and Industry List will have been identified, subjected to a rapid screening system, and classified on the Councils database. Taranaki Regional Council will continue to update the property database when special investigations, responses to unauthorised incidents, and regular monitoring and inspection programmes identify new sites or indicate a need to change the status of existing sites.
2. As of June 2003, all 9 identified high-risk sites have been remediated. By December 2003, Taranaki Regional Council will develop timeframes to address the management or remediation of all medium risk confirmed contaminated sites.
3. By December 2008, all identified medium risk contaminated sites will be effectively managed or remediated.

7.4 Additional targets for Taranaki

1. Taranaki Regional Council will continue to take into account the need to avoid the possibility of site contamination in the setting and implementation of regional rules regulating discharges to land, air and water in the region.
2. District Councils will acknowledge within 5 working days an enquiry for information concerning 'contaminated' sites.

8. Organochlorines

8.1 Introduction

8.1.1 National Perspective

Organochlorines are chemicals which contain carbon and chlorine atoms joined together. Harmful organochlorines are those which do not break down easily and which stay in the environment and in humans for a long time. These include:

- Dioxin;
- Industrial chemicals which are toxic in their own right and also contain dioxin, such as polychlorinated biphenyls (PCBs) and pentachlorophenol (PCP); and
- Chlorinated pesticides (e.g. dieldrin, DDT).

All of the above are of concern internationally because of their potential to cause adverse effects on human health and on the environment. A United Nations environmental treaty (Stockholm Persistent Organic Pollutants (POP) Convention) on these toxic chemicals was negotiated in 2001. The objective of the treaty, which New Zealand is a party to, is to protect human health and the environment from persistent organic pollutants.

The low temperature burning of waste is the main source of dioxin release in New Zealand. The Ministry for the Environment has proposed a National Environmental Standard (NES) for dioxins which would set dioxin discharge limits on waste incinerators, and ban landfill fires and the burning of household wastes. It would be the first NES regulation to be established under the Resource Management Act 1991. Regional councils would be responsible for its implementation and enforcement.

The Ministry for the Environment commenced a national Organochlorines Programme in 1995 to characterise background levels of organochlorines in the New Zealand environment and to establish risk-based environmental acceptance criteria for these substances. Nationwide environmental surveys were undertaken in 1996/1997 to determine the background concentrations of the target organochlorine substances in terrestrial and aquatic media and in ambient air. The surveys involved the collection and analysis of approximately 250 samples of air, soil, river water, river biota, estuarine sediment and shell fish³⁰. The results demonstrated that New Zealand's environment has a relatively low level of organochlorine contamination when compared with other developed countries.

The Ministry for the Environment's Organochlorines Programme is currently developing standards and guidelines for managing 12 principal organochlorine substances.

8.1.2 Taranaki perspective

Investigation of the extent of organochlorine contamination in Taranaki formed part of the 1996/1997 nationwide environmental survey. Investigations of organochlorines in four media (freshwater, freshwater biota, air and soil) were undertaken. One of the 10 sites selected for the determination of organochlorine substances in air was on a farm at Te Wera, in the eastern hill country of Taranaki. Soil samples were taken from four representative

³⁰ Ministry for the Environment, 1998. *Organochlorines in New Zealand*. Organochlorines Programme, Ministry for the Environment

areas in Taranaki - pristine grassland in Egmont National Park, hill country pasture, flat land pasture and New Plymouth³¹. Freshwater and freshwater eel samples were taken from the Waingongoro River. The results from the survey show that the levels of dioxins in the environment in Taranaki are comparable to the low levels found in the rest of rural New Zealand, and well below those in main New Zealand cities.

In the latter half of 2000, concerns about possible dioxin contamination of the area surrounding the site currently occupied by Dow AgroSciences Ltd in New Plymouth led to the investigation of the alleged disposal of dioxin-contaminated wastes at 36 sites in and around New Plymouth. Taranaki Regional Council's investigations found no evidence of environmental risk at any of the sites investigated. A further comprehensive survey of the distribution and concentrations of dioxins in residential soils in western New Plymouth was conducted during May and June 2002. The survey found that while at all sites there were detectable levels of the specific dioxins that are associated with 2,4,5-T, in all cases, the levels measured are below the referenced New Zealand and international criteria³². The health risk at all sites is so low as to be negligible for current and future residents, with no requirement for any clean-up at any property.

A number of initiatives have been taken by Taranaki Regional Council to prevent contamination of the environment with organochlorines. In 1994, with the coming into force of the ban on use or possession of PCB-containing equipment, the lack of appropriate collection and disposal options became apparent. Taranaki Regional Council took a lead role and actively promoted and participated in a full regional identification, removal, storage and disposal project for all PCB-containing equipment. With the participation of local electrical contractors and power supply companies, the farming community and a disposal company, 36 tonnes of PCB-containing equipment were collected and transported from Taranaki for appropriate disposal³³.

In 2001, a region wide urban hazardous waste collection carried out by Taranaki Regional Council resulted in the collection and appropriate disposal of a further 819 kg of PCBs³⁴. As of January 2003, New Plymouth District Council and South Taranaki District Council have a dedicated non-industrial/domestic hazardous waste collection area at a transfer station in their districts. These include a designated area for the drop-off of organochlorine pesticides and PCB-containing waste. Stratford District Council also accepts these wastes at their transfer station and then transports them to the facility at Colson Road, New Plymouth.

Landfill fires, a major cause of dioxin emissions in New Zealand, are prohibited under rule 12 of the Regional Air Quality Plan for Taranaki³⁵.

The burning of domestic rubbish in household incinerators is carried out throughout Taranaki in both rural and residential areas. The disposal of household waste in rural areas will be investigated as part of the rural waste study (refer to chapter 4). It is noted that silage wrap does not contain organochlorines. The district councils control back-yard burning in

³¹ Taranaki Regional Council 2001. *Investigation of alleged agrichemical waste disposal sites in New Plymouth*. Stage Two. Technical Report 2001-42

³² Ministries of Environment and Health, 2002. *Low Levels of Dioxin in Residential Soils at Paritutu in New Plymouth*.

³³ Taranaki Regional Council, 1994. *Management of PCB Removal from Taranaki by the Taranaki Regional Council*. Submitted to the Waste Management Institute (New Zealand).

³⁴ Taranaki Regional Council, 2001. *Taranaki hazardous waste collections*. Report to Policy and Planning Committee, Taranaki Regional Council, June 2001.

³⁵ Taranaki Regional Council, 1997. *Regional Air Quality Plan for Taranaki*. Taranaki Regional Council, April 1997.

residential areas. The New Plymouth, Stratford and South Taranaki district councils permit back-yard burning provided that guidelines are followed and that there is no nuisance effect or fire-ban in place. However, Waverley has imposed a year-round fire restriction within the township, requiring all residents to apply for a permit from the South Taranaki District Council.

8.2 Taranaki's progress on targets from NZWS

1. **By December 2010, New Zealand will have met international obligations under the Stockholm Convention to collect and destroy PCBs and organochlorine pesticide wastes.**



This is a national target. The Taranaki Regional Council will assist Government in reaching these targets, consistent with its statutory functions.

2. **By December 2020, the average body burdens of dioxins will have been reduced to 10 percent of present day levels.**



This is a national target. The Taranaki Regional Council will assist Government in reaching these targets, consistent with its statutory functions.

8.3 NZWS targets modified/regionalised for Taranaki

1. Taranaki Regional Council will assist Government in meeting its international obligations, consistent with its statutory functions.
2. Taranaki Regional Council will adopt an upper emission limit of 0.1ng TEQ/Sm³ for dioxins in resource consents for industrial discharges.

8.4 Additional targets for Taranaki

1. Taranaki Regional Council will assist Government in implementing its Organochlorines Programme Action Plan, consistent with its statutory functions.
2. All three district councils will maintain at least one facility within their district for the collection of non-industrial/domestic hazardous waste. These facilities will include a designated area for the drop-off of organochlorine pesticides and PCB-containing waste.
3. Taranaki Regional Council will provide advice and information upon request, concerning options for the appropriate disposal of organochlorine compounds.
4. Taranaki Regional Council gives a commitment that, through its policies and plans, discharge of dioxins will be addressed so that the average population exposure will continue to decline.

5. Taranaki Regional Council, as part of a study of the rural waste stream as a special waste, will educate the farming community on the importance of eliminating backyard burning of waste for the reduction of dioxin emissions.
6. Investigate an education programme on the importance of eliminating backyard burning in residential areas.

9. Trade wastes

9.1 Introduction

9.1.1 National perspective

Trade wastes are generated by businesses, and disposed of through the sewerage system. They include hazardous materials from industrial and manufacturing processes, many of which are treated and then discharged to water or land with other components of general sewage. Under the Resource Management Act, monitoring of trade waste is the responsibility of district councils. This is done through by-laws or the resource consent process.

Trade waste by-laws apply to all industries connected to the system. The by-laws prohibit the discharge of certain materials and set limits on volumes of other wastes. Users who exceed these limits are 'trade waste customers' and require a trade waste consent for the discharge.

9.1.2 Taranaki perspective

The New Plymouth District Council was involved in the preparation of the New Zealand Standard Model General By-laws for Trade Waste and is currently operating under its own version of these by-laws, which set maximum allowable concentrations for constituents.

As at October 2003, New Plymouth District Council has 41 trade waste customers. Each customer has a resource consent that covers information such as volume, composition and monitoring requirements. The New Plymouth District Council works with its trade waste customers to address the quantity and concentration of the waste and to identify the optimum use of on-site and off-site treatment.

Stratford and South Taranaki district councils do not have trade waste by-laws, but have individual agreements with particular industries. They will, however, be introducing by-laws similar to those in effect in New Plymouth District by December 2005.

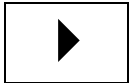
9.2 Taranaki's progress on targets from NZWS

1. **By December 2005, all territorial local authorities will have implemented and will be monitoring Model General Trade Waste By-laws based on the New Zealand Standard Model General By-laws, Part 23 - Trade Waste or its equivalent.**



As of January 2003, New Plymouth District Council have put in place trade waste by-laws. Stratford and South Taranaki District Councils will introduce such by-laws by December 2005.

2. **By December 2005, all territorial local authorities will ensure that all holders of new or renewed trade waste permits will have in place a recognised waste minimisation and management programme.**



A regional waste minimisation officer representing the Taranaki Regional Council and district councils will be appointed by December 2003. One of the responsibilities of this officer will be the promotion to industries of waste minimisation and management on a voluntary basis, including to those that are holders of trade waste permits. There are currently two industries within the New Plymouth district that have a trade waste minimisation and management programme in place as part of their trade waste consent.

9.3 NZWS targets modified/regionalised for Taranaki

1. South Taranaki and Stratford district councils will have introduced and be monitoring trade waste by-laws by December 2005 so that all three territorial authorities will have implemented and be monitoring Model General Trade Waste by-laws based on the new Zealand Standard Model General By-laws.
2. By December 2003, Taranaki Regional Council in conjunction with the district councils, will have appointed a Regional Waste Minimisation Officer who will promote waste minimisation and management on a voluntary basis to trade waste permit holders.

10. Waste disposal

10.1 Introduction

10.1.1 National perspective

The NZWS identifies two main issues as being crucial in the area of waste disposal:

- the application of high environmental standards; and
- efficient cost pricing.

When consistently and effectively applied, high environmental standards are essential to protect the environment and human health. Inconsistent environmental performance standards can mean wastes are sent to facilities with low performance standards, increasing the risk of environmental damage. The Ministry for the Environment, in collaboration with local government, has begun developing environmental performance guidelines for waste treatment and disposal. The Government has stated that, if necessary, these guidelines will be supported with regulation in the form of National Environmental Standards under the Resource Management Act. Territorial local authorities and regional councils currently set landfill operating standards through the resource consent process. National standards may provide for greater consistency in practice.

Pricing policies that, as far as practicable, reflect full costs of the management and disposal of waste, are essential to effective waste minimisation and management. Inefficient pricing policies encourage waste flight to facilities that do not account fully for environmental cost. The Ministry for the Environment has produced the *Landfill Full Cost Accounting Guide* to help decision-makers account for the full cost of landfills and encourage waste generators to pay the true cost of waste treatment and disposal.

10.1.2 Taranaki perspective

Within the Taranaki region there has been a steady decrease in the number of operational landfills from 20 in 1983 to five in 2003. Fifteen landfills have been closed as they have reached their operational capacity, or in response to increasing public concern regarding landfill management practices or environmental effects. All five currently operational landfills are consented under the Resource Management Act and are subject to regular compliance monitoring. None have been found to have significant adverse effects on their surrounding environment.

The largest operational landfill in the region, located at Colson Road, New Plymouth has a predicted life expectancy of approximately 25 years. The two smaller New Plymouth District landfills located at Inglewood (King Road) and Okato (Hampton Road) have been identified for likely replacement with transfer stations within the next few years.

The two remaining operational landfills in the South Taranaki District in Patea (Scotland Street) and Manaia (Cemetery Road) are scheduled to close within the next two years.

The Stratford District landfill closed in March 2002 and has been replaced by a transfer station.

In the absence of national standards, the Taranaki Regional Council constantly seeks through consent conditions to upgrade landfill standards in co-operation with district councils and waste management operators. District councils also set landfill operating standards through conditions on land use consents.

Montgomery Watson Harza prepared a solid waste study for the three districts councils in 2002 to establish the best way forward for the appropriate management of waste in the Taranaki region³⁶. The recommendation of this study was for the simultaneous utilisation by the three district councils of the Colson Road landfill as a regional landfill facility. It is envisaged that this will be the situation by 2005. Once the Colson Road landfill reaches capacity and is closed, the study recommends it to be replaced by the proposed Eltham landfill. Colson Road is an engineered, lined landfill that is managed to high environmental standards. The Ministry for the Environment 2002 *Landfill Review and Audit Report*³⁷ classified Colson Road as a Class 1 landfill. Montgomery Watson Harza have completed a full cost recovery analysis³⁸ on the Colson Road landfill, and the district councils are now considering this report.

Currently, solid waste collection services in the three districts are 100% funded from targeted rates for the service. Solid waste disposal landfills in New Plymouth and Stratford districts are run on a full cost pricing basis. However, under South Taranaki District Council's current funding policy, solid waste disposal is funded 50% from user fees (gate charges) and 50% from general rates³⁹.

The rapid closure of landfills in Taranaki has contributed to the emergence of more cleanfill sites. Taranaki Regional Council supports the establishment of cleanfill disposal sites where inert fill material can be disposed of appropriately without consuming valuable landfill space. There are currently 13 cleanfills operating in Taranaki – 12 in north Taranaki and one in south Taranaki. With the closure of South Taranaki District landfills over the next few years it is likely that further cleanfills will open in the district. All 13 cleanfills are consented and are subject to regular compliance monitoring. Every licensed cleanfill in Taranaki operates on a commercial basis. Accordingly, the costs associated with disposal of cleanfill material are fully recovered through operator charges. All costs associated with consenting the cleanfill, monitoring inspections, and reporting on the performance of the cleanfill are fully met by the consent holder.

The Ministry for the Environment released 'A Guide to the Management of Cleanfills' in February 2002 to provide detailed information on waste acceptance criteria for cleanfills. Following the release of these guidelines, Taranaki Regional Council agreed to their adoption and modified the definition of 'cleanfill' used in resource consents to ensure national consistency in cleanfill management. As existing cleanfill resource consents are reviewed they are amended to comply with the cleanfill disposal guidelines. To date nine cleanfill consents have been amended to include the updated conditions. One consent will expire in June 2003. By January 2004 a further three consents will have been reviewed and amended. Taranaki Regional Council will continue to consent cleanfills and monitor for compliance to ensure high environmental standards of all cleanfill facilities in Taranaki.

³⁶ Montgomery Watson Harza, 2002. *New Plymouth, Stratford and South Taranaki District Councils Regional Solid Waste Study for Taranaki*, September 2002.

³⁷ Ministry for the Environment, 2003. *2002 Landfill Review and Audit Report*. March 2003.

³⁸ Montgomery Watson Harza, 2003. *New Plymouth, Stratford and South Taranaki District Councils Regional Solid Waste Pricing Study*. January 2003.

³⁹ South Taranaki District Council, 2000. *Solid Waste Management Plan*, August 2000.

Where these standards are not met the Taranaki Regional Council will exercise fully its enforcement powers under the Resource Management Act 1991.

Wastewater treatment and discharges in Taranaki have been upgraded and improved over the past 10 years. The New Plymouth Wastewater Treatment plant was upgraded in 1995 with the construction of a new de-watering facility. The Inglewood oxidation ponds, which previously discharged to an inland stream, were upgraded in 1999 to discharge into the New Plymouth Wastewater Treatment Plant. The Waitara wastewater treatment plant was commissioned in 1992. It is envisaged that Waitara wastewater will be pumped to the New Plymouth Wastewater Treatment Plant by 2005/2006. The effluent from Hawera oxidation ponds is diverted to the NZMP Whareroa marine outfall. There is an upgrade proposed for the Stratford oxidation ponds.

All but two of the wastewater treatment facilities in Taranaki now comply with all relevant plans, including the Regional Fresh Water Plan for Taranaki which became operative on 8 October 2001, the Regional Coastal Plan for Taranaki which became operative on 1 October 1997, and all relevant standards and guidelines. The consents for the two non-complying facilities at Opunake and Eltham in South Taranaki are due to be renewed in the next two years, and any outstanding issues will be addressed before these consents are renewed.

The effects of the discharge of farm dairy effluent and the measures taken to reduce these effects are addressed in the Regional Fresh Water Plan for Taranaki. This Plan will have its interim review during 2006/2007.

10.2 Taranaki's progress on targets from NZWS

- 1. By December 2003, local authorities will have addressed their funding policy to ensure that full cost recovery can be achieved for all waste treatment and disposal processes.**



As of January 2003, New Plymouth District Council and Stratford District Council have in place funding policies to ensure that full cost recovery is being achieved for all waste treatment and disposal processes.



South Taranaki District Council is conducting a funding review of solid waste disposal. A target for South Taranaki District Council related to full cost pricing will be set at the completion of this study.

- 2. By December 2005, operators of all landfills, cleanfills and wastewater treatment plants will have calculated user charges based on the full costs of providing and operating the facilities and established a programme to phase these charges in over a timeframe acceptable to the local community.**



As of January 2003, New Plymouth District Council and Stratford District Council operate on full cost pricing. It is assumed that all private cleanfill and landfill operators operate on full cost pricing.



South Taranaki District Council is conducting a funding review of solid waste disposal. A target for South Taranaki District Council related to full cost pricing

will be set at the completion of this study.

3. By December 2005, all cleanfills will comply with cleanfill disposal guidelines.



Currently 11 out of 13 cleanfill consents comply with cleanfill disposal guidelines. As these are renewed resource consent conditions will be amended to comply with the cleanfill disposal guidelines. All consents will have been amended or expired by January 2004. Any new consents issued will comply with cleanfill disposal guidelines. The subsequent compliance of each operator is a matter for the Taranaki Regional Council to pursue through its monitoring and enforcement procedures.

4. By December 2010, all substandard landfills will be upgraded or closed.



By December 2005, it is anticipated that there will only be one operational landfill in Taranaki, namely Colson Road, which meets best industry practice standards. Once the Colson Road landfill reaches capacity and is closed it is currently considered that it will be replaced by the proposed Eltham landfill. There will however be on-going review of this position, with a comprehensive reappraisal of the best available options prior to the proposed Eltham landfill being used.

5. By December 2020, all substandard wastewater treatment facilities will be upgraded, closed or replaced with systems that comply with all relevant regional and coastal plans, standards and guidelines.



As of January 2003, all wastewater treatment facilities in Taranaki except those at Opunake and Eltham, comply with the operative Regional Fresh Water Plan for Taranaki and the operative Regional Coastal Plan for Taranaki, and all relevant standards and guidelines. Targets shall be set for Opunake and Eltham wastewater treatment facilities to bring them into compliance by December 2005.

10.3 NZWS targets modified/regionalised for Taranaki

1. As of January 2003, New Plymouth District Council and Stratford District Council have in place funding policies to ensure that full cost recovery is being achieved for all waste treatment and disposal processes. Targets for South Taranaki District Council will be set at the completion of the solid waste disposal funding review.
2. By December 2005, where appropriate, operators of all landfills, cleanfills and wastewater treatment plants will be operating in accordance with full cost pricing principles. Targets for South Taranaki District Council will be set at the completion of the solid waste disposal funding review.
3. By January 2004, all cleanfill resource consents will be reviewed to comply with the Ministry for Environment cleanfill disposal guidelines.
4. By December 2005, there will only be one landfill in Taranaki, namely Colson Road, and this landfill will continue to meet industry best practice for engineering, operation and monitoring. Once the Colson Road landfill reaches capacity and is closed it is currently considered that it will be replaced by the proposed Eltham landfill. There will however

be on-going review of this position, with a comprehensive reappraisal of the best available options prior to the proposed Eltham landfill being used.

5. By December 2005, Eltham and Opunake wastewater treatment facilities will have been upgraded to comply with the Regional Fresh Water Plan for Taranaki, the Regional Coastal Plan for Taranaki, and all relevant standards and guidelines.

10.4 Additional targets for Taranaki

1. Taranaki Regional Council will continue to consent landfills and wastewater treatment facilities and monitor for compliance to ensure high environmental standards of the facilities in Taranaki.
2. Taranaki Regional Council will conduct an interim review of the Regional Fresh Water Plan for Taranaki during 2006/2007.