

Plan Effectiveness Monitoring Report:

Regional Plan for Discharges to Land

FOR FURTHER INFORMATION

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1. Introduction

Section 35 of the Resource Management Act 1991 (the RMA) requires every local authority to monitor the effectiveness of the policies, rules and other methods in its policy statement and plans, and to prepare a report on the results of this monitoring every five years. Councils must then take appropriate action when their monitoring indicates that is necessary.

Monitoring the effectiveness and efficiency of policies, rules and other methods is an on-going process from plan implementation to plan review. Such monitoring helps determine when different actions are required, and whether the level of policy intervention needs to be changed so that the objective can be achieved.

This report describes the results of monitoring the effectiveness of the policies and methods, including rules, in the Regional Plan for Discharges to Land (the Plan).

1.1 Background

Section 10.2 of the Plan describes the procedures for monitoring its effectiveness. It requires information to be gathered using the following sources:

- Waste analysis protocol
- Regional landfill leachate monitoring programme
- Monitoring the quality of groundwater, surface and coastal water
- Ambient air quality monitoring
- Complaint statistics
- On-going attitude surveys
- Feedback from interested groups
- Resource consent assessment process and compliance monitoring

With the exception of information from the regional landfill leachate monitoring programme and ongoing attitude surveys, these information sources were all used in the preparation of this report. Greater Wellington did not establish a landfill leachate monitoring programme. The only “ongoing attitude surveys” are the regular customer satisfaction surveys commissioned by Consents Management Department. These surveys are not plan specific, so are not useful for the purposes of plan effectiveness monitoring.

2. Methodology

2.1 Information sources

The information to assess the effectiveness of the Plan has been obtained from city and district council waste analysis records, Greater Wellington's databases on state of the environment monitoring results, pollution complaints, regional rule feedback, and resource consents. We also used information from our regional plan method implementation database.

Information reported in *Waste Management and Hazardous Substances Background Report* (Forsyth, 2005), which reported on the achievement of the waste management objectives in the Regional Policy Statement for the Wellington Region, has also been used.

Greater Wellington does not have a specific programme to monitor compliance with the permitted activity rules in the Plan. Budget has been allowed for this to happen from 2006-07.

2.1.1 Waste analysis

All city and district councils in the region have undertaken waste surveys at their landfills during the last six years. These surveys were done in accordance with the Waste Analysis Protocol and their results were given to Greater Wellington for the preparation of *Measuring up, the state of the environment report for the Wellington region, 2005* (*Measuring up 2005*).

2.1.2 State of the environment monitoring for water and air

Greater Wellington's state of the environment monitoring programme checks the state of the natural resources of the region. The programme covers air, water and soil. All resources could be affected by discharges of contaminants to land, but the resource most likely to be adversely affected is groundwater.

Groundwater is sampled at 80 sites around the region four times a year and checked for major cations, anions, and some trace elements. The results are collated and reported annually.

2.1.3 Complaint statistics

Greater Wellington records complaints reported to Greater Wellington's Pollution Hotline on its pollution incident database. Staff record the location, type of incident, response and the effect on the environment of all reported incidents. Information from the database is summarised in Appendix A.

There are two incident databases. The original database was designed in ACCESS and has the record of all incidents from 1995 to February 2003. A new database was set up in February 2003 with additional information such as which Plan (or rule) was breached (or not) in an incident. The 2003 database also has a record of what follow-up work was done after the incident.

The Incidents database has no links to the Consents and Compliance database COCO, and like COCO, it was not set up to assess regional plan provisions. The Information Technology Department completed a review of the all databases in March 2006 and a new integrated database is in the process of being designed.

2.1.4 Regional rule feedback forum

Greater Wellington maintains a regional rule feedback forum on its intranet. This allows officers to record problems with implementing the rules, for example:

- a rule is too complicated to apply in the field
- a rule overlaps with another rule, or has a confusing integration with other rules
- a rule is not practical or enforceable
- a rule is irrelevant and never used.

Staff in the Resource Policy, Consents Management, and Resource Investigations departments have recorded comments about most rules in the Regional Plan for Discharges to Land. A summary of their comments is given in Table 6 in Appendix C.

2.1.5 Resource consent assessment process and compliance monitoring

Hill Young and Cooper consultants undertook an assessment of resource consents issued under the Plan. Their report covers the period from the date the Plan became operative (December 1999) until December 2004. One of their findings was that our consents and compliance database (COCO) did not contain sufficient information to allow the efficiency and effectiveness of regional plan rules to be assessed.

Like the Incidents database, COCO was not set up to assess regional plan provisions. The Information Technology Department has now completed a review of all databases and a new integrated database is in the process of being designed.

2.1.6 Plan method implementation

Greater Wellington maintains a database to record the actions that officers and others, such as the Ministry for the Environment, have taken to implement each method in each plan since the plan was made operative. The database is updated annually. Summaries of the implementation of the methods and their related policies are presented in Tables 1 to 5 in Appendix B.

3. Solid contaminants (landfills)

In brief, the 12 solid waste management issues identified in the Plan that are addressed by objectives 4.1.1 to 4.1.3 are:

1. There are large quantities of waste generated
2. Recycling falls short of expectations
3. Composting is not being realised
4. Landfill gas is a problem
5. There is a lack of reliable information about waste
6. Incentives in region are not strong for generator responsibility
7. Discharge of residual waste is significant
8. Some landfills are not well sited
9. Lack of new landfill space and hazardous waste is a problem
10. Cleanfill can be a problem if not managed
11. There are illegal dumps on rural land
12. There are many old waste dump sites that are contaminated and discharge.

The policies and methods to address these issues and achieve the objectives are to integrate waste management and minimise waste generation, promote better landfill siting requirements, and ensure discharges of solid contaminants to land are controlled.

3.1 Objectives

The three objectives which deal with waste management and landfills are:

4.1.1 The quantity of wastes discharged to land in the region is significantly reduced by:

- (1) minimising the amount of waste generated at its source;
- (2) re-using, recycling and recovering materials from the waste stream to the greatest extent practicable and ;
- (3) ensuring that waste generated meet the true costs of managing the wastes they produce.

4.1.2 The region's landfills are sited rationally, with respect to community benefit and environmental considerations.

4.1.3 Any adverse effects from discharging solid contaminants to land are avoided, remedied or mitigated.

Objective 4.1.1 promotes the waste management hierarchy (to reduce, reuse, recycle and recover resources from waste). Objective 4.1.2 aims to direct the location of new landfill sites. Objective 4.1.3 essentially repeats the requirements of the RMA.

3.2 Implementation of policies and methods

The Plan has 11 policies, two rules and 12 other methods to achieve Objectives 4.1.1 to 4.1.3.

A description of what has been done to implement each of the methods is given in Appendix B. A summary of the policies and methods implementation is given here.

3.2.1 Waste reduction implementation

The Plan has four policies about waste reduction. Policy 4.2.1 sets out the waste management hierarchy as the waste management framework for the Plan. In the last five years there have been some changes to legislation and government initiatives that have given waste management more prominence. Introduction of the *New Zealand Waste Strategy* (Ministry for the Environment, 2002), and changes to the Local Government Acts 1974 and 2002 requiring city and district councils to prepare waste management plans, have ensured progress towards these goals.

Greater Wellington has promoted waste reduction through its environmental education programmes *Take Action* and *Take Charge*, and its social marketing campaign *Be the Difference* which reaches over 8,000 households across the region.

Policies 4.2.2 and 4.2.3, which promote cleaner production, research, waste and energy audits, and taking part in groups and associations promoting cleaner production, were to be implemented by methods 6.1.1-6.1.6.

Greater Wellington undertook waste audits of its own waste management in the Wakefield Street building in July 2003 and May 2005. The audits revealed that the volume of waste Greater Wellington sends to landfills halved from 780,000 to 369,000 litres per annum. The decrease was achieved because waste paper was diverted from the organisation's waste stream.

Greater Wellington also undertook an energy audit of the building and the water treatment plants in Te Marua and Wainuiomata. The results of these audits prompted changes to energy usage in the building – such as switching off the air conditioning system earlier and changing lighting to more energy efficient bulbs – and to ways that the treatment plants are run.

Greater Wellington participates in three liaison groups – the Wellington Regional Environmental Agency, Regional Pollution Officer Forum and Waste Management Wairarapa. The Wellington Regional Environmental Agency and

Regional Pollution Officer Forum are mainly for officers to get together and share ideas and management matters, whereas Waste Management Wairarapa is an operational group of waste managers responsible for implementing the Wairarapa waste management plan. Greater Wellington has liaised with central government over preparation of the national strategies and guidelines for waste management issues to be dealt with at the national level.

The only methods that have received no work to date are methods 6.1.6 and 6.1.7. Method 6.1.6 required Greater Wellington to undertake research with other interested organisations on the economics, markets and alternative technologies for reusing and recycling materials, and means of valuing the true costs of waste disposal.

Policy 4.2.4, which promotes composting and the development of guidelines, was to be implemented by method 6.1.7. Greater Wellington has not undertaken work on composting guidelines, but New Zealand Standards developed national standards for composting in 2005. Greater Wellington participated in the consultation processes for the standards.

The work of the city and district councils in diverting green waste from the waste stream has resulted in around 48,000 tonnes being diverted from landfills annually, although this is only happening in Wellington, Kapiti and Wairarapa landfills. At the household level, many people and schools compost their food and garden waste or use worm farms, and this has been promoted by Greater Wellington's *Take Action* team, who work with schoolchildren.

3.2.2 Landfill siting implementation

The Plan adopted three policies to direct the siting of landfills and support the development of a sub-regional landfill in the Wairarapa - policies 4.2.5, 4.2.6 and 4.2.7. These policies were to be implemented by methods 6.1.8 and 6.1.9.

The development of a new landfill for the Wairarapa is the responsibility of the district councils. Greater Wellington has been present at the forum, but is not part of the decision making process. The Wairarapa councils decided not to develop a new landfill for Wairarapa and instead will send waste to an established landfill out of the region.

Policy 4.2.5 promotes energy efficiencies, economies of scale, and the cost effectiveness of landfills. These matters are the responsibility of city and district councils. Greater Wellington may have promoted these policies but there is no evidence of this recorded, and there would be no need for the district and city councils to have regard to a regional council view when making decisions on these matters.

3.2.3 Managing adverse effects from discharges to land implementation

The Plan adopted four policies to direct the management of the effects of discharges from landfills - policies 4.2.8 to 4.2.11. These were to be implemented by methods 6.1.10 to 6.1.12.

Policy 4.2.8 directs waste disposal to be to appropriate facilities – landfills, cleanfills, or to on-farm and on-site facilities. Policy 4.2.9 has specific guidance on matters that must be considered for landfills. Policy 4.2.10 requires landfills to have landfill management plans.

Methods 6.1.10, 6.1.11, and 6.1.12 require investigations of illegal landfills and improvements to landfill leachate monitoring. Illegal landfills, and the deposition of non-cleanfill material at cleanfill sites are investigated in response to complaints to the Pollution Hotline. Infringement and other enforcement measures are on-going. See Appendix B for a summary of incidents and responses since the Plan was made operative.

The landfill leachate monitoring programme was not set up. Monitoring the effects of landfills (the larger sites) is part of the monitoring conditions of resource consents.

3.3 Effectiveness of policies and methods

3.3.1 Waste reduction effectiveness

Measuring up 2005 reports that there is some progress towards waste minimisation and integrated waste management in the region. In 2004 there were fewer landfill sites than in 1999, and there was more recycling, composting, and more joint initiatives between city and district councils, Greater Wellington and central government.

The Local Government Act 2002 brought in sweeping changes to the way city and district councils must deal with waste and their responsibilities for management. This has led to all councils in the region having waste management plans and implementing waste management initiatives to reduce waste and encourage recycling.

The New Zealand Waste Management Strategy (Ministry for the Environment, 2002) has specific targets for waste minimisation and disposal. Meeting these targets is not a statutory requirement, but all city and district councils have regard to it when planning or reviewing their waste management plans. Both the Local Government Act 1974 and the strategy have been effective in achieving Objective 4.1.1 of the Plan.

3.3.2 Landfill siting effectiveness

Planning, development and management of waste and waste services are a city and district council responsibility. Objective 4.1.2, about the siting of landfills for community benefit, is difficult to achieve using resource management approaches available under the RMA, although Greater Wellington was part of the planning process for the new Wairarapa sub-regional landfill. In the end the councils decided to make use of a facility outside of the region.

3.3.3 Controlling adverse effects of solid waste discharges

The policies and methods to manage adverse effects from solid contaminants to land are met through rules 9 and 10 of the Plan. See section 3.4 below.

3.4 Rules

There are two rules for controlling solid contaminants to land, rule 9 - refuse disposal and composting, and rule 10 – landfills, rubbish dumps and tips. Both rules refer to landfill sites and dumping, therefore relate specifically to Objective 4.2.3 – discharges from solid contaminants to land.

Rule 9 is a permitted activity rule for the control of rural dumps, and small composting operations. The conditions of the rule require that hazardous substances are not included in disposal sites, that they are kept away from any water body and the coastal marine area, there is no litter, and the site is rehabilitated within six months of being open to the surrounding landscape. Greater Wellington does not monitor farm dumps or domestic composting operations that would be allowed by this rule, and there are no comments on the feedback forum about its operation, so we cannot determine whether this rule is effective.

Rule 10 was assessed by Hill Young and Cooper in their report – *Plan Effectiveness Monitoring, Resource Consents under Regional Plan for Discharges to Land, 2004*. They concluded:

- That monitoring was not complete for landfill sites and this requires improvement.
- That there were eight “section 92” requests for further information for the 11 consents processed. They suggest this is too many requests for further information and costing the applicant money.
- That Greater Wellington considers reference to landfill management plans in rule 10 as a requirement of landfill discharge permit applications.

3.5 Effectiveness of rules

Rule 9 cannot be assessed for its effectiveness in meeting Objective 4.1.3 because the incident database records that there were no incidents for rural disposal sites, or composting operations.

The comments made by Hill Young and Cooper about section 92 requests do not make this rule any less effective in meeting Objective 4.1.3. It may indicate, however, that applicants do not understand the amount of information required for consent applications. This suggests that rule 10 may not be efficient and may require further investigation.

An assessment of compliance with resource consents for landfills was made for Measuring up 2005 (see Forsyth, 2005). In 1999, only one in 12 landfills in the region met their consent conditions relating to environmental effects. By 2004 this had increased to six out ten. Non-compliance with consent conditions is subject to enforcement and council officers return to non-compliant activities to work out a programme that will ensure compliance. This suggests that the effectiveness of managing the adverse effects of landfills through resource consents is dependent on the level of enforcement with consent conditions.

3.6 Summary

The policies and methods for landfills have been partly effective in ensuring Objective 4.2.1 is met through consultation on landfill siting, and investigating illegal discharges. Other work, such as stopping illegal discharges and monitoring consented landfills, is standard resource management work that is done regardless of specific guidance in the Plan.

4. Liquid contaminants

In the Plan, “liquid contaminants” are limited to human sewage and non-agricultural liquid waste. In brief, the four issues for liquid contaminants identified in the Plan that are addressed by objectives 4.1.4 and 4.1.5 are:

1. Discharges of human effluent can harm the environment.
2. Septic tanks are harming the environment in some parts.
3. Sewage sludge is a health hazard.
4. Discharges of liquid wastes that do not enter sewers can be potentially harmful.

The policies and methods to address these issues and achieve the objectives are to manage human effluent discharges to land so that adverse effects are avoided, remedied or mitigated on the environment.

4.1 Objectives

The Plan has two objectives for liquid contaminants:

4.1.4 There is a significant reduction in contamination of surface water, groundwater and coastal water from discharges of human effluent to land.

4.1.5 The adverse effects of discharges of liquid contaminants from point sources into or onto land are avoided, remedied or mitigated.

4.2 Implementation of policies and methods

There are eight policies and eight methods to achieve Objectives 4.1.4 and 4.1.5.

A description of what has been done to implement each of the methods is given in Appendix B. A summary of the policies and methods implementation is given here.

4.2.1 Discharges of human effluent implementation

The Plan adopted seven policies to direct the management of sewage discharges to land – policies 4.2.12 to 4.2.18.

Policies 4.2.15 to 4.2.18 direct the management of on-site sewage treatment and disposal, and were to be implemented by methods 6.2.1 to 6.2.8. These methods have all been implemented to some degree (see Table 2 in Appendix A).

Method 6.2.3 which implements policy 4.2.15, requires Greater Wellington to work with city and district councils to ensure provisions are made in district plans for the appropriate treatment of on-site sewage. Greater Wellington has submitted on all district plans, and makes submissions on notified consent applications throughout the region – as well as non-notified consent applications in the Wairarapa – where development may cause adverse effects on shallow groundwater from inappropriate on-site sewage disposal.

Methods 6.2.5 and 6.2.6 implement policies 4.2.16 and 4.2.19. These require Greater Wellington to monitor the groundwater and soils where discharges might be having an effect. Greater Wellington monitors groundwater zones at 80 sites around the region. *Measuring up 2005* shows that groundwater quality is generally very good, however, there are some elevated levels of nitrates in bores for the Kapiti coast around Otaki and Te Horo. The nitrate was determined to be organic rather than inorganic, and so was probably caused by sewage or agricultural waste, rather than fertiliser, leaking into the shallow groundwater. It wasn't possible to determine when the contamination occurred, and whether it is ongoing.

Greater Wellington monitors the soils in the region but none of the sites selected were influenced by human effluent disposal systems so method 6.2.6 has not been implemented.

Methods 6.2.1, 6.2.2, 6.2.7 and 6.2.8 implement policies 4.2.17, and 4.2.18. These methods all relate to managing on-site sewage discharges and require Greater Wellington to educate homeowners, use enforcement action to mitigate any adverse effects, and work with city and district councils. Greater Wellington has done this by preparing the on-site sewage brochure series for home-owners, and the *Guidelines for on-site sewage systems in the Wellington region* (2001) for wastewater engineers and city and district council staff. The brochures and guidelines were developed with help from city and district council staff and are widely promoted by them and others in the industry. No enforcement action has been taken against owners of poorly performing systems – such as in Pauatahanui and Blue Mountains.

4.2.2 Discharges of other liquid waste implementation

Policy 4.2.19 directs the management of liquid waste discharges to land that are not sewage, agricultural effluent or hazardous. This policy, which promotes the liquid contaminants to be discharged to land instead of water, was implemented by adopting the permitted activity rule for stormwater and reticulated systems. This is discussed in section 4.4 below.

4.3 Effectiveness of policies and methods

4.3.1 Discharges of human effluent

Of the 192,000 cubic metres of human effluent discharged to the region's environment daily, 11,000 cubic metres are discharged to land, almost all via on-site sewage systems. Pathogenic and nitrate contamination of shallow groundwater from on-site sewage systems can affect its suitability for human drinking water and stock watering.

Policies 4.2.13 and 4.2.14 provide guidance about managing effects from reticulated sewerage systems, and policies 4.2.15, 4.2.16 and 4.2.18 provide guidance about managing the effects of on-site sewage discharges. Thus, apart from Policy 4.2.12, which directs Greater Wellington to have particular regard to tangata whenua views for all sewage discharges, the guidance in the Plan is directed specifically at "on-site" or "reticulated", yet some on-site systems may discharge greater volumes than some reticulated systems. There is no need for the policy guidance to be so exclusive.

The policies promote more co-ordinated management of on-site sewage discharges between Greater Wellington and the city and district councils. Working towards this, Greater Wellington staff have run seminars and workshops for territorial authority staff and on-site wastewater engineers, made submissions on district plans and subdivision consent applications, and produced brochures for homeowners and guidelines for system designers. These measures have improved the quality of systems installed with new developments, though the effects of these and older systems are still relatively unknown because our state of the environment monitoring network was not designed to assess the effects of on-site sewage discharges.

Some areas where water is at risk from on-site sewage discharges are parts of the Wairarapa valley and Kapiti (groundwater), Pauatahanui (coastal water), and Blue Mountains in Upper Hutt and Riversdale (surface water). To date, there has been limited monitoring that has identified but not assessed the threat.

Objective 4.1.4 aims to have a significant reduction in contamination from human sewage to land. In practice, there is no way to determine whether this objective is being achieved because there has been very little monitoring of the effects of on-site sewage systems, from which almost all human effluent to land is being discharged. So although most policies and methods have been implemented, it is difficult to know whether they have been effective in meeting this objective.

Objective 4.1.5 aims to have the effects from liquid contaminants avoided, remedied or mitigated. The policy guidance relates only to providing for such discharges as permitted activities. This has been done for stormwater and greywater, and the effectiveness of these rules is discussed in section 4.4 below.

4.4 Rules

There are six rules to control the discharge of liquid contaminants to land. Rules 3 to 7 allow discharges of stormwater, greywater, pit latrines, aerobically treated sewage, and other small on-site sewage systems as permitted activities. Rule 8 is a discretionary activity for discharges of human sewage not allowed by rules 3, 5, 6 or 7.

Rule 3 allows discharges to land from water supply, irrigation and other infrastructure if they are minor discharges to land for maintenance purposes. There are conditions in this rule, but compliance is not monitored. Comments on the regional rule feedback forum indicate that this rule is too complicated to apply in the field, and has a confusing integration with rules in the Regional Freshwater Plan.

Rule 4 allows discharges of greywater. It is not monitored by Greater Wellington and we have no information about whether any greywater is discharged in accordance with this rule.

Rule 5 allows discharges from pit latrines. Greater Wellington does not monitor pit latrine locations or their effect. Staff believe most pit latrines are located in remote areas such as Department of Conservation land and are compliant with the rule, or the effects are probably no more than minor.

Rule 6 allows discharges from aerobic on-site sewage systems. This rule allows discharges onto land as well as into land, and provides for larger quantities than rule 7. This less restrictive approach was intended to encourage the use of these more sophisticated systems over septic tank systems. The feedback forum indicates that some conditions may be too restrictive (separation distances, access exclusion) and that there is a confusing integration with rule 7.

Rule 7 allows discharges from septic tanks. The feedback forum indicates that this rule is too complicated and has a confusing integration with rule 6.

Rule 8, which requires a resource consent, was assessed by Hill Young and Cooper in their report – *Plan Effectiveness Monitoring, Resource Consents under Regional Plan for Discharges to Land*. Their comments about the 28 consents granted under this rule were:

- Clarify the notification requirements with respect to tangata whenua (a large number of sewage consent applications required written approvals that were not provided with application).
- Consider modifying the reference to section 5.3 of the Plan and include a more specific list of information requirements for applications such as those outlined in policies 13 and 16.
- Consider improving monitoring to highlight trends of non-compliance and determine the relationship of location of sewage discharged to land to vulnerable areas identified in the Plan.

- Consider including in applications for consent an analysis of alternative ways to re-use, recycle or minimise the waste to be discharged to land.

4.5 Effectiveness of rules

Waste information collected for *Measuring up, 2005* indicates that there are upwards of 40,000 people in the region that rely on on-site sewage disposal – around 10,000 systems – with almost none monitored by Greater Wellington or any other agency. On-site sewage discharges are suspected to be the cause of bacteria and nutrient contamination of groundwater at Te Horo, coastal water at Pauatahanui, and surface water at Makara and Riversdale. Much of Kapiti and the Wairarapa are also changing from rural to ‘life-style’ and residential, which is increasing the number of on-site sewage systems alongside the use of groundwater for domestic drinking water.

A programme to monitor the performance of five on-site sewage systems at Riversdale was started in 2004 and some targeted monitoring is planned for 2006-2007. More investigations of on-site sewage systems are needed to assess their effects on the environment and whether Objective 4.1.4 is being achieved before a proper assessment can be made about whether the rules are effective.

The Ministry for the Environment is investigating the appropriateness of developing National Environmental Standards (NES) for managing on-site sewage systems. Any change to the rules in the Plan will need to take into account the results of the targeted monitoring, and any NES that are produced.

Rules 3, 4, and 5 are all permitted activity rules and not monitored by Greater Wellington. Some monitoring is needed to determine if Objective 4.1.4 is being achieved and whether the rules are effective.

Recommendations by Hill Young and Cooper for rule 8 do not make the rule any less effective in meeting Objective 4.1.5.

5. Agricultural contaminants

Agricultural effluent can contain a mixture of contaminants, including animal faeces and urine, soil, gravel, spilt milk, detergent, drenches and straw. Agricultural effluent can have adverse effects on water quality, amenity values, soil properties and pasture and stock health. When the Plan was notified, more than half the dairy farms and seven out of eight piggeries discharged effluent to land.

In brief, the seven issues for agricultural contaminants in the Plan that are addressed by Objective 4.1.6 are:

1. Agricultural effluent is under utilised.
2. Agricultural effluent can have adverse effects on water quality.
3. On-farm waste disposal can contaminant waterways.
5. Silage stacks produce strong leachate.

6. Poor storage of agrichemicals can contaminate soil and water and affect human health.
7. Agricultural activities making a significant contribution to non-point source pollution.

The Plan has one objective, five policies, four rules and ten other methods to manage discharges of agricultural contaminants to land. The policies and methods to address these issues and achieve the objective are to manage agricultural effluent and waste and significantly reduce non-point source pollution to groundwater and waterways.

Since 1995, there has been a 16 percent increase in dairy farms in the Wellington region, from 197 to 229. The total number of cows has also increased from 39,794 in 1995 to 63,891 in 2004. In 1995, 68 percent of all dairy farms discharged dairy shed effluent to land. By 2004 this increased to 99 per cent to land with the remaining three farms discharging to water. The increased herd sizes has resulted in a 60 percent increase in effluent volume from nearly 2,000 cubic metres per day in 1995, to 3,200 cubic metre in 2004. The numbers of farms appears to be levelling off, but with dairy herd sizes increasing, it is possible that dairy effluent volumes may continue to increase.

There has been no change in the total number of piggeries (eight) since 1995. However, we still do not know the total amount of effluent produced from these farms. The effluent volume and quantity depends on the numbers of boars, dry sows, weaners, porkers and baconers in the piggery.

5.1 Objective

The Plan's objective for agricultural contaminants is:

4.1.6 The adverse environmental effects of discharges of contaminants to land from agricultural activities are avoided, remedied or mitigated and in particular, there is a significant reduction in non-point source pollution of surface water and groundwater from agricultural activities.

This objective aims to address a range of agricultural activities – the most common is the discharge of agricultural effluent, but other contaminants covered are offal pits, fertiliser and stock dip effluent.

5.2 Implementation of policies and methods

There are five policies and ten methods for agricultural contaminants adopted to achieve Objective 4.1.6.

A description of what has been done to implement each of the methods is given in Appendix B. A summary of the policies and methods implementation is given here.

5.2.1 Agricultural effluent and wastes, and non-point source policies and methods

The Plan adopted four policies to direct the management of agricultural waste to land - policies 4.2.20 to 4.2.23, and one to direct the minimisation of the effects of non-point source pollution - 4.2.24.

Policy 4.2.22, which directs environmentally sound disposal of agricultural waste by development of guidelines for waste disposal and land management practices, was to be implemented by method 6.3.1. Guidelines for Greater Wellington were not developed because good guidance has been available in *Dairying and the environment : managing farm dairy effluent* (Dairying and the Environment Committee, 1995).

Greater Wellington has prepared a series of booklets for biodiversity, one of which, *Mind the stream – a guide to looking after urban and rural stream in the Wellington region* (2004), promotes appropriate land management practices in terms of good riparian management. This helps implement method 6.3.1.

Methods 6.3.2 to 6.3.4, and 6.3.7, 6.3.9, and 6.3.10 implement policy 4.2.24. Some work to implement these methods has been done – see Appendix A. Greater Wellington has worked towards implementing these methods by participating in farm field days, promoting streamside management to mitigate the effects of land use on the streams, attending the land treatment collective seminars and field days, and participating in the preparation of the stock truck effluent code of practice. The *Dairying and Clean Streams Accord*, an industry-led initiative from Fonterra, has targets for the management of dairy effluent and stock access to streams and wetlands. With Fonterra and Federated Farmers, Greater Wellington prepared a Regional Action Plan for the Wellington region to implement the Accord.

Greater Wellington's *Streams alive* programme promotes planting of riparian areas in twelve high value catchments. The purpose of the programme is to promote biodiversity in the streams. Greater Wellington does not have any dedicated programme to prevent non-point source pollution of other streams across the region, although *Streams alive* projects will help reduce the effects of farm practices on streams. The results of stream side planting will take time to show up in improved water quality.

Methods 6.3.9 and 6.3.10 require Greater Wellington to investigate and address the effects of fertiliser use on water. A study into the source of nitrate in groundwater at Te Horo on the Kapiti Coast revealed that the nitrate is organic, and therefore not from fertiliser applications. That contamination is likely to be from poorly maintained septic tanks and intensive agricultural land use. Greater Wellington has not completed any study on the application rates of fertilisers in vulnerable groundwater areas.

5.3 Effectiveness of policies and methods

5.3.1 Effectiveness of agricultural effluent and waste provisions

There has been real progress in moving dairy discharges from water to land (Forsyth, 2005). By June 2004, 99 percent of all dairy effluent discharges were to land. The policies encouraged the shift of these discharges from water to land by requiring them to be processed non-notified. Together with providing information about the benefits of land-based systems, having lower monitoring costs and granting consents for longer periods than for discharges to water, the practice of discharging dairy shed effluent to rivers and streams in the region has ended and the effects of dairy shed effluent on the environment have reduced.

Agricultural waste guidelines were not prepared as required by Method 6.3.1. Regional guidelines are considered to be unnecessary given that there are national guidelines prepared by the Dairying Environment Committee, who have more expertise than Greater Wellington. Areas where regional guidance is desirable are in determining appropriate nitrogen loading rates for dairy and piggery effluent, and in determining appropriate application rates for the various soil types in the region.

Adverse effects on groundwater depends on the amount of infiltration into the shallow groundwater zones. The Plan used the DRASTIC model to assess groundwater vulnerability to contamination from discharges to land. The DRASTIC model combines information about depth to groundwater, net recharge, aquifer media, soil media, topography, impact of the vadose zone, and hydraulic conductivity. Interestingly, the model predicts high vulnerability in the Wairarapa plains where most of the region's dairying takes place. On the face of this risk, we would expect to notice a deterioration in groundwater quality in this vulnerable areas, but *Measuring up 2005* reports there has been no change in groundwater quality so far. Currently, the reference to the vulnerable areas identified by the DRASTIC model is not effective in protecting groundwater in those areas. The assumptions in the DRASTIC model need to be validated, and if confirmed, specific policy guidance will need to be provided for any discharges in those areas.

Overall, the policies and methods are likely to have been effective in reducing the effects of agricultural effluent and waste to meet Objective 4.1.6, but our monitoring cannot specifically confirm this.

5.3.2 Effectiveness of non-point source pollution provisions

Objective 4.1.6 aims for a significant reduction in non-point source agricultural pollutants to waterways and groundwater.

Over 55 percent of the region is used for agricultural purposes (*Measuring up, 2005*). Stock access to waterways and general rural runoff results in bacteria and nutrients getting into rivers, streams and lakes. A high proportion of the region's rivers fail guidelines for stock drinking water because bacteria levels are too high (see Milne, 2005). Figure 2.2 in *Measuring up, 2005* shows that

many rural rivers and streams had poor to fair water quality over the period 1997 to 2003. Good or very good water quality is only found in the upland indigenous forests where there is almost no non-point source pollution.

The policies and methods used to control rural run-off do not appear effective so far in reducing non-point source pollution. Further work in riparian management, together with dairy farmers working to achieve targets set in the Dairying and Clean Stream Accord for nutrient budgeting and reducing stock access, should help reduce the effects of agricultural land uses on water quality over the next ten years.

Soil cultivation and the application of animal effluent and fertilisers can result in increased levels of nitrate, ammonium, phosphate and potassium in groundwater. Elevated concentrations of nitrate-nitrogen are evident in 44 per cent of the unconfined or semi-confined sites monitored (17 of 39). Regionally, 56 per cent of the groundwater sites with elevated nitrate concentrations are in predominantly dairying areas, 34 per cent are in sheep or beef farming areas (Jones and Baker, 2005). Groundwater quality monitoring has not revealed any significant changes in the levels of these contaminants over the last five years though groundwater is slow to respond to contamination – anything from two to twenty years. Greater Wellington is planning to review the groundwater quality network to ensure that changes are detected early.

Poor storage, transportation and use of agrichemicals was identified as an issue in the Plan and this was addressed in policy about promoting adherence to the Agrichemical Users' code of practice, and promoting preferred disposal practices. There is no evidence that these policies were implemented, and so are unlikely to have been effective.

In 1996, Greater Wellington sampled 14 bores in the western region and tested for pesticides. Water from 12 bores in the region is sampled every four years as part of a national survey of pesticides in groundwater. The results have detected herbicide contamination well below the maximum allowable values set by the Ministry of Health in three sites in 1996 and 1998, with no pesticides detected in any sites in 2002.

5.4 Rules

There are four rules that control agricultural contaminants to land. Rules 11, 12 and 14 allow discharges from offal pits and silage, fertiliser, and stock dips as a permitted activity. Rule 13 requires a discharge permit for discharges of effluent from dairysheds, piggeries and poultry farms. This is a controlled activity

Greater Wellington does not monitor rules 11, 12 or 14. Discharges from offal pits and silage are allowed by rule 11, but there is no information about how common they are or whether their operation is in accordance with this rule. Rule 12 allows discharges of fertiliser provided the discharge is done in accordance with Code of Practice for Fertiliser Use (1998). The use of fertilisers has increased substantially over the last 12 years, with the use of urea-based fertilisers increasing by some 900 percent from 1992 to 2004

(Statistics New Zealand, 2004). Comments recorded on Greater Wellington's regional rule feedback forum indicate that rule 12 is not effective at addressing the effects of topdressing when fertiliser lands on other people's properties (see Table 6, Appendix C).

The Plan required Greater Wellington to assess the potential contribution of fertiliser use to elevated nitrate levels in groundwater but this investigation has not been done. If it is, investigations could also be undertaken to work out what rates of fertiliser application are appropriate for the soil types in the region. Fertiliser companies are currently working on such investigations nationally, and the results of their investigations may necessitate changes to rule 12.

Comments recorded on Greater Wellington's regional rule feedback forum indicate that rule 13 is confusing in some parts and unduly permissive in others (see Table 6, Appendix C). The rule may not apply to applications of chicken manure, which is dry and therefore not effluent by the Plan's definition, but which can contain high concentrations of ammonia capable of adversely affecting water quality. The rule applies equally to piggery and dairy shed effluent, which is not appropriate because piggery effluent has higher concentrations of contaminants and the odour can be more objectionable.

Rule 13 was assessed by Hill Young and Cooper in their report – *Plan Effectiveness Monitoring, Resource Consents under Regional Plan for Discharges to Land*. For the 118 consents granted under this rule from 1999-2004 they concluded:

- The records for consents granted for agricultural discharges to land show that 79 have never been visited, 28 only had one visit, 15 had two visits, three had three visits, and four had five visits. This lack of monitoring is either because the database had not been updated, or the sites have genuinely not been visited. (Some farms may have only required two inspections during the last five years if they had been reduced to a three-year inspection because of good compliance.)
- Consider including maximum volume of discharge in rule 13 to cover off references to policy 21.
- That Council focuses on areas identified as having groundwater vulnerable to contamination and where animal waste discharge permits have been granted to identify trends in compliance/non-compliance – this monitoring may be part of the *Measuring up 2005*.
- That the direction that applications will be assessed on a non-notified manner in rule 13 be reviewed, to ensure that applications for consents being considered without the written approval of affected parties also take into account the receiving environment, the effects on the immediate landowners/neighbours e.g., odour, the vulnerable areas where animal waste discharges have already been granted, and long term monitoring trends in the DRASTIC areas.

5.5 Effectiveness of rules

Rules 11 and 14 are permitted activity rules with no information recorded to assess their effectiveness. These rules have environmental standards to prevent adverse effects on the environment, but they are not monitored and so there is no way to determine whether they are complied with.

Rule 12 allows fertiliser applications as a permitted activity. Fertiliser usage has increased substantially in the region over the last decade. Increases of the magnitude reported by *Measuring up 2005* will eventually be placing pressure on the shallow groundwater resources and surface waterways. Method 6.3.10 describes the work required to better understand this problem, and has not been implemented, and so the effectiveness of this rule cannot be determined.

More than half the consents granted under the Plan are for dairy shed discharges granted under rule 13. Most dairy farms are in the Wairarapa and on the Kapiti Coast. These areas are identified in the Plan as having groundwater that is vulnerable to contamination, but rule 13 has no specific guidance about appropriate nitrogen loading rates to prevent contamination of groundwater. We will need to determine whether a replacement rule should include a standard for nitrogen loading in these areas, and we will need to work with Fonterra to investigate how best to accommodate the nutrient budgeting target from the Dairying and Clean Streams Accord.

Rule 13 overlaps with rule 4 in the Regional Air Quality Management Plan, which is seen as confusing, because a breach of rule 4 of the Air Plan could require a consent to be obtained for an activity of discharging contaminants to land. Odour is an effect of discharging effluent to land so a condition restricting objectionable odour associated with the effluent spreading could be included in rule 13.

Soils vary considerably over the region (and New Zealand), from sandy loams to clayey loams in the space of a few hundred metres. Effluent discharges need to be planned on a farm scale to allow for the different soil types. Many dairy farms are on sandy and silty loams of the Wairarapa plains and near the Kapiti Coast. Over the winter months when soil moisture levels are at their highest these soils become heavy and are less able to absorb high volumes of dairy shed effluent. This can be the case year round for discharges onto clayey soils. Effluent ponding or running off to water is the most common non-compliance with consents issued under rule 13, which may mean that it is not completely effective in addressing the potential adverse effects.

The effectiveness of rule 13 in avoiding or mitigating the effects of discharges of piggery effluent cannot be evaluated without more reporting of each of the consents and their level of compliance. Planned improvements to the consents database may make this possible before the Plan is reviewed.

The requirement to process applications non-notified without the written approval of affected parties, including neighbours, needs to be reviewed. Changes to the RMA in 2003 mean that such applications could be processed as a “limited notification” if the neighbour withdraws written approval.

6. Hazardous substances

The Environmental Risk Management Agency (ERMA) controls the management of hazardous substances, including how they are purchased, used, and stored, through regulations. The only roles for local government are to have appropriate land use controls, such as for petrol stations, and to have appropriate controls on discharges.

The Plan has two objectives, 17 policies, six rules and 11 other methods for avoiding, remedying or mitigating the effects of the use land for hazardous substances, and for avoiding, remedying or mitigating hazardous discharges. In brief, the eight issues for hazardous substances identified in the Plan that are addressed by objectives 4.1.7 and 4.1.8 are:

1. Potential effects from natural hazard events on hazardous substances storage facilities.
2. Inappropriate storage of hazardous substances.
3. Inappropriate disposal of hazardous wastes.
4. The region lacks a dedicated hazardous waste treatment facility.
5. Some wastes cannot be disposed of within the region.
6. Lack of information about hazardous wastes, and where it is disposed of.
7. There is public concern about the use of 1080.
8. All discharges of hazardous substances must be properly managed.

The policies and methods to address these issues and achieve the objectives are to manage land for unplanned discharges, to avoid remedy or mitigate the effects of hazardous waste and to avoid, remedy or mitigate hazardous discharges.

6.1 Objectives

The Plan has two objectives to manage hazardous substances:

4.1.7 The potential for unplanned discharges of hazardous substances in the Region is minimised, and appropriate action is taken to avoid, remedy, or mitigate the adverse effects of any unplanned discharge that does occur.

4.1.8 Any adverse effects from the planned discharge of a hazardous substance to land, in the course of

1) the use of a hazardous substance; or

2) the disposal of a hazardous waste

are avoided, remedied or mitigated.

The Regional Policy Statement allocated the responsibility for writing objectives and policies for the control of the use of land for the prevention or mitigation of adverse effects of hazardous substances to Greater Wellington. Objectives 4.1.7 and 4.1.8 were adopted to meet this responsibility.

6.2 Implementation of policies and methods

The Plan has 17 policies and 11 methods to achieve objectives 4.1.7 and 4.1.8.

A description of what has been done to implement each of the methods is given in Appendix B. A summary of the policies and methods implementation is given here.

6.2.1 Unplanned discharges

The RMA requires regional councils to allocate land use responsibilities for controlling the effects of hazardous substances between themselves and the territorial authorities in regional policy statements. The Regional Policy Statement for the Wellington Region allocated responsibilities for developing objectives and policies to ourselves, with the responsibility for writing rules given to city and district councils. Accordingly, the Plan adopted six policies about “unplanned discharges” (4.2.25 to 4.2.30) to meet our responsibilities for writing land use control policies as allocated in the RPS. These were intended to guide city and district councils on the rules they would adopt in their district plans, for example, where to locate petrol stations. The extent to which these policies have been taken into account in their resource consent decision-making cannot be determined.

The Plan adopted six policies - policies 4.2.25 to 4.2.30 – to direct the management of unplanned discharges. These were to be implemented by working with city and district councils on district plan provisions, establishing a regional group to share information about hazardous substances management, advocating the policies to industry, encouraging the formation of industry groups on matters like cleaner production, developing plans for spills, and using the enforcement procedures of the RMA to require clean up after “unplanned discharges”. These methods (6.4.1 to 6.4.6), have carried out to a limited degree (see Table 6, Appendix C). Management of places that use or store hazardous substances is achieved by land use controls in district plans.

Methods 6.4.5 and 6.4.6 are implemented by Greater Wellington’s pollution response team. They have procedures, for example, for dealing with oil spills. They also require pollution incidents to be cleaned up by the person responsible. The effects of some pollution incidents cannot be easily remedied or mitigated and so pollution prevention is the better solution.

6.2.2 Adverse effects of hazardous wastes

The Plan identified the following wastes as hazardous (see issue 2.5.3):

- contaminated soil
- sludges from leaded oil, petrol and other petrochemicals

- acids and alkalis
- waste oils
- alum sludges from bulk water
- solvents.

The Plan adopted seven policies to manage the adverse effects of hazardous wastes - policies 4.2.31 to 4.2.37. These were to be implemented by methods 6.4.7 to 6.4.10, which have been implemented to a limited degree.

Greater Wellington is not responsible for hazardous waste management, only for controlling discharges to the environment. Nevertheless, implementation of methods 6.4.3 and 6.4.4 by Greater Wellington, such as working with city and district councils on hazardous waste collection programmes using the HazMobile, running *Take Charge*, and providing information and educational programmes to industry groups and the wider community about ways to reduce hazardous wastes is helping to reduce the potential effects from the inappropriate disposal of hazardous wastes.

City and district councils are required by the Local Government Act 1974 to provide for the collection and disposal of all waste, including unwanted hazardous materials and substances. The city and district councils run annual collections or divert hazardous waste at the landfill and send it for treatment overseas or at private facilities. They collect about 21 tonnes of hazardous waste a year (mostly waste oil). Greater Wellington collected just over 21 tonnes of unwanted agrichemical wastes over two years from 2001 to 2003.

Method 6.4.11 was adopted to implement policy 4.2.39 by ensuring all practical steps were taken to allow people to reduce their own risk of exposure from agrichemicals. Greater Wellington has done this by setting up a database of organic farms and their contacts, in consultation with the main organic certification authorities in the region.

6.2.3 Adverse effects of hazardous discharges

Policies 4.2.39, 4.2.41 and 4.2.42 provide guidance for processing resource consent applications to discharge hazardous substances. The only consents granted for discharges of hazardous substances were for six 1080 aerial applications and one application of waste oil to a road which has since been surrendered. The application of 1080 is well covered by protocols and regulations set by ERMA.

6.3 Effectiveness of Policies and Methods

6.3.1 Unplanned discharges

The Plan differentiates “unplanned discharges” of hazardous substances, which it controls by directing rules in district plans and committing Greater Wellington to carry out particular work, from “planned discharges” which it controls with regional rules directed by policies 4.2.41 and 4.2.42. This

distinction is unnecessary because the definition of “discharge” includes “allow to escape” which covers unplanned discharges that could reasonably have been foreseen.

The policy direction in the Plan for district rules is required by the allocation of land use responsibilities for managing hazardous substances set out in the RPS. This allocation will be reviewed with city and district councils during the RPS review to determine whether having objectives and policies in a regional plan to guide rules in district plans is the most appropriate way of achieving the purpose of the RMA.

Staff report that most unplanned spills of hazardous substances are caused by car crashes or spills at petrol stations. The Incident database shows that the number of spills involving hydrocarbons and hazardous materials has been steadily increasing since 1995 (Forsyth, 2005). In accordance with Method 6.4.6, Greater Wellington’s pollution response team records and responds to all reported hazardous incidents but specific information about the extent to which adverse effects from pollution response incidents occur and are then remedied is not available.

The policies and methods directing the management of “unplanned discharges” of hazardous substances have been partly effective in meeting Objective 4.1.7.

6.3.2 Hazardous waste

City and district councils are responsible for ensuring that waste services are provided in their districts. Wellington City Council, Kapiti Coast District Council and Masterton District Council landfills accept hazardous wastes. Other landfills – Wainuiomata, Silverstream and Porirua do not. Upper Hutt and Hutt City Councils run household hazardous waste collections annually.

With the enactment of the Local Government Act 2002, regional councils are now allowed to deliver services that are the role of city and district councils provided the new service delivery is formally proposed and agreed through the LTCCP process. The informal arrangement made in 1998 that Greater Wellington took the lead in agrochemical waste stream, and city and district councils took responsibility for household hazardous waste would need to be formalised through this process.

Greater Wellington and the city and district councils have cooperated with their efforts to collect hazardous wastes and ensure they are properly treated and safely disposed of. The policies and methods for managing hazardous waste have been reasonably effective in meeting Objective 4.1.8.

6.3.3 Hazardous discharges

The effects of hazardous substances discharged in accordance with a resource consent are controlled by conditions on the consents. The policies and methods for managing hazardous discharges have been effective in meeting Objective 4.1.8.

6.4 Rules

There are six rules for controlling hazardous substances to land. Discharging specified hazardous substances is a non-complying activity controlled by rule 15. Rules 16 and 17 regulate the application of pesticides. Rule 18 allows discharges associated with roading as a permitted activity. Rule 19 requires a resource consent for discharges of water treatment plant waste (controlled activity). Rule 20 requires a resource consent for discharges of waste oil (discretionary activity), and rules 21 and 22 control discharges from contaminated sites.

The permitted activity rules, rules 16 and 18, are not monitored.

No consents have been granted under rule 15 or rule 19, one consent has been granted under rule 20, and two consents have been granted under rule 22.

Six consents have been granted under rule 17, which was assessed by Hill Young and Cooper in their report – *Plan Effectiveness Monitoring, Resource Consents under Regional Plan for Discharges to Land*. They concluded:

- That Greater Wellington consider referring to good practice measures/ relevant codes of practice in rule 17.
- Ensure that monitoring records are up to date in the consents database, so that trends can be noted and areas of non-compliance followed up on.

6.5 Effectiveness of Rules

The effectiveness of the rules in managing discharges of hazardous substances is difficult to assess because the discharges allowed as permitted activities are not monitored, and very few other discharges have been allowed by resource consents.

In the proposed Plan, waste oil application to roads was classified as a Prohibited Activity. This classification was confirmed in decisions on submissions but was appealed by Masterton District Council. The appeal was opposed by the Ministry for the Environment. The view of MDC was that the application of waste oil to roads should be a permitted activity. Rule 20, with its guiding policy 4.2.42, was adopted in the Plan after a Consent Order was agreed between Masterton District Council, Greater Wellington and the Ministry.

It is interesting to note that five years down the track there has been only one application granted for this activity. This application was in the Masterton District, but the consent was surrendered after less than two years. An earlier proposal to apply waste oil to a road beside the Otaki River never resulted in a formal consent application.

More effective policy direction on this activity could be achieved by classifying the application of waste oil to roads, if it is to remain as a specific activity in the Plan, as a non-complying activity.

7. Site contamination

Contaminated sites can contaminate soils, groundwater, plants and animals and have a negative impact on public health. Contaminants can leach into groundwater, run-off to surface water, get carried with wind-blown dust, and taken up by crops grown in contaminated soil.

City and district councils have primary responsibility for managing contaminated land through their land use planning function. Regional councils can investigate land for the purposes of identifying and monitoring contaminated land. These responsibilities were clarified in changes to the RMA in 2005.

In 1992, seven years before the Plan was adopted, a nation-wide study identified that there could be 642 contaminated sites in the region, of which about 141 could be described as “at risk” sites. This assessment was based on historical land uses that could have contaminated the soil.

The Plan has three objectives, eight policies, two rules and six other methods for identifying contaminated sites, lowering the risk to human health from contaminated sites, and minimising the creation of new contaminated sites in the region.

In brief, the five issues for site contamination identified in the Plan that are addressed by objectives 4.1.9 to 4.1.11 are:

1. We lack good information on the location and risks of site contamination.
2. Contaminants may discharge to the environment from contaminated sites.
3. Clean-up of contaminated sites may shift but not solve the problem.
4. Some sites were contaminated by historical owners.
5. Existing activities may create contaminated sites.

The policies and methods to address these issues and achieve the objectives are to identify and manage contaminated sites.

7.1 Objectives

Objectives 4.1.9 to 4.1.11, which deal with site contamination are:

4.1.9 Site contamination in the Wellington Region is identified and characterised, where possible, within three years of the adoption of this Plan.

4.1.10 Any risk to human and environmental health presented by contaminated sites is lowered to an acceptable level or the site is otherwise managed in an appropriate and timely manner.

4.1.11 The risk of any further sites within the Wellington Region becoming contaminated is minimised.

7.2 Policies and Methods

The Plan adopted eight policies and six methods to achieve the three objectives for contaminated sites.

A description of what has been done to implement each of the methods is given in Appendix B. A summary of the policies and methods implementation is given here.

7.2.1 Identification of contaminated sites

Methods 6.5.1 and 6.5.2 implement policies 4.2.43 to 4.3.45, requiring Greater Wellington to identify sites according to a prioritised list given in Policy 4.2.44. The work required by these methods has been done.

In the late 1990s, Greater Wellington began compiling information about sites with a history of using, storing or manufacturing hazardous substances. There is no record of any contaminated site being created in the last ten years. In accordance with policy 4.2.50, sites are recorded on a database according to the following categories:

- (1) Site with a history of storing, using or manufacturing hazardous substances.
- (2) Site where a major spill or other incident involving hazardous substances has occurred;
- (3) Site where analysis of soil or water samples has confirmed that it is contaminated site;
- (4) Site with no identified contamination; and
- (5) Site that was identified in error.

There are more than 1,600 sites on the database. Greater Wellington has investigated sites according to the priority determined in the Plan. This is

- Current and closed landfills
- Old gas works
- Underground storage tanks
- Timber treatment plants and storage tanks
- Munitions and military equipment dumps.

By June 2005, contamination at 136 sites had been managed or cleaned-up, 102 sites had had contamination identified without clean up, and at 36 sites monitoring did not revealed any contamination. About 1,320 sites have not been investigated for the actual level of contamination, so the actual number of sites that may require management is not known.

Wellington City Council is the only territorial authority with a district rule that requires resource consent for an activity on a contaminated site. Other territorial authorities do not require resource consent in those circumstances, though they can now require monitoring and remediation if there is an application for the subdivision or change the use of contaminated land because of the change to the RMA in 2005.

7.2.2 Managing contaminated sites

Methods 6.5.3 to 6.5.6 implement policies 4.2.46, 4.2.47, 4.2.49 and 4.2.50. The work required by these methods has been done and is described here.

Greater Wellington maintains a database of information about at-risk sites. Information from the database is available on-line to city and district councils so that when they assess a proposed change in land use they can decide whether contamination on the site may need investigation. This provides them an opportunity to require adverse effects to be addressed by the site owners before the change in land use is granted.

Greater Wellington has not prepared a strategy for action for contaminated sites as directed by policy 4.2.46, but direction has been provided by the Ministry for the Environment in the New Zealand Waste Strategy.

The Ministry for the Environment is working on a National Environmental Standard for contaminated land, and plan to establish a working group to look into the need for an overarching policy framework for contaminated land. This group will look at the existing policy tools (e.g. guidelines and legislation) and determine the policy gaps that need to be filled.

7.3 Effectiveness of Policies and Methods

7.3.1 Identification of contaminated sites

Greater Wellington has made progress in collecting information about contaminated sites and maintains a database that is available on-line to city and district councils. Work on these methods is making progress on achieving Objective 4.1.9.

7.3.2 Managing contaminated sites

City and district councils are responsible for controlling the subdivision, use and development of contaminated land. Their staff have access to Greater Wellington's database and use the information on it when assessing subdivisions and land use applications. Our records show that officers look at the database about 300 to 400 times per week, but most of this use is by Wellington City Council staff.

Greater Wellington has investigated soil contamination at some of the sites on the database. About 136 sites have been managed for clean-up, 102 are confirmed as contaminated but await remediation and 36 sites have been judged clean. The full number of sites is unknown.

The methods and polices directing management of contaminated sites have been effective in meeting objective 4.1.11, which aims to avoid the creation of new sites, but have not been particularly effective in meeting objective 4.1.10, which aims to lower the risks of contaminated sites to people and environment.

With the recent clarification in the RMA that city and district councils are responsible for managing the effects of land uses on contaminated land, it is questionable as to whether a regional plan is the most effective place for policy guidance about contaminated land to be. More effective – and directive – policy guidance could be given in the regional policy statement, which is currently under review.

7.4 Rules

There are two rules that control the discharges from contaminated sites. Rule 21 permits on-site discharges from contaminated sites, and rule 22 requires a resource consent for discharges associated with the removal of material from contaminated sites. Policy 4.2.48 provides guidance for the assessment of applications made under this rule.

The conditions in rule 21 require that there shall not be any discharge of hazardous substances beyond the contaminated site boundary. Also during remediation there shall be no discharge of hazardous substances from the site boundary. Greater Wellington does not monitor compliance with this rule.

Rule 22 was assessed by Hill Young and Cooper in their report – *Plan Effectiveness Monitoring, Resource Consents under Regional Plan for Discharges to Land*. Only two consents have been granted under rule 22. Hill, Young and Cooper concluded:

- Monitoring undertaken by consent holders does not fully meet the conditions of consent.
- Council needs to keep a record of non-compliance in its database.
- That the non-notification provision be revised to specify when consents shall be considered without written approval.
- To consider including reference to guidelines and relevant codes of practice to cover off the provisions in policy 48.
- That the standards and terms of rule 22 include reference to remediation plan requirements and ANZECC guidelines, to cover-off site remediation.

7.5 Effectiveness of Rules

Feedback from the Regional Rule feedback site (see Appendix C) shows that council staff have identified problems with both rules 21 and 22. Rule 21 allows on-site discharges as long as site monitoring is undertaken, but there are few if any instances where site monitoring is done. Rule 21 does not apply if clause (1) of rule 22 applies, but this is a typo, and should be clause (3) of rule

22. Rule 22 requires a discharge permit for discharges associated with the removal of contaminated material, and the discharge of the contaminated material at another location, but often the contaminated material is taken to a hazardous waste treatment facility over which we have no control.

Discharges of any contaminants that would create a contaminated site are specifically exempted from rule 1, triggering the need for a resource consent by rule 2 (discretionary activity). Rule 22 should only be concerned with discharges at the contaminated site. Regional rules about the disturbance of soil at contaminated sites, and the deposition of soil from contaminated sites somewhere else, could be written in accordance the regional council function to control land use for the maintenance and enhancement of the quality of water in water bodies and coastal water. Writing rules in this way would be much clearer - in terms of the activity and the effects we are controlling - than these discharge rules which have proved to be very difficult to apply in the field.

Neither rule is being effective in meeting Objective 4.1.10.

8. Other rules (rules 1 and 2)

Rule 1 is a permitted activity rule for controlling discharges of contaminants not entering water. The rule is not specifically monitored by Greater Wellington, but many comments about the rule have been recorded on the regional rule feedback site – see summary in Appendix C. The rule has a typographical error that has caused problems with its interpretation.

Rule 1 is working effectively as a trigger for requiring consents by rule 2, where contaminants may enter water. Rule 2 is the general default rule for all discharges of contaminants to land that do not comply with rules elsewhere in the Plan, or where the discharge will contaminate water in a water body, farm drain, water supply race or coastal marine area. Discharges containing human sewage, and discharges to landfills are excluded from rule 2 and are covered by rules 8 and 10.

Rule 2 was assessed by Hill Young and Cooper in their report. Forty-nine consents have been granted under rule 2, mostly for discharges of industrial waste or stormwater. Hill, Young Cooper concluded:

- That Council consider including discretionary activities for each individual discharge type (e.g. stormwater, industrial waste) as these activities often have individual matters to consider in an AEE – rather than a "catch-all" Discretionary Activity.
- That Council considers the inclusion in rule 2 for the consideration of applicants of alternative ways to re-use or recycle waste whether it is liquid or solid.
- That Council consider including policies that are specific or relate to stormwater, industrial waste discharges to land – rule 2 relies heavily on assessing applications under policies that currently do not apply.

- That Council considers including in rule 2 (or the discretionary rule applying to the individual discharge type) more explanation about what monitoring is required for each individual consent type and the matters which Council has discretion over.
- Council may also consider improved monitoring of current permits granted as discretionary activities – note that five stormwater permits granted between 1999-2004 have not been visited.

9. Summary of effectiveness

9.1 Solid contaminants

The Plan has two objectives, 11 policies, two rules and 12 other methods to manage the discharges of solid contaminants to land. This section of the Plan deals with landfills.

Before the RMA was enacted, landfills were not required to have discharge permits. The transitional provisions of the RMA set out a timeframe for consenting all waste management facilities, and the Plan set out the policies and rules that would govern landfill consent requirements. Today all landfills have resource consents and are managed in accordance with national guidelines.

Other than the requirement for resource consents, improvements made in solid waste management have been largely in response to direction from the Local Government Act 1974, the New Zealand Waste Management Strategy (2002), and new programmes from central government like the Packaging Accord. Nevertheless, the Plan's policies and methods are consistent with these central government initiatives, which aim to reduce waste volumes sent to landfills and increase waste recycling and waste recovery programmes.

The policies and methods for solid contaminants have been effective in meeting the objectives 4.1.1 to 4.1.3. Rules 9 and 10 for composting operations and landfill sites appear to be working effectively.

9.2 Liquid contaminants

The Plan has two objectives, eight policies, six rules and eight other methods to manage discharges of liquid contaminants to land. This section of the Plan deals mainly with sewage.

The Plan promoted more co-ordinated management of on-site sewage discharges between Greater Wellington and the territorial authorities. Working towards this, Greater Wellington staff have run seminars and workshops for territorial authority staff and on-site wastewater engineers, made submissions on district plans and subdivision consent applications, and produced brochures for homeowners and guidelines for system designers. These measures have improved the quality of systems installed with new developments, though the effects of these and older systems are still relatively unknown because our state

of the environment monitoring network was not designed to assess the effects of on-site sewage discharges.

On-site sewage discharges are suspected to be the cause of bacteria and nutrient contamination of groundwater at Te Horo, coastal water at Pauatahanui, and surface water at Makara and Riversdale. We estimate that there could be around 10,000 on-site sewage systems in the region because there are at least 40,000 people not served by reticulated sewerage. More investigation is needed to assess whether the rules are effective in managing the effects of discharges from these systems. A programme to monitor the performance of five on-site sewage systems at Riversdale was started in 2004 and some targeted monitoring is planned for 2006-2007.

The Ministry for the Environment is investigating the appropriateness of developing National Environmental Standards (NES) for managing on-site sewage systems. Any change to the rules in the Plan will need to take into account the results of the targeted monitoring, and any NES that are produced.

9.3 Agricultural contaminants

The Plan has one objective, five policies, four rules and ten other methods to manage discharges of agricultural contaminants to land. This part of the Plan deals mostly with agricultural effluent and pastoral run-off.

More than half the resource consents issued under the Plan are for discharges of dairy shed effluent, granted under rule 13 of the Plan as a Controlled Activity. The Plan encouraged the shift of these discharges from water to land by requiring them to be processed non-notified. Together with other incentives – lower monitoring costs and longer consent periods – the practice of discharging dairy shed effluent to rivers and streams has ended and the effects of dairy shed effluent on the environment has reduced.

Most dairy farms are in the Wairarapa Valley and on the Kapiti Coast. These same areas are identified in the Plan as having groundwater that is vulnerable to contamination, but rule 13 has no specific guidance about appropriate nitrogen loading rates. More investigation is required into the effects of discharges to land in these vulnerable areas.

One of the targets in the Dairying and Clean Streams Accord is for all dairy farms to undertake nutrient budgeting. We will need to determine whether a replacement rule should include a standard for nitrogen loading in areas where groundwater is vulnerable, and work with Fonterra to investigate how best to accommodate the nutrient budgeting target from the Accord.

We have little information about the effects of discharges of effluent from the eight piggeries in the region, all of which discharge to land. These discharges are capable of causing significant effects on groundwater and surface water and may be more effectively controlled by a separate rule with more specific guidance. The rule needs to consider the effects of objectionable odour from effluent applications so that the overlapping rule in the Regional Air Quality Management Plan can be removed.

Rule 12 allows fertiliser applications as a permitted activity along with a requirement for Greater Wellington to investigate where fertiliser use may be contributing to nitrogen contamination of groundwater. This investigation will need to be done before options to change the rules governing agricultural effluent and fertiliser application are canvassed.

9.4 Hazardous substances

The Plan has two objectives, 17 policies, six rules and 11 other methods for avoiding, remedying or mitigating the effects of the use land for hazardous substances, and for avoiding, remedying or mitigating hazardous discharges. This part of the Plan deals mainly with allocating land use responsibilities as required by the Regional Policy Statement for the Wellington Region (1995).

The RMA requires regional councils to allocate land use responsibilities for controlling the effects of hazardous substances between themselves and the territorial authorities in regional policy statements. The Regional Policy Statement for the Wellington Region (1995) allocated responsibilities for developing objectives and policies to Greater Wellington, with the responsibility for writing rules given to city and district councils. Accordingly, objectives, policies and methods were adopted in the Regional Plan for Discharges to Land, and these were intended to guide city and district councils on the rules they would adopt in their district plans, for example, where to locate petrol stations. The extent to which these policies have been taken into account in their resource consent decision-making cannot be determined.

Greater Wellington is not responsible for hazardous waste management, only for controlling discharges to the environment. Nevertheless, implementation work by Greater Wellington, such as funding the HazMobile and running *Take Charge*, is helping to reduce the potential effects from the inappropriate disposal of hazardous wastes.

9.5 Site contamination management

The Plan has three objectives, eight policies, two rules and six other methods to guide the management of contaminated land.

City and district councils have primary responsibility for managing contaminated land through their land use planning function. This allows them to control land uses to prevent or mitigate any adverse effects of the development, subdivision, or use of contaminated land. Greater Wellington controls all discharges to the environment, including discharges from contaminated sites. A change to the RMA in 2005 now allows regional councils to investigate land so that they can identify and monitor contaminated land.

Rules 21 and 22 of the Plan control discharges from contaminated land, but have proved difficult to apply in the field. It would be more straightforward if these regional rules were less prescriptive and applied to any discharges, with rules adopted in district plans, as they are in the Wellington City Council District Plan, to control activities on contaminated land. Alternatively, new

regional rules could control the disturbance of soil on contaminated land, and the deposition of soil from contaminated sites elsewhere. Such rules would be allowed in accordance with our function to control land uses to maintain and enhance water quality. Regional rules about earthworks may not be able to address other effects on the environment, including effects on people. These effects would have to be controlled by rules in district plans.

Any changes to the rules controlling discharges from contaminated sites should wait until the upcoming National Environmental Standard for contaminated land has been finalised.

9.6 General effectiveness

There are some rules in the Plan that overlap with, or have confusing integration with rules in the Regional Freshwater Plan. Of greatest concern are rules 1 and 3, with regard to stormwater discharges.

Rule 1 allows stormwater to be discharged into stormwater pipes without any conditions. This leaves the controls on stormwater to the end of the pipe, where the discharge enters fresh water or coastal water. If anything other than stormwater is discharged into a stormwater pipe it is a discharge of a contaminant to land where the contaminant will enter water and is not allowed without a resource consent.

The rules were constructed in this way so that stormwater isn't regulated at both ends of the pipe, and so that if someone discharges oil or some other contaminant into a stormwater pipe, enforcement action can be taken against them. This position was arrived at to address submissions on both the Regional Freshwater Plan and Regional Plan for Discharges to Land. Since then, staff experience has revealed a loophole where sediment-laden stormwater from sites with extensive earthworks can lawfully be discharged into a stormwater pipe, causing adverse effects at the point of discharge.

A recommendation in the evaluation of the Regional Freshwater Plan is that the rules for stormwater discharges are fully reviewed in 2009. Starting in 2001, Greater Wellington commissioned several studies to establish the effects of stormwater discharges. Greater Wellington will be in a position to review the stormwater rules once some more studies have been completed, and when the Stormwater Action Plan, currently in preparation, is complete. The review of the stormwater rules is likely to be done as part of the full review of the Regional Freshwater Plan, and it is sensible to coordinate the review of the Regional Plan for Discharges to Land with that review.

10. Recommendations

This evaluation, like the evaluation of the Regional Freshwater Plan, highlights limitations in our ability to monitor the efficiency and effectiveness of our regional plan provisions. The Information Technology Department has now completed a review of Greater Wellington's resource management databases and a new integrated database is in the process of being designed.

With no specific monitoring programme for monitoring permitted activities we have little information on their effects, or whether people comply with them. Additional resources to address this limitation are proposed in the LTCCP.

The evaluation of the Plan is a check on how well it is performing. In general, we have found that the Plan provisions are working well but with nearly six year's experience implementing the rules, it appears that almost all rules would benefit from at least minor changes. These changes will need to be considered when the Plan is formally reviewed, and are dependent on:

- additional work (monitoring and assessment) to determine whether the rules governing discharges from on-site sewage systems are effective, and whether we need to develop standards for nitrogen application rates in the rule for agricultural effluent discharges to protect areas where groundwater is vulnerable;
- the content of upcoming National Environmental Standards for on-site sewage management and contaminated land;
- the outcomes of the Regional Policy Statement review of land use control responsibilities for hazardous substances; and
- integrating the review with that of the Regional Freshwater Plan to reduce potential for overlaps.

During consultation on the Regional Policy Statement review, we will consult with staff from city and district councils about whether it is appropriate for policy guidance about land use controls on hazardous substances to remain with Greater Wellington. The Regional Policy Statement is timetabled for public notification in September 2007. We are required to begin the full review of the Regional Plan for Discharges to Land before December 2009, ten years after it became operative. This review fits well with accommodating the outcomes of policy decisions in the Regional Policy Statement.

11. References

- Forsyth, K (2005) *Waste management and hazardous substances background report*. Greater Wellington.
- Greater Wellington (2005). *Measuring up: The state of the environment report for the Wellington region 2005*. Greater Wellington.
- Hill, Young, Cooper (2005). Plan effectiveness monitoring – resource consents under the Regional Plan for Discharges to Land.
- Jones, A., and Baker, T. (2005). *Groundwater monitoring technical report*. Greater Wellington.
- Milne, J. (2005) *Rivers water quality monitoring technical report*.
- Ministry for the Environment (2002) *New Zealand Waste Management Strategy*.

12. Appendix A – Pollution incidents reported to Greater Wellington

The incident database records the location, type of incident, response, effect on the environment etc. There are two databases. The original database was designed in ACCESS and records all incidents reported between 1995 and February 2003. A new database covers all incidents from February 2003 to present. The first version did not record which Plan (or rule) was affected in an incident. The updated database does record this information and any further work that was followed-up by officers.

The graph below is a summary of all incidents that have ‘land’ as the sink (the sink is the sort word for classifications of activities within the database) from when the Plan was made operative (17/12/99) to February 2003 – old database.

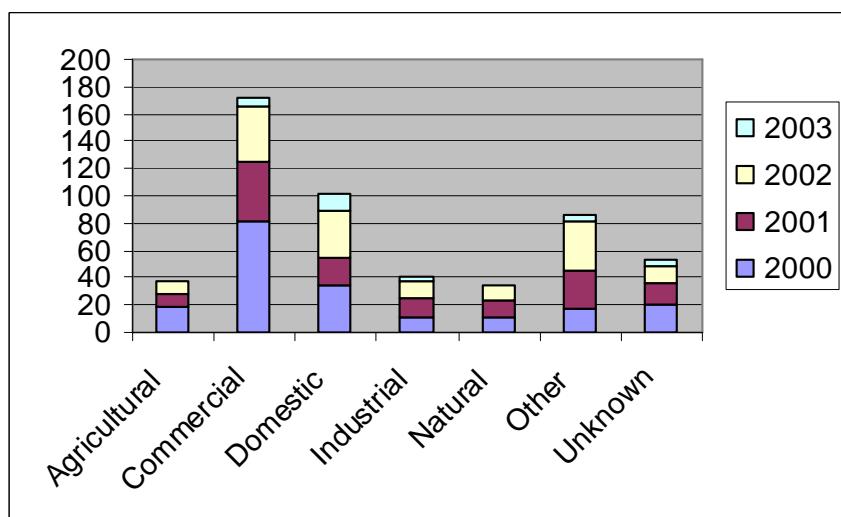


Figure 1 Summary of all incidents involving land 1999-2003

The categories of incidents are: agricultural, commercial, domestic, natural other and unknown. Incident numbers reached a peak in 2000, and 2001 for commercial incidents. Domestic incidents were also high over the years 2000 to 2002. In 2003, the lowest number of ‘land’ incidents was recorded. Because this database is not linked to any regional plan, it is difficult to assess what incident has breached a rule in the Regional Plan for Discharges to Land. In some cases, incidents may relate to other regional plans, but have been classified as a ‘land’ incident for the database.

The updated database has a similar method for defining land based incidents, i.e., sink=land. There is no reference to regional plans or rules in this database, but it has other fields that link to regional plans through POWERDOC files. An examination of all ‘land’ category incidents since February 2003 to 31/12/04 is shown in Figure 2 below.

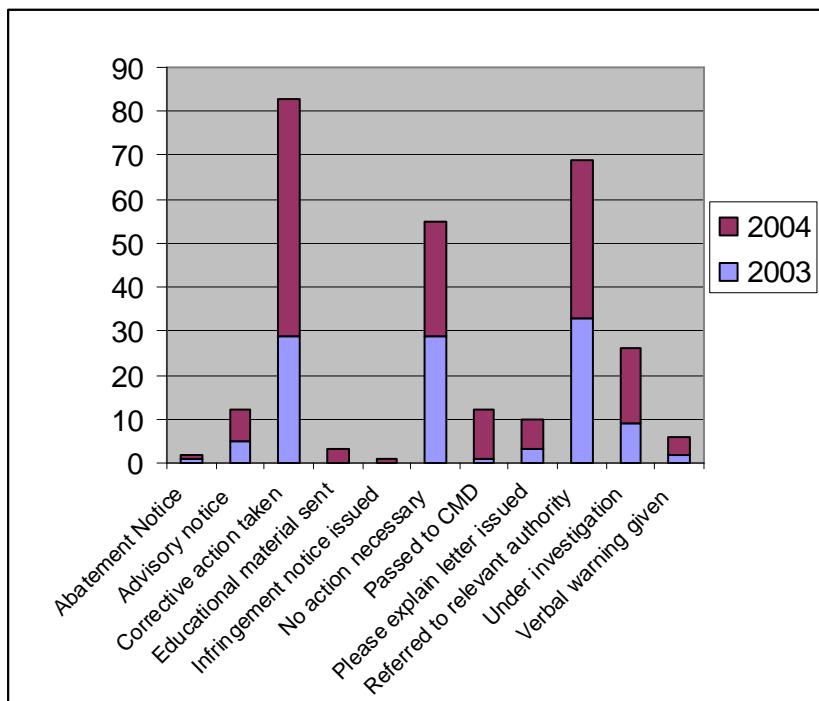


Figure 2 Summary of all incidents involving land 2003-2004

Additional information recorded on the database that helps assess the effectiveness of policies in regional plans is whether any enforcement action was taken. For example: Abatement notice, Infringement notice, passed to CMD (Consents), Please explain letter issued, and Under Investigation. This is shown in Figure 3 below.

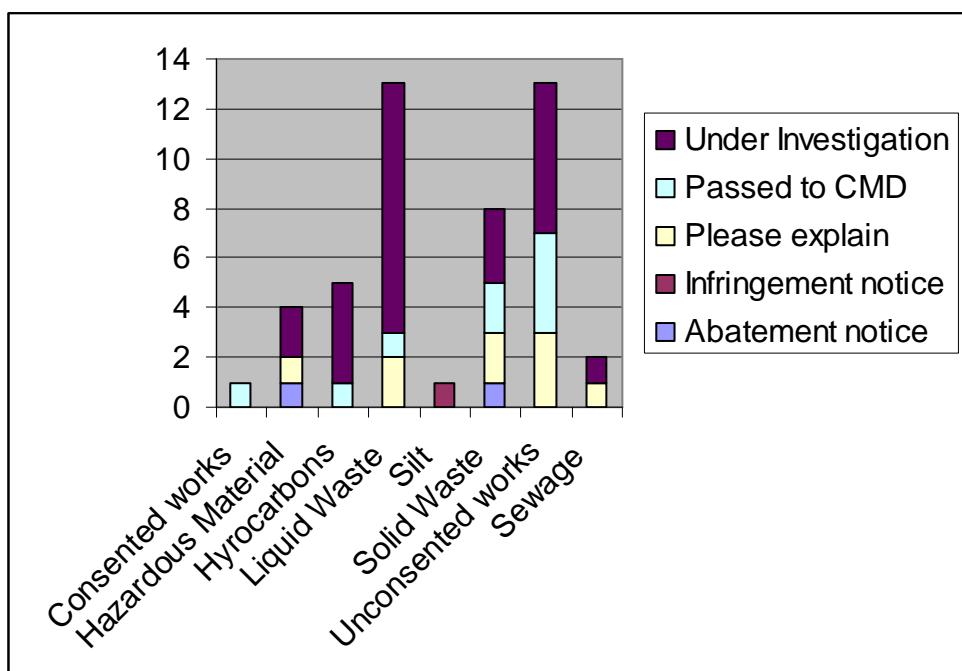


Figure 3 Action taken, including enforcement

Figure 3 shows that most incidents to land are caused by liquid waste and unconsented works. The number of solid waste discharges is also high, followed by hydrocarbon spills. An examination of the files for these incidents reveals that 13 incidents refer to rule 1 of the Discharges to Land Plan, and the remainder two incidents are for Rules 21 and 22 of the Plan. Two of the incidents were not immediately cleaned up by the spiller so abatement notices were issued.

In summary, most of the incidents recorded related to rule 1 of the Regional Plan for Discharges to Land. Enforcing this rule has been effective in preventing adverse effects of waterways.

13. Appendix B – Assessment of method implementation to 2004

Plan methods are recorded in the Regional Plan Method Implementation Database. This database holds information on the actions of officers and others in fulfilling the methods since the plan was made operative. The database is updated each year.

Table 1 Solid contaminants

Method	Related Policies	Method Description	Implementation Assessment to 2004	Achieved?
6.1.1	4.2.2	GW will undertake waste energy audits of its operations to reduce waste and cleaner production.	GW has conducted its own energy audit and there has been a recent waste audit. Both audits have lead to reductions in waste and energy consumption.	In part
6.1.2	4.2.1, 4.2.2	Advocate the principles of cleaner production and waste minimisation to the wider community.	GW has a number of initiatives – Take Care; support of Business Care; Enviromart; Cleaner production and so on.	In part
6.1.3	4.2.2	Liaise with the cleaner production association	Comments made are as above.	In part
6.1.4	4.2.2	Support cleaner production projects	Comments same as 6.1.2	In part
6.1.5	4.2.2	Liaise with central government over cleaner production strategies etc.	Officers are involved in WREA, Biosolids working group, Enviromart, working with TA's on their waste management plans.	Yes
6.1.6	4.2.3	Undertake research where appropriate on alternative technologies, waste reduction, and waste disposal.	Working with TA's on reducing waste and achieving the targets set by the NZ Waste Strategy.	Yes

Method	Related Policies	Method Description	Implementation Assessment to 2004	Achieved?
6.1.7	4.2.4	Develop guidelines for composting operations	New Zealand Standards Authority prepared standards for composting in 2005. This included consultation with central government and regional councils.	Yes
6.1.8	4.2.5	Support investigations of for regional and sub-regional waste treatment facilities.	Landfills are managed by the TA's. GW has been involved in discussion for a regional waste management system for the Wairarapa. For other councils it has been involved as part of any consenting responsibilities.	In part
6.1.9	4.2.6, 4.2.7	Co-ordinate the application process for the various resource consents required for landfills in the region	All operating landfills have current consents.	Yes
6.1.10	4.2.8	Investigate illegal landfills and invoke enforcement action as required.	Any illegal activities at landfills are investigated by pollution response and infringement or other enforcement action is instigated.	Yes
6.1.11	4.2.9	Improve landfill leachate monitoring in the region.	GW monitors leachate from landfill sites. Further investigations have been on-going through the contaminated sites reviews, but not for closed landfills.	In part
6.1.12	4.2.9	Co-ordinate implementation of the waste analysis protocol.	GW has been involved in the Wellington waste management protocol any further use of it will be up to city and district councils.	Yes

Table 2 Liquid contaminants

Method	Related Policies	Method Description	Implementation Assessment to 2004	Achieved?
6.2.1	4.2.17	Education of home owners for on-site sewage.	On-site Sewage Guidelines and a sewage brochure series were produced in 2000. Little progress has been made since.	In-part
6.2.2	4.2.16	To mitigate the effects on groundwater, Council will use enforcement action to ensure home owners use on-site sewage systems correctly.	Regulatory action is initiated where necessary. Action is co-ordinated with TA's concerned.	Yes
6.2.3	4.2.15	Work with TA's to ensure provisions as made in DP's.	Submissions to plans and consents are made as required.	Yes
6.2.4	4.2.15	Use s33 transfer powers to complement TA's responsibilities under the Act.	Discussed with territorial authorities but not progressed.	No
6.2.5	4.2.16	Continue to monitor the environment to find where discharges may be entering waterbodies.	Water monitoring is ongoing.	Yes
6.2.6	4.2.19	Monitor soils in the region to find where discharges might be having an effect.	There have been two soil health monitoring initiatives by GW since 1999. They are 500 soils monitoring programme, and the visual soils monitoring programme. The monitoring sites are not located in areas affected by discharges to land.	No
6.2.7	?	Promote compliance with the response	Manual is promoted by the Pollution response	Yes

Method	Related Policies	Method Description	Implementation Assessment to 2004	Achieved?
		manual for sewage discharges.	team.	
6.2.8	?	To promote adherence to guidelines.	New guidelines were written for the Wellington region, in 2000. These are promoted by officers in consents, pollution response, and TA's.	Yes

Table 3 Agricultural contaminants

Method	Related Policies	Method Description	Implementation Assessment to 2004	Achieved?
6.3.1	4.2.22	Develop agricultural waste guidelines.	The Dairying and Environment Committee at Lincoln have reviewed the Agricultural Waste guidelines and will produce a revised version in 2006.	Yes
6.3.2	4.2.20	Support landowners to act together to reduce agricultural waste on waterways.	There has been a variety of work programmes to assist landowners in reducing effluent entering waterways, e.g. <i>Take Care, Streams alive</i> , farm field days, riparian pilot programmes in Carterton and Waikanae, and support for the Dairying and Clean Streams Accord.	In part
6.3.3	4.2.24	Promote the use of the esplanade reserve of the RMA to reduce effects on waterways.	This is achieved through statutory advocacy. There appears to be some resistance by councils because of the potential costs involved, e.g. at Duck Creek in Pauatahanui.	In part

Method	Related Policies	Method Description	Implementation Assessment to 2004	Achieved?
6.3.4	4.2.24	Investigate the differences between non-point source and point source pollution	Some work has been done to understand the effects of agricultural effluent on groundwater zones in the Kapiti coast and Wairarapa. Investigations were also done to derive the origins of nitrogen in groundwater, whether it is organic or inorganic (fertiliser).	In part
6.3.5	4.2.20	Include provisions in other regional plans to promote land management practices.	Methods have been adopted in the Regional Freshwater Plan and the Regional Soil Plan.	Yes
6.3.6	4.2.22	Investigate a regional programme for collection and disposal of unwanted agrochemicals.	A collection of ‘unwanted agricultural chemicals’ was made in 2001-2003 across the region.	Yes
6.3.7	4.2.24	Review in 3 yrs time the need for more regulations to control non-point source pollution.	Ways to control non-point source pollution were investigated during the development of Greater Wellington’s riparian management strategy. The decision was made to promote appropriate land use and streamside management.	Yes
6.3.8	4.2.22	Advocate the policies and guidelines of this Plan to the farming community.	There is on-going advice given to the farming community during farm inspections, when staff attend educational visits etc and at field days.	Yes
6.3.9	4.2.24	Provide information on the appropriate methods of fertiliser use.	There has been little work on this method. Some testing has taken place and preliminary results are available. Greater Wellington is participating in	In-part

Method	Related Policies	Method Description	Implementation Assessment to 2004	Achieved?
			the national Wise Use of Nitrogen studies. Results from these studies will be provided to the farming communities.	
6.3.10	4.2.24	Investigate where groundwater is vulnerable to fertiliser usage.	As for Method 6.3.9 above, there has been little work on this method. Some testing has taken place and preliminary results are available. Greater Wellington is participating in the national Wise Use of Nitrogen studies. Results from these studies will be provided to the farming communities.	In-part

Table 4 Hazardous substances

Method	Related Policies	Method Description	Implementation Assessment to 2004	Achieved?
6.4.1	4.2.25	Work with TA's to have appropriate provisions in district plans.	Relevant submissions have been made.	Yes
6.4.2	4.2.29	Set-up a working group to improve information swapping and identification of issues.	GW is a member of the Hazardous Substances Technical Liaison Committee and facilitated the waste managers' group. Waste officers continue to be involved in both groups (although the waste managers groups is now morphed into the RPPCF). All matters of any hazardous consequence are discussed in these forums and	Yes

Method	Related Policies	Method Description	Implementation Assessment to 2004	Achieved?
			meetings.	
6.4.3	4.2.30, 4.2.33	Advocate and provide information to industry groups.	Information is provided via <i>Take Charge, Be the Difference</i> , by individual officers providing advice and written information, and on the GW website.	Yes
6.4.3	4.2.30, 4.2.33	Advocate and provide information to industry groups.	Information is provided via the GW website, by individual officers providing advice and written information in the form of pamphlets etc.	Yes
6.4.4		Set-up a working group to improve information swapping and identification of issues.	Officers continue to be involved with the Business Care programme, and Greater Wellington's Take Charge programme. Funding is also provided for the Enviromart centre in Porirua and the Hazmobile used by Hutt City. Officers keep up-to-date with cleaner production initiatives and the dry cleaning industry.	
6.4.5	4.2.30,	Develop contingency plans for spills provide technical assistance to emergency services. Do work via the HSTLC.	Incident response manual has been revised since 1999. Officers advise NZ Fire Service. Ongoing work with Transit NZ over accidental spills from state highways.	Yes
6.4.6	4.2.29	Invoke emergency provisions of the Act for unplanned spills and discharges.	This method is implemented when necessary.	Yes
6.4.7	4.2.32, 4.2.34	Investigate the feasibility of a hazardous waste treatment facility. And investigate	Report commissioned in 1998, and a committee (RHWLC) was given the task to develop a regional approach. No action since because TA's	Yes

Method	Related Policies	Method Description	Implementation Assessment to 2004	Achieved?
		co-disposal at regional landfills.	have not progressed the matter.	
6.4.8	4.2.33	Promote adherence to the Centre of Advanced Engineering Guidelines for co-disposal.	These guidelines are used by Consents Management and Pollution Response.	Yes
6.4.9	4.2.37	Liaise between regional councils over the transportation of hazardous wastes.	Controls on the transport of hazardous waste are not controlled by regional councils. Issues concerning spills from transport are addressed through the RPPOF group.	Yes
6.4.10	4.2.27, 4.2.28, 4.2.31, 4.2.32, 4.2.35, 4.2.3, 4.2.38,	Work with TA's to prepare a register of places that store hazardous wastes.	Greater Wellington administers the Selected Land Use Register of sites with a history of storing or using hazardous substances. Most information on database has been supplied by the territorial authorities.	Yes
6.4.11		With organic farmers, establish a register, involve farmers in pest eradication, and promote the use of DoC register.	A full list of organic farmers is held by the Council and updated regularly. List is useful for DoC and Biosecurity staff doing 1080 drops.	Yes

Table 5 Site contamination

Method	Related Policies	Method Description	Implementation Assessment to 2004	Achieved?
6.5.1	4.2.23, 4.2.24	Desk-top exercise to identify hazardous sites	The regional database was set up almost immediately, to be populated with sites identified as having hazardous activities or industries (HAIL sites). A regional strategy and memorandum of understanding were also developed to guide development of the database and data collection. TA's have on-line access to the database.	Yes
6.5.2	4.2.25	Implementation of a regional database of hazardous sites		
6.5.3	4.2.46	Development of contamination testing techniques	Ministry for the Environment officers consulted with the Regional Waste Offices Forum for the preparation of the guidelines for the testing of different hazardous industries, i.e., timber treatment. These have been taken up to a limited degree. A limited amount of work has been completed for landfill sites.	Yes
6.5.4		Assessment of the degree of contamination of sites		
6.5.5	4.2.43, 4.2.47, 4.2.49, and 4.2.50	Development of procedures for transferring the information from the regional databases to territorial local authorities. Work with TA's for provisions in district plans	There is a memorandum of understanding was developed between GW and all TA's. Submissions are made on district and city plans as required.	Yes
6.5.6				

14. Appendix C – Summary of the regional rule feedback forum

Greater Wellington’s Regional Rule Feedback forum on the intranet allows staff to record problems, comments, and anything else that occurs to them about the rules of the Plan. Some key points raised about the Regional Plan for Discharges to Land are:

1. There is confusion about how Rules 1 and 3 (stormwater) work together, and individually (both are stormwater related). Rule 1 is about discharges to land not entering water however confusion has occurred over discharges from subdivisions to stormwater pipes maintained by city councils. Rule 3 covers a combination of stormwater, sewage, and treated water. The addition to clause (c) – (ca), is problematic as it implies that interceptors (where used) can discharge to a trade waste system. This is not what was intended and may require amendment.
2. Rule 6 applies to aerobically treated effluent systems, including composting toilets. The restriction on people entering the disposal area may be unnecessary and the buffer distance to neighbouring properties may be overly conservative.
3. Rule 7 (on-site sewage) has a confusing relationship with rule 6.
4. Standards in rule 13 do not cover the rate of nitrogen application. This makes it difficult to apply conditions that would limit nitrogen leaching. The non-notification provision of the rule means that consents can be granted without written approval of neighbours. They are affected and consents can be processed with “limited notification” if any withhold their approval.
5. For rules 21 and 22 (contaminated sites) there are typos in clauses, and potentially difficult monitoring requirements for consent holders.

Table 6 Summary of staff comments recorded on Greater Wellington's regional rule feedback forum

Rule number	Rule description	Problem identification	Comment
1	Permitted Activity: Discharges of contaminants not entering water	Silt entering waterways from subdivisions; rule is not effective.	A jurisdictional problem for control of contaminated stormwater. City and district councils not controlling silt effectively – but GW powerless under this rule.
		Silt from subdivisions; rule is not working.	Developers are discharging silt to land to avoid gaining consent. City and district councils are not controlling silt effectively.
2	Discretionary Activity: Discharges of contaminants not otherwise provided for	None	
3	Permitted Activity: Stormwater	Interceptor devices for hazardous substances, i.e., petrol stations. Rule could be better worded. Implies that trade waste system will deal with Hazchem.	Rule could be improved to prevent trade waste system being used for Hazchem.
		Interceptors	Add definition of 'Interceptor' to the Plan.
4	Permitted Activity: Discharges of greywater	Definition of greywater restricted to domestic sources	Definition could be widened to apply to more situations where greywater is used.
5	Permitted Activity: Pit Latrines		
6	Permitted Activity: Aerobically treated sewage	Application to aerated systems	Confusion whether rule actually applies to aerated

Rule number	Rule description	Problem identification	Comment
	discharged on-site		systems.
		Separation distances	For trickle irrigation the separation distance should be reviewed.
		Minimum lot size	A minimum lot size could be introduced to improve the efficiency of soakage areas. Presently none exists hence there can be more than one soakage area per small lot.
7	Permitted Activity: On-site sewage treatment and disposal	Related to rule 6 above	
8	Discretionary Activity: Discharges containing human sewage not otherwise provided for:	None	
9	Permitted Activity: Refuse disposal and composting	None	
10	Discretionary Activity: Landfills, rubbish dumps and tips	None	
11	Permitted Activity: Offal Pits and silage		No comments
12	Permitted Activity: Application of Fertiliser	Code of practice difficult to understand and enforce	Poor control of off-site effects from top-dressing.

Rule number	Rule description	Problem identification	Comment
13	Controlled Activity: Agricultural Effluent	Nitrogen loading	No standard on nitrogen loading limit. This is needed so that conditions can be applied to discharge permits without relying the vague area of control “the method and rate of application”. Also, with dairy farmers being encouraged to do nutrient budgeting, a nitrogen limit would help GW work with farmers to determine the most appropriate area needed to accommodate the effluent volumes.
		Chicken manure/chicken waste	Rule doesn't apply to poultry farm waste as implied because it is not liquid, yet nitrogen from stockpiled poultry farm litter can leach to groundwater.
		Piggery effluent	There is at least one very large piggery in the region that produces high volumes of effluent. This has the potential to cause significant adverse effects on groundwater and on the neighbours. It should be classed as a discretionary activity so that all effects and mitigation measures can be considered.
		Affected parties	Written approvals of affected parties are explicitly not required – yet some are directly affected by odour etc. This is particularly the case with piggery effluent.
		Odour permit required from RAQMP (R23)	Unnecessary duplication
		New rule required for discharges of small quantities of effluent from stock trucks	See new proposed rule

Rule number	Rule description	Problem identification	Comment
14	Permitted Activity: Discharges of stock dip		No comments
15	Non-complying activity: Specified hazardous substances	None	
16	Permitted Activity: Pesticides as solids or pastes, land based application	None	
17	Controlled Activity: Aerial application of pesticides as soils or pastes	None	
18	Permitted Activity: Discharges associated with roading and other sealed areas	None	
19	Controlled Activity: Water treatment plant waste	None	
20	Discretionary Activity: Waste oil		Activity should be non-complying so that applicants better understand the level of AEE required, and the level of monitoring that would be required if the consent is granted.
21	Permitted Activity: On-site discharges from	Rule is deficient in many areas.	Rule requires a complete review and rewrite.

Rule number	Rule description	Problem identification	Comment
	contaminated sites	<ol style="list-style-type: none"> 1. definition of contaminated site 2. Typo in clause (1) 3. Overlap between rule 22, and rule 2 4. Closed landfills are missed by rule 5. Monitoring for rule is extensive. 	
22	Controlled Activity: Removal of material from contaminated sites	<p>Rule has many and various problems, the main areas of concern are:</p> <ol style="list-style-type: none"> 1. Inconsistencies with rule 21. 2. Definitions 	Rule requires review and rewriting. A new proposed rule has been drafted by Kirsten Forsyth and Bruce Croucher.