



Ministry for the
Environment
Manatū Mō Te Taiao

Consented Non-levied Cleanfills and Landfills in New Zealand

Project Report

This report may be cited as:
Ministry for the Environment. 2011. *Consented Non-levied Cleanfills and Landfills in New Zealand: Project Report*. Wellington: Ministry for the Environment.

Published in July 2011 by the
Ministry for the Environment
Manatū Mō Te Taiao
PO Box 10362, Wellington 6143, New Zealand

ISBN: 978-0-478-37244-1

Publication number: ME 1061

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www.mfe.govt.nz

Contents

Executive summary	5
1. Introduction	7
2. Key findings	9
3. Methods	10
4. Information gathered for this report	11
4.1. Waste disposal quantities to cleanfills	11
4.2. Consenting requirements for cleanfills	11
4.3. Resource consent application levels and resource consent details	13
4.4. Waste composition and compliance	17
4.5. Enforcement	20
4.6. Costs of disposal	21
5. Conclusions	23
Appendix: Summary of compliance by region	24

Tables

Table 1	Summary of resource consent requirements and consistency with guidelines	12
Table 2	Number of consented facilities by region	14
Table 3	Consent conditions, waste acceptance criteria, and monitoring undertaken by region	17
Table 4	Compliance with monitored resource consents before and after July 2009	18
Table 5	Cost of disposal at cleanfills before and after July 2009 when the waste disposal levy was introduced	21
Table 6	Compliance with resource consents for sites accepting cleanfill	24

Executive summary

The waste disposal levy was introduced in July 2009. This report presents information about consented cleanfills and landfills in New Zealand that are not subject to the levy. All regional councils and unitary authorities in New Zealand supplied information for this study.

Information is presented about the status and performance of these facilities before and after the introduction of the levy. Factors considered are:

- the number of consented facilities
- the quantities of waste disposed of
- the cost of disposal
- the consistency with Ministry for the Environment's *Guide to the Management of Cleanfills* (2002)
- the level of compliance with conditions of consents.

This report shows that:

- the number of consented fills has increased 5% from 167 to 176 since July 2009
- it is not possible to obtain any accurate information or a reliable estimation of waste quantities sent to these facilities
- it very difficult to see whether charges have changed since 2008. There is a large regional variation but not much change over time
- there is a high level of consistency with the cleanfill guidelines
- full compliance with conditions about acceptable waste has increased from 71% to 74% of all facilities monitored, with most of this because incidents of minor non-compliance decreased by 6%; incidents of sites that were non-compliant increased by 3%.

All councils:

- require compliance with the cleanfill guidelines in a regional rule, or
- require compliance with conditions similar to the waste acceptance criteria in the Guidelines, or
- have the power to require compliance with waste acceptance criteria through conditions on resource consents.

Not counting minor non-compliance incidents where small quantities of prohibited waste were found during monitoring inspections and later removed, the councils that regularly monitor cleanfills found that non-compliance increased from 11 sites in the two years before the introduction of the levy to 14 sites afterwards.¹ This represented 10% and 13% of monitored sites.

Another matter of concern is that Southland Regional Council is the only council regularly monitoring cleanfills that consistently finds good compliance. Seven councils do not routinely monitor cleanfills. It may be necessary to investigate whether or not the level of non-compliance observed in other regions is occurring at the non-monitored facilities, and whether anything needs to be done to improve this situation.

¹ Regular monitoring is defined as monitoring out to a maximum of once every two years.

Overall, the information provided indicates that the waste disposal levy is not having a noticeable effect on disposal practices at consented non-levied fill facilities but the level of non-compliance compared with minor non-compliance may need to be checked for the next review of the levy.

1. Introduction

Consented fills not subject to the waste disposal levy (also referred to as cleanfills, ‘managed fills’, or construction and demolition fills) were identified as a priority area for information gathering over the 2010/11 period. These fills discharge waste to land, yet some may not meet the Ministry for the Environment’s criteria for a ‘cleanfill’ and their management is not subject to the more rigorous requirements for Class ‘A’ landfills. These fills do not meet the definition of a disposal facility under the Waste Minimisation Act 2008 and so are not subject to the waste disposal levy.

In 2002, the Ministry released *A Guide to the Management of Cleanfills* (the Guidelines). The Guidelines were designed as a practical handbook for councils and facility operators and provide information on waste acceptance criteria, site selection, and how fill should be managed. Under the Resource Management Act 1991 (RMA), councils can regulate the operation of cleanfills through regional or district rules, or by requiring resource consents.

This report explores the extent to which resource consents require compliance with the Guidelines, in particular with the waste acceptance criteria, and whether the Waste Minimisation Act 2008 (WMA) has had any impact on numbers of these types of fill sites, or of the type of waste or quantities disposed of to these sites.

In 2008, the Ministry contracted the services of Sinclair Knight Merz to conduct a survey of waste disposal facilities in New Zealand. They identified 212 sites around the country that accept cleanfill, obtained costs of disposal at sites in most regions, and estimated the total amount of fill disposed of.

This report adds to that study by providing more information on consented cleanfill locations and compliance with conditions on their resource consents. This report is intended to inform the statutory review of the waste disposal levy in July 2011, and to help to develop base line data for future comparison and decision making.

This report provides information including:

- names and location of fill sites by region² (including coordinates to allow these to be mapped using a GIS)
- date fill was consented and date disposal began
- expiry date of discharge to land permit
- allowed quantities for disposal (or alternatively number of authorised truck movements)
- copies of self-monitoring reports, and compliance summaries (ie, for those sites which are required to record and provide information to the consent authority)
- costs of disposal at these facilities
- types of waste authorised for acceptance at these fill sites, and the most recent actual waste composition information if available

² The information from the 2008 study was used as a starting point.

- levels of monitoring required and compliance at these fills (compliance ratings since consented (eg, fully complying, minor non-compliance, significant non-compliance) and summary of any enforcement actions taken
- copies of resource consents for these sites.

Information has been collected New Zealand-wide covering the period from the beginning of 2006 to the present (January 2011).

This report covers only facilities that are consented under s15 of the Resource Management Act 1991 and not those that may be consented under s9 or any other section of the Act.

2. Key findings

The Consented and Non-levied fills Project aimed to answer the following questions:

- How have the numbers of resource consent applications been affected by the introduction of the waste disposal levy?
- How have quantities of waste to these facilities changed since 2006 and what has caused this?
- How have costs of disposal to these facilities changed since 2006 and what has caused this?
- What is the composition of waste going to these facilities and is it waste that should be subject to the waste disposal levy under the Waste Minimisation Act 2008?
- To what extent has the introduction of the Waste Minimisation Act impacted on the above factors?

Sites accepting cleanfill, or construction and demolition fill that meets the acceptable materials criteria of the Ministry for the Environment's *Guide to the Management of Cleanfills* (the Guidelines) provide a low-cost disposal option for material that may otherwise be disposed to landfill. Properly managed, they also provide a disposal option with few environmental effects and extend the life of Class 'A' landfills. As cleanfills are sites that do not accept domestic waste, they are not subject to the waste disposal levy.

The key findings of this report are:

- There are currently 176 sites identified as cleanfills in New Zealand as of January 2011 (not including sites allowed as permitted activities). This is about three times the number of municipal landfills.
- From 2007 to 2010 the number of resource consents for cleanfills increased by 5% from 167 to 176. Taranaki, Wellington, Otago and Southland regional councils have regional rules about cleanfills that are more than 10 years old. Changes to their rules may change the number of consented cleanfills in these regions.
- Accurate information or reliable estimations of the amount of waste sent to cleanfill facilities are not available. Christchurch City Council is one council that specifically requires this information in their district but this could not be provided for this study.
- Cost of disposal to cleanfills varies significantly around the country but has not changed substantially over the past four years (suggesting no significant impact from the waste disposal levy).
- Waste acceptance criteria in resource consents are generally the same as or broadly similar to waste acceptance criteria in the Guidelines.
- In the two years before the introduction of the waste disposal levy in July 2009, 31 out of the 105 facilities monitored (30%) failed to meet the acceptance criteria in the resource consent (20 had a minor non-compliance, 11 were non-compliant).
- In the 18 months following the introduction of the waste disposal levy, 28 out of 109 facilities monitored (26%) failed to meet the acceptance criteria in the resource consent (instances of minor non-compliance decreased to 14, and non-compliances rose to 14).
- Seven regional councils – Auckland, Hawke's Bay, Horizons, Marlborough, West Coast and Otago – do not routinely monitor cleanfills in their regions for compliance with waste composition requirements set out in their regional rules or resource consents.

3. Methods

In early December 2010, the manager of the resource consents department in every regional council and unitary authority was sent a letter from the Ministry asking for information about cleanfills in their regions. The letter was followed up with an email to each regional council waste officer identified on the Ministry's contact database. Information about costs of disposal at the facilities was obtained directly from the cleanfill operators.

A summary of all data about cleanfill facility numbers, cleanfill quantity, cleanfill costs, and cleanfill composition is presented below and examined for possible impacts that the waste disposal levy may have had.

4. Information gathered for this report

4.1. Waste disposal quantities to cleanfills

No information about cleanfill quantities was compiled for this report because the few sites with available data are unlikely to be indicative of what is happening around the country. For example, one facility consented to accept 6,320 tonnes per annum reported accepting only 3,512 kilograms. This figure probably should have been in tonnes, not kilograms, but when questioned, the council verified the kg figure. Gisborne and Hawke's Bay were the only councils with some figures for the actual amount of waste disposed to any facility in their region.

About 30% of consents specify a maximum annual quantity or total quantity (see table 2 below). This information could have been used to estimate the amount of cleanfill waste disposed of nationally but the figure obtained would not provide any insight into changes in cleanfill disposed of over time. Information on the actual amount of fill accepted is only provided to the council on request and regions with the highest numbers of consented cleanfills – Bay of Plenty, Waikato, Taranaki, Canterbury and Southland – do not monitor amounts of fill deposited.

According to council staff, large loads of waste material taken to cleanfill are generally:

- soil and rubble, sometimes contaminated with greenwaste, collected from slips on roads. These amounts are influenced by storm events and not by availability of low-cost cleanfills
- unwanted earth or aggregate associated with major roading projects
- construction and demolition waste, where volumes are influenced by the state of the economy, and events like the Canterbury earthquakes.

Cleanfill waste from these sources would most likely have been sent to cleanfills rather than landfills before the levy was introduced and so any change in those amounts would not represent a change in disposal practices as a result of the introduction of the levy.

4.2. Consenting requirements for cleanfills

Most councils explicitly allow cleanfills as a permitted activity in a regional rule. Cleanfills not able to comply with the conditions of the regional rule require a resource consent. Auckland, Bay of Plenty, Horizons and Canterbury regional councils require compliance with the Ministry's *Guide to the Management of Cleanfills* (the Guidelines) in their regional rules. Northland, Waikato, Gisborne, Hawke's Bay, Taranaki, Wellington Nelson, Tasman, West Coast and Southland regional councils require compliance with conditions that are broadly similar to the Guidelines or require resource consents and have the power to require compliance through conditions on the consent (table 1).

Regional rules covering cleanfills often also regulate activities where earth or inert fill is used to raise ground levels for site development or re-establish ground levels after gravel extraction. Fill may still be imported for this purpose but the site is not operated as a disposal site in the same way that a site accepting waste material is. Quarries generally require consents by most 'cleanfill' rules, even if they are only shifting overburden around the same site. For this reason,

even though obvious non-disposal cleanfills have been excluded, the number of sites identified in this study is likely to be higher than the number of actual disposal fill sites.

Table 1 Summary of resource consent requirements and consistency with guidelines

Region	Regional rule	Consistency with Ministry for the Environment cleanfill definition	Consistency with Ministry for the Environment cleanfill Guidelines
Northland	Regional Water and Soil Plan for Northland (2004) Rule 1: Permitted subject to extensive conditions	Broadly similar	Not referred to, but required to be 'cleanfill'
Auckland	Auckland Regional Plan: Air, Land and Water (operative in part October 2010) Rule 5.5.48: Permitted subject to conditions including compliance with guidelines	Minor differences	Required to comply
Waikato	Waikato Regional Plan (operative in part September 2007) Rule 5.2.5.4 (varied December 2010): Permitted subject to compliance with extensive conditions	Broadly similar	Not referred to, but required to be 'cleanfill'
Bay of Plenty	Bay of Plenty Regional Water and Land Plan (December 2008) Rule 1: Permitted subject to compliance with guidelines	Broadly similar	Required to comply
Gisborne	Regional Plan for Discharges to Land and Water, Waste Management and Hazardous Substances (July 2006) Rule 3.5.1: Permitted subject to conditions	Broadly similar	Not referred to but required to be inert solid material
Hawke's Bay	Regional Resource Management Plan (August 2006) Rule 48: Permitted subject to compliance with extensive conditions	Broadly similar	Not referred to, but required to be 'cleanfill'
Taranaki	Regional Freshwater Plan (2001, under review) Rule 44: Discretionary Activity (not provided for by another rule)	Cleanfill not defined	Not referred to but can control fill accepted in a resource consent
Manawatu-Wanganui (Horizons)	One Plan (amended by decisions August 2010 – appealed) Rule 13-19: Permitted subject to conditions including compliance with guidelines	Minor differences	Required to comply
Wellington	Regional Plan for Discharges to Land (1999, under review) Rule 1: Permitted subject to conditions	Broadly similar	Not referred to but can control fill accepted in a resource consent
Marlborough	Marlborough Sounds Resource Management Plan (2003) Rule 36.1.7.5: Permitted subject to conditions Wairau/Awatere Resource Management Plan Rule 30.1.7.4: Permitted subject to conditions	Broadly similar, more discretion than Ministry for the Environment definition	Not referred to but can control acceptable fill in a resource consent
Nelson	Nelson Resource Management Plan (operative in part March 2005) Rule RUR.27A.3: Restricted Discretionary Activity	Broadly similar	Not referred to but can control fill accepted in a resource consent

Region	Regional rule	Consistency with Ministry for the Environment cleanfill definition	Consistency with Ministry for the Environment cleanfill Guidelines
Tasman	Tasman Resource Management Plan (2009) Rule 36.1.13: Discretionary Activity (not provided for by another rule)	No cleanfill definition	Not referred to but can control fill accepted in a resource consent
West Coast	Proposed Land and Water Plan (notified September 2010) Rule 87: Discretionary Activity (subject to submissions)	No cleanfill definition	Not referred to but can control fill accepted in a resource consent
Canterbury	Proposed Canterbury Natural Resources Regional Plan (notified 2004, variations incorporated 2007) Rule WQL41: Controlled Activity	No cleanfill definition	Required to comply
Otago	Regional Plan for Otago: Waste (1997, waiting for review) Rule 7.6.3: Permitted subject to conditions	Broadly similar	Not referred to, but required to be 'cleanfill'
Southland	Regional Solid Waste Management Plan (1996, under review) Rule 4.5.5: Permitted subject to conditions	Some similarity (defines unacceptable contaminants)	Not referred to, but required to be 'cleanfill'

4.3. Resource consent application levels and resource consent details

Since July 2009, the overall number of cleanfill sites has increased by nine, with 19 sites opening, and 10 sites closing. This represents a 5% increase from 167 to 176, not including unconsented cleanfill sites (see table 2). Copies of resource consents are saved on the Ministry for the Environment's document database, except for:

- the Waikato consents which were all provided via a link to a temporary folder on the Waikato document database. Environment Waikato can set up this temporary folder on request
- the Taranaki consents which are available on the Taranaki Regional Council website as an appendix to the monitoring reports³
- the Canterbury consents which are all available on the Environment Canterbury website.⁴

³ <http://www.trc.govt.nz/cleanfills-green-waste-compliance-monitoring-reports/>

⁴ <http://ecan.govt.nz/services/online-services/pages/consent-search.aspx>

Table 2 Number of consented facilities by region

Region	Consented facilities operating pre-levy	Consented facilities operating after July 2009	Consents issued for new facilities since July 2009	Facilities reported in the 2008 study (and confirmed in 2011)
Northland	1	1	0	2 (1)
Auckland	17	17	2 (note: 2 closed)	35 (14)
Waikato	17	22	5	17 (8)
Bay of Plenty	11	11	0	15 (9)
Gisborne	2	2	0	2 (2)
Hawke's Bay	3	3	0	18 (3)
Taranaki	21	19	2 (note: 4 closed)	22 (21)
Horizons	1	1	0	12 (1)
Wellington	8	9	1	14 (8)
Marlborough	11	13	3 (note: 1 closed)	7 (9)
Tasman	7	7	0	9 (6)
Nelson	3	2	1 (note: 2 closed)	4 (4, includes one not consented)
West Coast	5	7	2	12 (2)
Canterbury	41	41	1 (note: 1 closed)	25 (23)
Otago	0 (4 permitted)	0 (4 permitted)		14 (4, not consented)
Southland	19	21	2	4 (4)
Overall	167	176	19 (note: 10 closed)	212 (119)

No regional council was able to provide information about the number of cleanfill applications that have been declined. An internet search showed that Rodney District Council declined an application for resource consent on 6 October 2009. The main reasons for declining the consent were that there would be significant adverse effects on the environment from noise, air quality, amenity and visual effects which are not able to be satisfactorily avoided, remedied or mitigated.⁵

Northland, Hawke's Bay, Horizons and Otago regions

The Northland, Hawke's Bay, Horizons and Otago regions have few consented cleanfills. Northland has a closed landfill that accepts cleanfill for site rehabilitation, and the port in Whangarei has a resource consent for discharging seabed dredgings with cleanfill allowed. The Ngawha geothermal power station in the Far North has a private fill for its own drilling waste. Hawke's Bay has three consented cleanfills including a closed landfill, all in Hastings. Horizons has one consented site, which is associated with a sand quarry in Whanganui, and monitored annually. There are no consented sites in the Otago region. Northland, Wellington and Otago regional councils reported that illegal dumping is not frequently reported or they do not see cleanfill operations as a compliance issue.

⁵ Source: <http://www.stopthecleanfill.co.nz/index.html>

Auckland region

Auckland's regional rule has been operative since October 2010 allowing cleanfills as a permitted activity. There are 17 consented cleanfills, with two closing and two opening in the past four years. Note that this only includes facilities consented under s15 of the Resource Management Act 1991, not those consented under s9. The districts were amalgamated into one city in October 2010, but as an indication of regional spread, six are in the old district of Rodney, two in Waitakere, one in Auckland, two in Papakura, five in Manukau, and one in Franklin.

Waikato region

In Waikato, a regional rule has been operative since September 2007 allowing cleanfill operations that meet 14 separate criteria (not including the Ministry's guidelines) as a permitted activity. Consented cleanfill facilities there have increased from 17 to 22 since the introduction of the levy. Common reasons for requiring a resource consent are that the facility accepts more than the 2,500 cubic metres per annum threshold, or is in an area classed as high risk erosion or a floodplain of a river. Thirty-five consented facilities in Waikato were not included in the analysis because they are for building platforms or they were associated with a quarry and unlikely to accept cleanfill from elsewhere. Eleven sites are in the Waikato district, three in Hamilton City, two each in Matamata-Piako and Waipa districts, and one each in Thames-Coromandel, Hauraki, Otorohanga and South Waikato districts.

Bay of Plenty region

A regional rule has been operative since December 2008 allowing cleanfill facilities as a permitted activity in the Bay of Plenty provided the activity complies with the Ministry's guidelines and conditions about soil contamination. Ten of the 11 consents in the Bay of Plenty region were issued before this rule became operative. One consent was granted in April 2009, but no consents have been issued since the introduction of the levy. There are four consented cleanfills in Tauranga, four in Western Bay of Plenty, two in Rotorua and one in Whakatane.

Taranaki region

Taranaki, the only other regional council without a permitted activity rule for cleanfills, has the second highest number of consented sites. There were 21 sites in operation before the levy. During the past four years, four sites closed and two new sites opened, so there are now 19 consented cleanfill sites. Of those, 15 sites are in New Plymouth, two in Stratford, and two in South Taranaki.

Wellington region

There are nine cleanfills in the Wellington region, one more than in 2008. Two are consented construction and demolition landfills in Wellington city. A cleanfill is now operating on the closed landfill at Masterton, and there are three sites operating in Upper Hutt, one in Hutt city and two in Porirua.

Marlborough, Nelson, Tasman and Gisborne (unitary authorities)

Marlborough requires resource consents for cleanfills and site numbers there increased from 11 to 13. Nelson City had three consented sites before introduction of the levy, with at least one site operating commercially. Since the levy was introduced one site opened and two sites closed. Tasman District Council sent consent information about 135 sites for gravel extraction, quarries and mining. Staff there confirmed that some gravel extraction operations accept cleanfill to restore ground levels and seven sites were confirmed for this study. The Gisborne district has two consented commercial cleanfill sites.

West Coast region

There were five consented cleanfill sites in the West Coast region before the levy, and seven at the time of this study. This does not count Transit New Zealand sites which are for Transit New Zealand use only. Three sites are in Grey district, and two each in Westland and Buller districts.

Canterbury region

The region with the highest number of consented cleanfills is Canterbury, which classes cleanfill disposal as a controlled activity. This means a resource consent is required but the council must grant the application if it complies with the standards specified in the rule. The number of cleanfill sites in the Canterbury region remained at 41 since the introduction of the levy, with one site opening and one site closing in the past four years. Eighteen of the 41 sites are in Christchurch, with the others distributed around Waimakariri (three), Selwyn (two), Ashburton (seven), MacKenzie (five), Timaru (three), and Hurunui (one).

Southland region

Southland allows cleanfills as a permitted activity but the maximum allowable disposal volume of 500 cubic meters per year results in many consented facilities. These increased from 19 to 21. Six are in the Southland district, three in Gore, and the remaining 12 in Invercargill.

Summary

The figures in the last column of table 2 show that regional councils confirmed only 119 of the 212 cleanfill facilities identified in the 2008 study. Two regions, Canterbury and Southland, have consents for more sites than were identified earlier, but other regions have fewer. The process used to identify the sites in the 2008 study did not rely as heavily on regional council consents and identified some unconsented cleanfill sites.

Using regional council consent information only, there has been a small increase in the number of consented cleanfills around the country since July 2009. It is unlikely that this increase can be attributed to the introduction of the waste disposal levy. Overall it is likely that the total number is even fewer than found in this study because some consented sites are primarily earthworks associated with quarries, mining or roadworks. Also, in some regions, using clean aggregate or fill to backfill a retaining wall triggers the need for a resource consent. As far as possible these sites were excluded from the analysis but were retained if the purpose of the operation was unclear.

4.4. Waste composition and compliance

Table 3 summarises the number of consents by region with limits on fill or with conditions about acceptable material, and whether the acceptable materials are consistent with the Ministry for the Environment's *Guide to the Management of Cleanfills* (the Guidelines).

Table 3 Consent conditions, waste acceptance criteria, and monitoring undertaken by region

Region	Number of consents 2008 and 2010	Consents limiting annual or total volume 2010	Consents with waste acceptance criteria as per Ministry guidelines or similar 2010	Consents monitored 2007/08 and 2009/10
Northland	1 1	1	1	0 1
Auckland	17 17	0	17	12 0
Waikato	17 22	16	18	13 16
Bay of Plenty	11 11	3	6	9 11
Gisborne	2 2	0	0	2 2
Hawke's Bay	3 3	2	3	0 1
Taranaki	21 19	2	19	19 17
Horizons	1 1	1	1	1 1
Wellington	8 9	1	5	3 3
Marlborough	11 13	5	5	0 5
Tasman	7 7	0	7	6 7
Nelson	3 2	2	3	2 1
West Coast	5 7	6	7	0 0
Canterbury	41 41	2	39	24 25
Otago	0 0	0	0	0
Southland	19 21	10	19	15 19
Total	167 176	51	150	106 109

Most resource consents (150 out of 176 – 85%) specify 'acceptable materials' for disposal that are the same or broadly similar to the cleanfill guidelines. Although one operator commented that the Guidelines allow quite a range of material to be disposed as cleanfill, compliance with resource consent conditions for acceptable waste was still used as the best measure of the composition of waste disposed at cleanfills. The results are summarised in table 4 below.

Table 4 Compliance with monitored resource consents before and after July 2009

Region	Pre-levy			Post levy		
	Compliant	Minor non-compliance	Non-compliant	Compliant	Minor non-compliance	Non-compliant
Northland				1		
Auckland	12					
Waikato	9	2	2	14	1	1
Bay of Plenty	5	1	3	6	1	4
Gisborne	1	1			2	
Hawke's Bay				1		
Taranaki	10	7	2	12	5	
Horizons	1			1		
Wellington	2		1	2		1
Marlborough					1	4
Tasman	5		1	6		1
Nelson	2					1
West Coast						
Canterbury	13	9	2	19	4	2
Otago						
Southland	15			19		
Overall	75 (71%)	20 (19%)	11 (10%)	81 (74%)	14 (13%)	14 (13%)

Six regions – Bay of Plenty, Waikato, Taranaki, Tasman, Canterbury and Southland – regularly monitor consented cleanfills. The results of these regions provide the best information about compliance with acceptance criteria and possible illegal dumping of waste to cleanfill that should have been sent to a landfill. Table 6, showing compliance results for all inspected sites, is in the Appendix. The results for each of the regions are presented below.

Auckland region

Auckland Regional Council required a one-off audit of 12 cleanfills in 2008 mainly to check if there were any adverse effects from sedimentation or soil contamination. The consultant who undertook the work noted that all sites appeared to comply with the Guideline for acceptable materials.

Waikato region

Of the 22 cleanfill sites in the Waikato region, monitoring results show that compliance improved slightly between 2008 and 2010, although two of 16 inspected sites accepted non-cleanfill material in 2009–2010, after being compliant in 2007–2008. At least two Waikato facilities are very large, accepting construction and demolition material as well as cleanfill (consents 103079 and 101880). One of these sites had very poor compliance in 2002 – well before introduction of the waste levy – and it took until 2008 for new owners of the facility to finish removing all unauthorised waste and rehabilitate the site.

Bay of Plenty region

In Bay of Plenty, a regional rule has been operative since December 2008 allowing any cleanfill operation that meets the Ministry's Guidelines. All but one of the 11 facilities with resource consents were consented before this date. The Bay of Plenty facilities have the highest incidence of non-compliance with consent conditions. Facilities with poor compliance before the levy also had poor compliance after the levy and one fell from compliant to non-compliant. One facility issued an abatement notice in 2008 for accepting non-cleanfill material required follow-up enforcement action. Unacceptable materials found at Bay of Plenty cleanfills included household rubbish and greenwaste. A reason given for the presence of greenwaste was that it came in with soil in slips cleared from roads during major storm events.

Gisborne district

Gisborne has only two consented sites which are monitored every six months. One had minor non-compliance before the levy, and both had minor non-compliance after the levy.

Taranaki region

In Taranaki, there has been little change in compliance with acceptance criteria over the past four years. Before the levy 10 out of 19 facilities complied with waste acceptance criteria; after the introduction of the levy 12 out of 17 facilities complied. Three non-compliant facilities closed between 2008 and 2010. Of the sites that stayed open, four improved from non-compliant to compliant, and two remained non-compliant. Three fell from compliant to non-compliant. Sixteen sites in Taranaki are part of a regional cleanfill monitoring programme and monitored at least twice a year, others are monitored annually or every second year. Issues of minor non-compliance were generally because of small amounts of corrugated iron, treated timber, and greenwaste. Taranaki Regional Council did not take enforcement action against any consent holder but did issue warnings and increased monitoring frequency for one of the sites.

Wellington region

Wellington has nine consented sites, but of these only two are regularly monitored. One is operating on an old consent and is non-compliant on fill height but the consent does not specify acceptable materials. The other has a new consent and is compliant with the Ministry's acceptable materials guidelines. The closed Masterton landfill accepts cleanfill and is compliant.

Marlborough district

Marlborough has 14 consented cleanfill sites but none of these were monitored until a special investigation of six sites in 2010. Five of the investigated sites had resource consents and one was continuing business as an existing use. None of the six sites was compliant with the Guidelines for acceptable materials though this was not a condition of their consents. Four sites had minor soil contamination from heavy metals (lead and zinc), and one site, which has since closed, had soils highly contaminated by heavy metals.

Tasman district

Tasman sent a spreadsheet showing all gravel extraction sites and those complying with conditions. Before the levy, six of the seven consented cleanfill sites were monitored, with one found non-compliant because of general household rubbish and excessive green waste. After the

levy, seven cleanfill sites were monitored and a different site was found to be non-compliant for burning general rubbish. Both operators were issued abatement notices.

Nelson city

Nelson has only three consented sites, one of which was not accepting fill, one was compliant and then closed, and the remaining site was issued an infringement notice in 2009 for unacceptable materials. The site was compliant by 2010.

Canterbury region

In Canterbury, cleanfills are inspected at least annually. Environment Canterbury inspected 24 facilities in 2007 and 2008. Of those, 13 complied with acceptance criteria, nine had minor non-compliance, and two were non-compliant. By 2009–2010, 25 facilities were inspected, and compliance had improved to 19 sites, four had a minor non-compliance, and two were non-compliant. The two non-compliant sites post-levy had had minor non-compliance before the levy. An abatement notice was issued to one of these in 2010, requiring removal and clean up of a large range of unacceptable material – waders, timber (treated and painted), metal, plastic pipes, household furniture, wire, a wheelbarrow, ironing board, bicycle, concrete slurry, empty hazwaste drums etc.

In enforcement action taken against an unconsented company by Environment Canterbury in 2010, the Court found the company contravened section 15(1)(d) of the RMA by discharging over 10 tonnes of demolition material (concrete and treated timber) from a school into a pit on another property and therefore did not comply with a rule in the regional plan. The \$6,000 fine took into account a guilty plea and the inert nature of most of the material.⁶ J Mould is not recorded as a consent holder on the Canterbury record of cleanfills.

Southland region

Environment Southland monitors almost all sites at least annually and over the past four years all have complied with the acceptance criteria. All 15 sites monitored in 2008–2009 were compliant, as were all 19 sites monitored in 2009–2010.

Northland, Hawke's Bay, Horizons, West Coast, Otago regions

The remaining regions have few consented cleanfill sites. Horizons, West Coast and Otago do not monitor cleanfills.

4.5. Enforcement

Councils took enforcement action against three of the 11 non-compliant facilities pre-levy and six of the 14 non-compliant facilities post-levy. One Bay of Plenty consent holder was issued an Enforcement Order in 2009 after not complying with an abatement notice in 2008, and a Waikato site required ongoing inspections throughout 2008 to eventually achieve compliance with an Enforcement Order issued in 2002.

⁶ Canterbury Regional Council vs J Mould Demolition (CRI-2010-009-000438).

Overall, Bay of Plenty issued the most enforcement proceedings from 2007 to 2010 with three abatement notices and one enforcement order; Tasman and Canterbury both issued two abatement notices to separate consent holders – one before the levy and one after; and Nelson issued an infringement notice to one consent holder after the levy.

In all remaining cases compliance was achieved following advice and warnings from council staff.

4.6. Costs of disposal

Councils with closed landfills are accepting cleanfill free or at low cost (Pohe in Whangarei charges \$7.70/tonne, Okato in Taranaki is free for pre-arranged delivery, and Masterton in Wairarapa charges \$5.00/tonne). Havelock North has a site operating on a closed landfill accepting concrete and demolition waste as well as cleanfill for the same charge as before the introduction of the levy (\$35 for single axle trailer of concrete).

Table 5 Cost of disposal at cleanfills before and after July 2009 when the waste disposal levy was introduced

Region	Pre-levy disposal costs	Post-levy disposal costs
Northland	\$6 per tonne	\$7.70/tonne (closed landfill)
Auckland	\$55 per tonne (private)	\$20 per m ³ (resource recovery centre) \$129.80 per tonne (Waitakere transfer station)
Waikato	–	–
Bay of Plenty	–	\$15/tonne (Rotorua transfer station) \$40/tonne (Tauranga transfer station) \$11/tonne (Whakatane recycling park)
Gisborne	\$40/m ³	\$20/m ³
Hawke's Bay	\$35/trailer	\$35/trailer
Taranaki	\$10/m ³	\$18/m ³
Horizons	–	\$45/tonne (PNCC transfer station)
Wellington	–	\$5/tonne (Masterton)
Marlborough	\$3.50 – \$8/m ³	\$4.50 – \$ 8/m ³
Tasman	–	–
Nelson	–	\$4.50
West Coast	–	–
Canterbury	\$4/tonne (Christchurch private) \$5/tonne (Christchurch private)	\$70/tonne (Kaikoura recovery centre) \$5.50/tonne (Christchurch cleanfill, private) \$12.50/tonne (concrete ans bricks – Christchurch eco park) \$50/tonne (mixed cleanfill – Christchurch eco park) \$50/tonne (Selwyn recovery centre) 136/tonne (Ashburton recycling station) \$6/tonne (Pleasant Point, Geraldine, Timaru transfer station) \$71.55 (Waimate transfer station)
Otago	\$5 – 12/tonne	\$7.50/tonne (transfer station) \$10/tonne (Green Island landfill)
Southland	\$7 – 15/m ³	\$10/tonne (Gore transfer station) \$71.50 (Invercargill transfer station)

Cleanfill charges at some transfer stations are advertised on council websites. These vary significantly around the country and even within a region – Canterbury transfer stations range from \$6/tonne to \$136/tonne.

Overall, it is very difficult to see whether charges have changed since 2008 when SKM obtained costs for sites around the country. Council staff contacted believed that changes in amounts of fill accepted at cleanfills would only be affected marginally by increased costs at landfills.

5. Conclusions

Overall there is no evidence that the waste disposal levy applied to waste disposal facilities is having any effect on the operation of cleanfill facilities to date. There was no information available on cleanfill quantities. However, if waste to cleanfill is compliant with cleanfill waste acceptance criteria this would not be inconsistent with the objectives of the Waste Minimisation Act 2008.

Regulation of cleanfills varies around the country. This study collected information from regional councils and unitary authorities and it is likely that city and district councils have additional consenting requirements for cleanfills. A point of interest is that Auckland confirmed only 14 of the 35 facilities reported in the 2008 study, and the 2008 study identified only four of the 19 consented cleanfills operating in Southland. One respondent commented that non-government people may have less access to council information leading to different results between the 2008 study and this one. Also, the SKM study included many permitted sites. Whatever the reason, information about cleanfills remains difficult to obtain and collecting information for this study without having the results of the 2008 study would have been extremely difficult.

This study obtained good information about the level of compliance with resource consents. About two thirds of all consented cleanfill sites are monitored, and around a quarter of monitored sites were non-compliant both before and after the introduction of the levy (30 pre-levy and 27 post-levy). Six facilities required enforcement action after the levy compared with three in the two years before the levy, with one operator being a repeat offender. In the remaining cases, compliance was achieved following advice and warnings from council staff.

Non-compliance was generally for accepting construction-type waste like corrugated iron and treated timber. Plastic, greenwaste and domestic waste are also arriving at cleanfill sites though this occurs more commonly at unsecured sites and is not usually knowingly accepted by the operator.

Southland is the only council that regularly monitors cleanfills and finds good compliance. Seven regional councils (Auckland, Hawke's Bay, Horizons, Tasman, Marlborough, West Coast and Otago) do not routinely monitor cleanfills. Not counting minor non-compliance incidents where small quantities of prohibited waste were found during monitoring inspections and later removed, non-compliance in the other seven regions increased from 11 sites in the two years before the introduction of the levy to 14 sites after. This represented 10% and 13% of monitored sites. It may be necessary to investigate whether or not this level of non-compliance is occurring at the non-monitored and non-consented facilities, and whether anything needs to be done to improve this situation.

Two councils who undertook audits of cleanfills in their regions came up with quite different results. The audit of previously unmonitored cleanfills in Marlborough in 2010 discovered poor compliance with conditions and soils showing contamination from heavy metals, in one case to a high level. By comparison, the audit of 12 cleanfills in Auckland in 2008 did not show up any non-compliance with cleanfill acceptance criteria but it did show that all sites had soil samples that exceeded background levels of heavy metals. The level of exceedance was low and not greater than allowable levels for the Auckland volcanic soils.

Appendix: Summary of compliance by region

The sites listed in Table 6 have a resource consent for cleanfill disposal issued by the regional council. As far as possible, sites that are predominantly quarries, river works, roading projects, building platforms, or earthworks have been excluded from this Table.

Table 6 Compliance with resource consents for sites accepting cleanfill

Region	Consent	Compliance 2007 and 2008	Compliance 2009 and 2010
Northland	CON17228 and CON7884		Compliant (not a commercial cleanfill)
Auckland	27546	Compliant	Not monitored
	33219	Compliant	Closed
	33404	Compliant	Closed
	27106	Compliant	Not monitored
	20515	Compliant	Not monitored
	35095	Not monitored	Not monitored
	23159	Not monitored	Not monitored
	31039	Not monitored	Not monitored
	11437	Not monitored	Not monitored
	32998	Compliant	Not monitored
	15251	Not monitored	Not monitored
	20184	Compliant	Not monitored
	28183	Not monitored	Not monitored
	22220	Not monitored	Not monitored
	29168	Compliant	Not monitored
	28212	Compliant	Not monitored
	24128	Compliant	Not monitored
	36365	Compliant	Not monitored
	20194	Compliant	Not monitored
Waikato includes some quarries that accept cleanfill	103079	Non-compliant, failing to comply with enforcement order . A 206/2002 to stop all unauthorised waste disposal activities on the site and get the site rehabilitated	Compliant
	118485	Compliant	Compliant
	116718	Non-compliant	Compliant
	108210	Work not started	Compliant
	115260	Work not started	Minor non-compliance: small quantities of greenwaste
	101880	Compliant	Compliant
	101915	Compliant	Compliant
	107275	Compliant	Compliant

Region	Consent	Compliance 2007 and 2008	Compliance 2009 and 2010
	111436	Compliant	Non-compliant 2009: unacceptable materials. Compliant in 2010
	114017	Not assessed	Not assessed
	108080	Compliant	Compliant
	119264	Not open	Not assessed
	107323	Not open	Not assessed
	120605	Compliant	Compliant
	116115	Not open	Not assessed
	118622	Not open	Compliant
	117207	Compliant	Not assessed
	113220	Minor non-compliance: small quantities of greenwaste	Compliant
	119853	Not open	Compliant
	119848	Not open	Not monitored
	115820	Compliant	Compliant
	112473 and 121074	Minor non-compliance: greenwaste	Compliant
Bay of Plenty	65673	Not open	Compliant
	65042	Not open	Compliant
	63578	Minor non-compliance: small amounts of household rubbish	Minor non-compliance: small amounts of household rubbish
	65430	Non-compliant: unacceptable materials, abatement notice 2008/A080 issued	Non-compliant: unacceptable materials. Enforcement order issued
	62653	Non-compliant: unacceptable material (paunch discharging leachate)	Non-compliant: unacceptable material (contaminated recycling and greenwaste) in 2009. Abatement notice 2009/A084 issued. Compliant in 2010
	64304	Compliant	Compliant
	61858	Compliant	Compliant
	60064	Compliant	Non-compliant: continued to accept waste when consent expired. Abatement Notice 2010-A024 issued
	62161	Compliant	Compliant
	64179	Compliant	Compliant
	63818	Non-compliant: household rubbish, greenwaste	Non-compliant: stumps, greenwaste, concrete waste, and flood debris
Gisborne	DL203006	Compliant	Minor non-compliance
	DL204010	Minor non-compliance: manure and unacceptable material removed	Minor non-compliance
Hawke's Bay	DP080235L	Not monitored	Not monitored
	DP100316L	Not monitored	Not monitored
	DP020133L and DP020366W	Not monitored	Compliant

Region	Consent	Compliance 2007 and 2008	Compliance 2009 and 2010
Taranaki	5825-2	Minor non-compliance: unacceptable material (trailer, corrugated iron and greenwaste) removed	Compliant
	6771-1	Compliant	Minor non compliance: unacceptable material (fibreglass slide, domestic waste) removed
	6464-1	Compliant	Closed
	4110-1	Minor non-compliance: unacceptable material (treated timber, reinforcing steel, galvanised pipes) removed	Closed
	5180-1	Compliant	Compliant
	5213-1	Compliant	Compliant
	5877-1	Compliant	Minor non-compliance: unacceptable material (greenwaste, fencing wire, steel pipes) removed
	3977-3	Minor non-compliance: unacceptable material (corrugated iron) removed	Compliant
	4990-2	Minor non-compliance: unacceptable material (metal pipe, tanalised timber) removed	Compliant
	5606-1	Minor non-compliance: unacceptable material (corrugated iron, tanalised timber, plastic wrap) removed	Minor non-compliance: unacceptable material (corrugated iron and greenwaste) removed
	7089-1	Non-compliant: large amount of unacceptable material (corrugated iron, steel, domestic waste, tanalised posts) removed	Compliant
	7165-1	Non-compliant: unacceptable material (engine block, a household appliance, galvanized roofing metal, green waste, and treated timber) later removed. Advised to secure site	Minor non-compliance: unacceptable material (small amount of tanalised timber). Monitoring increased from 2 to 3 times per year
	4527-3	Compliant	Compliant
	5187-1 and 5196	Compliant	Compliant
	7501-1 and 6274	Not open	Not monitored
	7474-1	Not open	Compliant
	7617-1	Not open	Not monitored
	5561-1	Compliant	Compliant
	6192-1	Compliant	Minor non-compliance: unacceptable material (corrugated iron, freezer, tanalised timber, metal pipes) later removed
	7289-1	Not open	Compliant
	6964-1	Compliant on fill (minor non-compliance on silt pond)	Compliant
	6406-1	Minor non-compliance: unacceptable material (corrugated iron) removed	Surrendered

Region	Consent	Compliance 2007 and 2008	Compliance 2009 and 2010
	6576-1	Minor non-compliance: unacceptable material (plastic pipe, metal pipe, greenwaste) removed	Surrendered
Manawatu-Wanganui (Horizons)	102438	Compliant	Compliant
Wellington	WAR060047 [25220]	Compliant	Compliant
	WGN970047 [WGN070260]	Compliant	Compliant
	WGN000129 [20342]	Non-compliant	Non-compliant, enforcement pending
	WGN050051 [23919]	Not monitored	Not monitored
	WGN070141	Not in use	Not in use
	RMA23318	Not in use	Compliant
	WGN060248 [25207]	Not in use	Not in use
	WGN080325 [26718]	Not monitored	Not monitored
	WGN050182 [24251]	Not monitored	Not monitored
Marlborough	U010076	Not monitored	Non-compliant: 1. sludge from Picton marina; 2. elevated concentrations of lead and zinc; 3. large quantities of timber; 4. large quantities of green waste
	U061260	Not monitored	Non-compliant: 1. minor amounts of contaminated soils; 2. organic material; 3. large volumes of concrete with rebar
	U041691	Not monitored	Minor non compliance: 1. minor amounts of contaminated soils; 2. potential marine sediments
	U040870	Not monitored	Non compliant: 1. large quantities of wood and pine; 2. small number of car tyres
	Permitted	Not monitored	Non compliant: 1. contaminated soils; 2. scrap metal; 3. tyres; 4. building materials
	U020092 (now closed)	Not monitored	Non compliant: 1. highly contaminated soils; 2. scrap metal; 3. sand blasting materials
	U920053	Not monitored	Not monitored
	U061386	Not monitored	Not monitored
	U030248	Not monitored	Not monitored
	U950970	Not monitored	Not monitored
	U070736	Not open	Not monitored
	U080841	Not open	Not monitored
	U081222	Not open	Not monitored
	U100505	Not open	Not monitored

Region	Consent	Compliance 2007 and 2008	Compliance 2009 and 2010
	U100147	Not open	Not monitored
Tasman 135 consents for quarries and rivers works are not recorded	NN020167	Non-compliant: general household rubbish, excessive green waste. Abatement notice issued	Compliant
	100107	Compliant	Compliant
	31206	Compliant	Compliant
	060047V1	Compliant	Compliant
	70300	Compliant	Compliant
	60849	Compliant	Compliant
	40985	Not monitored	Non-compliant, burning general rubbish. Abatement notice issued
Nelson	985425 and 985425A	Not monitored	Non-compliant 2009: car body parts, concrete with reinforcing steel exposed, mattress, bits of plastic, timber. Infringement notice issued. Compliance achieved 29/4/2010
	105281	Not open	Not open
	65174	Compliant	Closed
	65100	Compliant	Closed
West Coast	RC03038	Not monitored	Not monitored
	RC10028/3	Not open	Not open
	RC10212/1	Not open	Not monitored
	RC09087	Not open	Not monitored
	RC06196	Not monitored	Not monitored
	RC08005	Not monitored	Not monitored
	RC02169/2	Not monitored	Not monitored
Canterbury	CRC951185	Compliant	Compliant
	CRC021225	Compliant	Compliant
	CRC021311	Minor non-compliance: wet asphalt, concrete slurry	Compliant
	CRC951068	Compliant	Compliant
	CRC961604	Minor non-compliance: greenwaste	Compliant
	CRC970337 and CRC970337.1	Non-compliant: unacceptable material not removed, abatement notice issued	Compliant
	CRC972648	Compliant	Compliant
	CRC000159	Compliant	Compliant
	CRC990898	Not monitored	Not monitored
	CRC982066.2	Minor non-compliance: plastic and cloth	Non-compliant: e-waste, carpet, plastic containers, roofing iron, vegetation, chemical containers
	CRC971555	Compliant	Compliant
	CRC011717.1	Compliant	Compliant
	CRC020238	Compliant	Compliant
	CRC083798	Not open	Not monitored

Region	Consent	Compliance 2007 and 2008	Compliance 2009 and 2010
	CRC073584	Work not started	Compliant
	CRC092401	Not open	Compliant
	CRC040606.2	Compliant	Not accepting fill
	CRC082945	Not open	Not monitored
	CRC082390	Not open	Not monitored
	CRC061131	Not monitored	Not monitored
	CRC040683	Minor non-compliance: small amount of unconsented waste	Compliant
	CRC031364	Not monitored	Not monitored
	CRC020583	Minor non-compliance: small number of tyres	No longer accepting fill
	CRC092571	Not open	Compliant
	CRC980264	Non-compliant: greenwaste, wood, tar, concrete slurry, plastics, metals	Minor non-compliance: road sweepings single event
	CRC981919	Minor non-compliance: asphalt and small amount of household rubbish	Compliant
	CRC054067 and CRC060454	Compliant	Minor non-compliance; sawdust, greenwaste
	CRC083452	Not open	Compliant
	CRC040535	Compliant	Compliant
	CRC080595	Minor non-compliance: a load of plant and timber	Minor non-compliance: timber and metals
	CRC080615.1	Not open	Not monitored
	CRC000005	Minor non-compliance: general rubbish	Major non-compliance: abatement notice issued – waders, timber (treated and painted), metal, plastic pipes, household furniture, wire, wheelbarrow, ironing board, bicycle, concrete slurry, empty hazwaste drums etc
	CRC961605	No longer accepting fill	No longer accepting fill
	CRC042178	Compliant	Minor non-compliance: stockpiled organic material
	CRC042176	Compliant	Not monitored
	CRC042177	Minor non-compliance: stockpiles of greenwaste and roading materials	Not monitored
	CRC091528	Not open	Not monitored
	CRC082560	Not open	Compliant
	CRC021635	Not monitored	Not monitored
	CRC972163.1	Not monitored	Not monitored
	CRC962596	Not monitored	Not monitored
	CRC060913.1	Not monitored	Closed
Otago No consented sites			
Southland	203176	Compliant	Compliant
	207323	Not open	Not monitored

Region	Consent	Compliance 2007 and 2008	Compliance 2009 and 2010
	203179	Compliant	Compliant
	205877	Not open	Compliant
	201200	Not monitored	Not monitored
	203688	Not monitored	Compliant
	95173	Compliant	Compliant
	200414	Compliant	Compliant
	203180	Compliant	Compliant
	96028	Compliant	Compliant
	202967	Compliant	Compliant
	204698	Compliant	Compliant
	99065	Compliant	Compliant
	205293	Compliant	Compliant
	201138	Compliant	Compliant
	202341	Compliant	Compliant
	204705	Compliant	Compliant
	300068	Not open	Compliant
	202806	Compliant	Compliant
	206999	Not open	Compliant
	94453	Compliant	Compliant
Overall totals		Compliant = 75 Minor non-compliant = 20 Non-compliant = 11 Enforcement taken = 3	Compliant = 80 Minor non-compliant = 14 Non-compliant = 14 Enforcement taken = 6