

South Taranaki District Council Closed Landfills (Eltham, Hawera, Kaponga, Manaia, Patea, Opunake and Otakeho)

Monitoring Programme

Annual Report

2021-2022

Technical Report 2022-11



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Taranaki Regional Council
Private Bag 713
Stratford

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November 2022

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Executive summary

South Taranaki District Council (STDC) holds consents to cover the discharge of leachate and stormwater from seven closed landfills. The landfills are at Kaponga and Manaia in the Waiokura catchment, Patea in the Patea catchment, Opunake in the Otahi catchment, Hawera in the Tangahoe catchment, Otakeho in the Taikatu catchment, and Eltham in the Waingongoro catchment.

This report for the period July 2021 to June 2022 describes the monitoring programme implemented by the Taranaki Regional Council (the Council) to assess STDC's environmental and consent compliance performance during the period under review. The report also details the results of the monitoring undertaken and assesses the environmental effects of STDC's activities at the Eltham, Hawera, Manaia, Opunake, and Patea landfills. Triennial monitoring of the Kaponga and Otakeho closed landfills was not scheduled to take place during the year under review.

During the monitoring period, STDC demonstrated a high level of environmental performance and high level of administrative performance.

STDC holds 10 resource consents, consisting of eight discharge of stormwater and/or leachate to water consents, one discharge to air consent, and one land use consent. These consents include a total of 62 conditions setting out the requirements that STDC must satisfy.

To monitor compliance with these conditions during the 2021-2022 year, Council staff conducted ten inspections and collected 33 discharge and receiving environment samples.

During the year, STDC demonstrated a high level of environmental and administrative performance in relation to the Eltham landfill consent as defined in Appendix 11.

During the year, STDC demonstrated a high level of environmental and administrative performance in relation to the Hawera landfill consents as defined in Appendix 11.

During the year, the environmental and administrative performance in relation to the Kaponga landfill consent were not assessed.

During the year, STDC demonstrated a high level of environmental and administrative performance in relation to the Manaia landfill consent as defined in Appendix 11.

During the year, STDC demonstrated a high level of environmental and administrative performance in relation to the Opunake landfill consent as defined in Appendix 11.

During the year, the environmental and administrative performance in relation to the Otakeho closed landfill consent were not assessed.

During the year, STDC demonstrated a high level of environmental and administrative performance in relation to the Patea landfill consents as defined in Appendix 11.

For reference, in the 2021-2022 year, consent holders were found to achieve a high level of environmental performance and compliance for 88% of the consents monitored through the Taranaki tailored monitoring programmes, while for another 10% of the consents, a good level of environmental performance and compliance was achieved.

In terms of overall environmental and compliance performance by the consent holder over the last several years, this report shows that the consent holder's performance remains at a high level.

This report includes recommendations for the 2022-2023 year.

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1 Introduction

1.1 Compliance monitoring programme reports and the Resource Management Act 1991

1.1.1 Introduction

This report is for the period July 2021 to June 2022 by the Taranaki Regional Council (the Council) on the monitoring programme associated with resource consents held by South Taranaki District Council (STDC) for closed municipal landfills in the district. STDC maintains seven closed landfills, which are located in Eltham, Hawera, Kaponga, Manaia, Opunake, Otakeho and Patea.

The report includes the results and findings of the monitoring programme implemented by the Council in respect of the consents held by STDC that relate to discharges to water and air from the Eltham, Hawera, Manaia, Opunake, and Patea landfills. The monitoring programme in place for the Kaponga and Otakeho closed landfills is an intermittent programme, implemented on a triennial basis.

1.1.2 Structure of this report

Section 1 of this report is a background section. It sets out general information about:

- consent compliance monitoring under the *Resource Management Act 1991* (RMA) and the Council's obligations;
- the Council's approach to monitoring sites through annual programmes;
- the resource consents held by STDC for the closed landfills in their district;
- the nature of the monitoring programme in place for the period under review; and
- Each of the closed landfills is then discussed in a separate section (**Sections 2 to 8**).

In each **subsection 1** (e.g. Section 2.1) there is a general description of the landfilled site and its discharges, an aerial photograph or map showing the location of the former landfill, and an outline of the matters covered by the water discharge permit.

Subsection 2 presents the results of monitoring of the STDC's activities at each of the sites during the period under review, including scientific and technical data.

Subsection 3 discusses the results, their interpretation, and their significance for the environment in the immediate vicinity of the site under discussion.

Subsection 4 presents recommendations to be implemented in the 2022-2023 monitoring year.

Section 9 contains a summary of recommendations to be implemented in the 2022-2023 monitoring year.

A glossary of common abbreviations and scientific terms, and a bibliography, are presented at the end of the report.

1.1.3 The Resource Management Act 1991 and monitoring

The RMA primarily addresses environmental 'effects' which are defined as positive or adverse, temporary or permanent, past, present or future, or cumulative. Effects may arise in relation to:

- a. the neighbourhood or the wider community around an activity, and may include cultural and social-economic effects;
- b. physical effects on the locality, including landscape, amenity and visual effects;
- c. ecosystems, including effects on plants, animals, or habitats, whether aquatic or terrestrial;

- d. natural and physical resources having special significance (for example recreational, cultural, or aesthetic); and
- e. risks to the neighbourhood or environment.

In drafting and reviewing conditions on discharge permits, and in implementing monitoring programmes, the Council is recognising the comprehensive meaning of 'effects' in as much as is appropriate for each activity. Monitoring programmes are not only based on existing permit conditions, but also on the obligations of the RMA to assess the effects of the exercise of consents. In accordance with Section 35 of the RMA, the Council undertakes compliance monitoring for consents and rules in regional plans, and maintains an overview of the performance of resource users and consent holders. Compliance monitoring, including both activity and impact monitoring, enables the Council to continually re-evaluate its approach and that of consent holders to resource management and, ultimately, through the refinement of methods and considered responsible resource utilisation, to move closer to achieving sustainable development of the region's resources.

1.1.4 Evaluation of environmental performance

Besides discussing the various details of the performance and extent of compliance by the consent holders, this report also assigns a rating as to each Company's environmental and administrative performance during the period under review. The rating categories are high, good, improvement required and poor for both environmental and administrative performance. The interpretations for these ratings are found in appendix II.

For reference, in the 2021-2022 year, consent holders were found to achieve a high level of environmental performance and compliance for 88% of the consents monitored through the Taranaki tailored monitoring programmes, while for another 10% of the consents, a good level of environmental performance and compliance was achieved.¹

1.2 Process description

STDC maintained seven closed municipal landfills in the South Taranaki District during the 2020-2021 period (Figure 1). All these sites have a long history of waste disposal and, as older facilities, do not have engineered liners. Landfills of this nature are designated as Class B landfills in the MfE publication Module 2: Hazardous Waste Guidelines, Landfill Waste Acceptance Criteria and Landfill Classification (2004). The number of open landfills in the district steadily decreased over a number of years and there have been no operating landfills in the South Taranaki district since the Patea landfill closed in 2007.

Currently there are no municipal landfills in operations in Taranaki with all waste now disposed of outside the region.

1.3 Resource consents

STDC holds 10 resource consents the details of which are summarised in the table below.

A summary of the various consent types issued by the Council is included in Appendix I, as are copies of all permits held by the Company during the period under review.

¹ The Council has used these compliance grading criteria for more than 18 years. They align closely with the 4 compliance grades in the MfE Best Practice Guidelines for Compliance, Monitoring and Enforcement, 2018

Table 1 Summary of the STDC closed municipal landfill consents and their key dates

Landfill site	Consent number	Purpose	Review	Expiry
Eltham	3387-3	To discharge stormwater and leachate from the former Eltham landfill site into the Mangawhero Stream in the Waingongoro catchment	-	1 June 2023
Hawera	0444-4	To discharge up to 2,800 m ³ /day of leachate and stormwater from the closed Matangara landfill, Hawera, to groundwater and into an unnamed tributary of the Tawhiti Stream in the Tangahoe catchment	-	Expired - S.124 Protection
	5831-2	To divert an unnamed tributary of the Tawhiti Stream	June 2025	1 June 2034
Kaponga	3459-3	To discharge stormwater and leachate from the former Kaponga landfill site into an unnamed tributary of the Waiokura Stream	-	1 June 2023
Manaia	3952-2	To discharge leachate and stormwater from the closed Manaia landfill and from composting operations into the Waiokura Stream	-	1 June 2023
Opunake	0526-4	To discharge stormwater and leachate from the closed Opunake landfill into the Otahi Stream	June 2024	1 June 2029
Otakeho	3953-4	To discharge leachate and stormwater from the closed Otakeho Municipal Landfill onto and into land where it may enter water	-	1 June 2022
Patea	0427-3	To discharge surface water and leachate from the Patea municipal landfill into an unnamed tributary of the Patea River	-	1 June 2022
	7268-1	To discharge stormwater and sediment onto and into land and into an unnamed tributary of the Patea River from earthworks associated with the closure of the Patea landfill	-	1 June 2022
	4636-2	To discharge emissions into air from the Patea municipal landfill	-	1 June 2022

1.4 Monitoring programme

1.4.1 Introduction

Section 35 of the RMA sets obligations upon the Council to gather information, monitor and conduct research on the exercise of resource consents within the Taranaki region. The Council is also required to assess the effects arising from the exercising of these consents and report upon them.

The Council may therefore make and record measurements of physical and chemical parameters, take samples for analysis, carry out surveys and inspections, conduct investigations and seek information from consent holders.

The monitoring programme for the landfill sites consisted of four primary components, which are described in Sections 1.4.2 to 1.4.5. The type and number of environmental monitoring elements carried out at each site are summarised in Table 2.

Table 2 Council monitoring activity in relation to the STDC closed municipal landfills in the year under review

Landfill	Catchment	Inspections	Samples taken
Eltham	Waingongoro	2	0
Hawera	Tawhiti	1	17
Kaponga	Waikura	Next monitored 2023-2024	
Manaia	Waikura	2	6
Otakeho	Taikatu	Next monitored 2022-2023	
Opunake	Otahi	2	4
Patea	Patea	3	6
Total		10	33

1.4.2 Programme liaison and management

There is generally a significant investment of time and resources by the Council in:

- ongoing liaison with resource consent holders over consent conditions and their interpretation and application;
- discussion over monitoring requirements;
- preparation for any consent reviews, renewals or new consent applications;
- advice on the Council's environmental management strategies and content of regional plans; and
- consultation on associated matters.

1.4.3 Site inspections

A total of ten inspections were undertaken focusing on stormwater and silt control, and the condition of landfill caps. Sources of data being collected by the consent holder were identified and accessed, so that performance in respect of operation, internal monitoring, and supervision could be reviewed by the Council.

1.4.4 Chemical sampling

Discharges and the receiving waters associated with the landfills were sampled during the monitoring period as described in Table 2. A total of 33 samples were collected and analysed for various water quality parameters depending on the site.

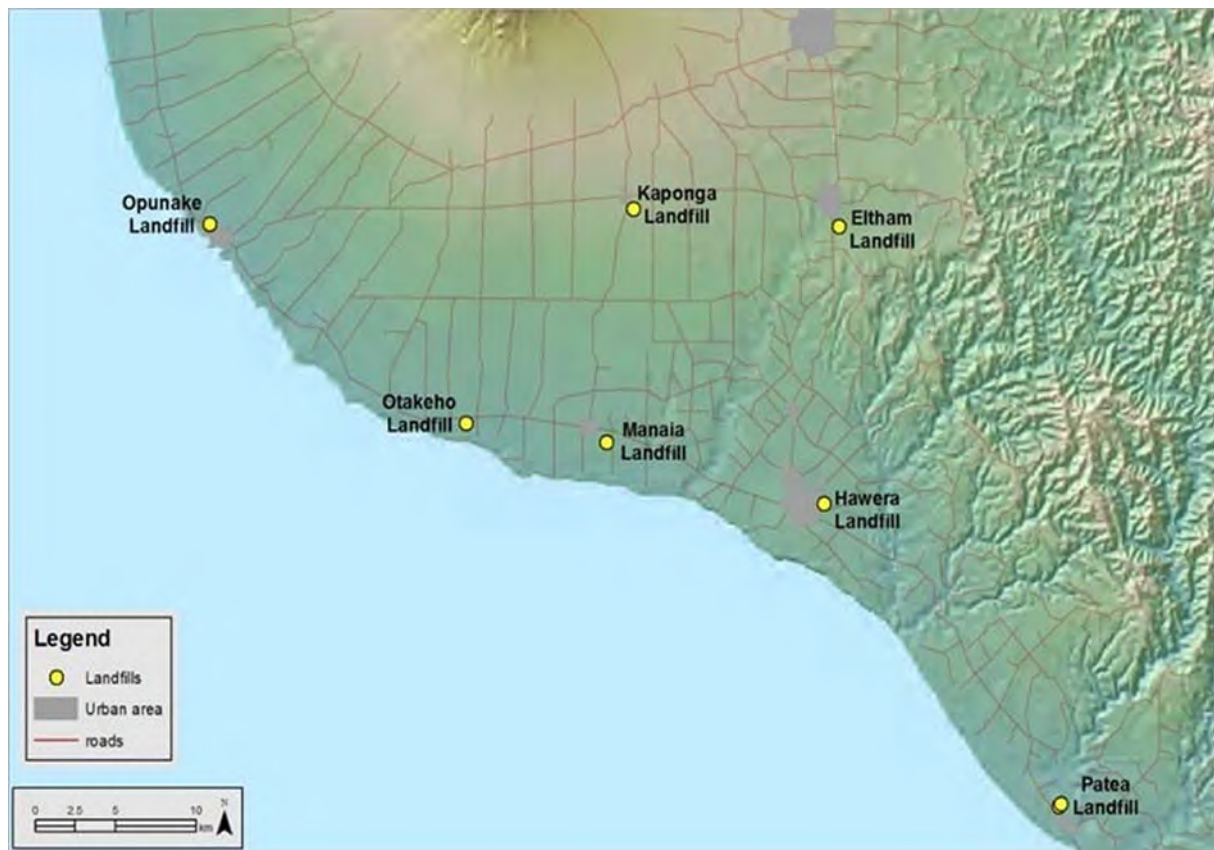


Figure 1 Regional map of STDC closed landfills

2 Eltham landfill

2.1 Site description

This landfill was used to service the township of Eltham and surrounding rural areas but was closed in 1992 due to exhaustion of landfill capacity. The 0.71 ha site is located on Castle Street, just downstream of the Eltham oxidation ponds (Figure 2). The area is generally well rehabilitated, with the majority of the area grassed. The landfill is monitored by the Council under the Eltham wastewater treatment plant/Eltham landfill combined monitoring programme.

Historically the water quality in the Mangawhero Stream was quite poor due to the discharges from the Eltham wastewater treatment plant and it was difficult to fully assess any impact from the landfill on the stream. Generally no deterioration in water quality was found when comparing upstream and downstream sites.

Now that the Eltham wastewater treatment plant pumps its effluent to the Hawera wastewater treatment plant, the water quality in the Mangawhero Stream has improved and subsequently monitoring has been reduced.

STDC holds water discharge permit 3387-3 to cover the discharge of leachate and stormwater from Eltham landfill into the Mangawhero Stream.



Figure 2 Eltham landfill and sampling sites (not currently monitored)

2.2 Results

2.2.1 Inspections

Inspections of the closed landfill were undertaken on 27 January and 12 April 2022. There was good pasture growth over the landfill cap and no slumping or leachate discharge was observed. No adverse environmental effects from the closed landfill were noted.

2.2.2 Investigations, interventions, and incidents

In the 2021-2022 period, the Council was not required to undertake significant additional investigations and interventions, or record incidents, in association with conditions in resource consents relating to the Eltham landfill or provisions in Regional Plans.

2.3 Discussion

2.3.1 Discussion of site performance

The site has been closed for approximately 30 years and no incidents or complaints were logged by Council during the year under review. The consent holder has a management and contingency plan in place for the site.

2.3.2 Environmental effects of exercise of consents

In the past it has been difficult to accurately gauge the effects associated with the discharge of leachate from the Eltham landfill. This was because any effect that the leachate may have had on the Mangawhero Stream was masked by the discharge of wastes from the Eltham wastewater treatment plant. However, the works to pump Eltham's wastewater treatment plant discharge to Hawera's wastewater treatment plant were completed approximately nine years ago, and the water quality in the Mangawhero Stream has been showing some improvement. The results of previous macroinvertebrate surveys have not indicated that the presence of the landfill was having an adverse effect on water quality.

2.3.3 Evaluation of performance

A tabular summary of STDC's compliance record at Eltham landfill for the year under review is set out in Table 3.

Table 3 Summary of performance for Eltham closed landfill consent 3387-3

Purpose: To discharge stormwater and leachate from the former Eltham landfill site into the Mangawhero Stream		
Condition requirement	Means of monitoring during period under review	Compliance achieved?
1. STDC shall adopt the best practicable option	Programme management and inspection	Yes
2. STDC shall prepare and maintain a site contingency plan	Programme management	Yes
3. The site and associated water shall be monitored	Inspection and biological monitoring	Yes

Purpose: To discharge stormwater and leachate from the former Eltham landfill site into the Mangawhero Stream

Condition requirement	Means of monitoring during period under review	Compliance achieved?
4. Discharges from the site shall not cause adverse environmental effects	Inspection	Yes
5. Optional review provision	No further opportunity for review prior to expiry	N/A
Overall assessment of consent compliance and environmental performance in respect of this consent		High
Overall assessment of administrative performance in respect of this consent		High

N/A = not applicable

During the year, STDC demonstrated a high level of environmental and administrative performance in relation to the Eltham landfill consent as defined in Appendix II.

2.3.4 Recommendations from the 2020-2021 Annual Report

In the 2020-2021 Annual Report, it was recommended:

1. THAT in the first instance, the monitoring of discharges from the closed landfill at Eltham in the 2021-2022 year continue at the same level as in 2020-2021.
2. THAT should there be any issues with environmental or administrative performance in 2021-2022, monitoring of the closed landfill at Eltham may be adjusted to reflect any additional investigation or intervention as found necessary.

Recommendation one was implemented, while it was not considered necessary to carry out additional investigations or interventions as per recommendation two.

2.3.5 Alterations to monitoring programmes for 2022-2023

In designing and implementing the monitoring programmes for water discharges in the region, the Council has taken into account:

- the extent of information already made available through monitoring or other means to date;
- its relevance under the RMA;
- the Council's obligations to monitor consented activities and their effects under the RMA;
- the record of administrative and environmental performances of the consent holder; and
- reporting to the regional community.

The Council also takes into account the scope of assessments required at the time of renewal of permits, and the need to maintain a sound understanding of industrial processes within Taranaki exercising resource consents.

No changes have been made to the 2022-2023 programme.

It should be noted that the proposed programme represents a reasonable and risk-based level of monitoring for the site in question. The Council reserve the right to subsequently adjust the programme from that initially prepared, should the need arise if potential or actual non-compliance is determined at any time during 2022-2023.

2.4 Recommendations

1. THAT in the first instance, the monitoring of discharges from the closed landfill at Eltham in the 2022-2023 year continue at the same level as in 2021-2022.
2. THAT should there be any issues with environmental or administrative performance in 2022-2023, monitoring of the closed landfill at Eltham may be adjusted to reflect any additional investigation or intervention as found necessary.

3 Hawera landfill

3.1 Site description

The Matangara Road municipal landfill was used for domestic waste disposal for the Hawera District. A small unnamed tributary of the Tawhiti Stream flowed down a deep gully (approximately 30 m) from the north-west to the south-east of the landfill site. The stream was directed into a 750 mm pipe and waste was deposited into the landfill over the pipe, shown as a dashed line on Figure 3. The stream exits the culvert where it discharges into a roadside drain (later referred to as the roadside tributary) that runs adjacent to Matangara Road. The roadside tributary flows into the Tawhiti Stream approximately 400 m downstream of the culvert.

The landfill closed in September 1998, and STDC reinstated the site. Leachate is captured via leachate collection lines in the landfill and is pumped to the Hawera wastewater treatment plant from a pump station located near the upstream end of the culvert under the landfill as illustrated in Figure 2 (RTP001008). Groundwater monitoring has shown that some leachate is entering the groundwater in the immediate vicinity of the site, but this appears to be having only a very minor effect at the southern boundary of the site.

STDC holds land use permit 5831-2 to divert an unnamed tributary of the Tawhiti Stream. STDC holds water discharge permit 0444-4 to cover the discharge of leachate and stormwater from Hawera landfill onto and into groundwater and an unnamed tributary of the Tawhiti Stream. Consent 0444-4 expired in 2016 and the replacement consent 0444-5 is being finalised.

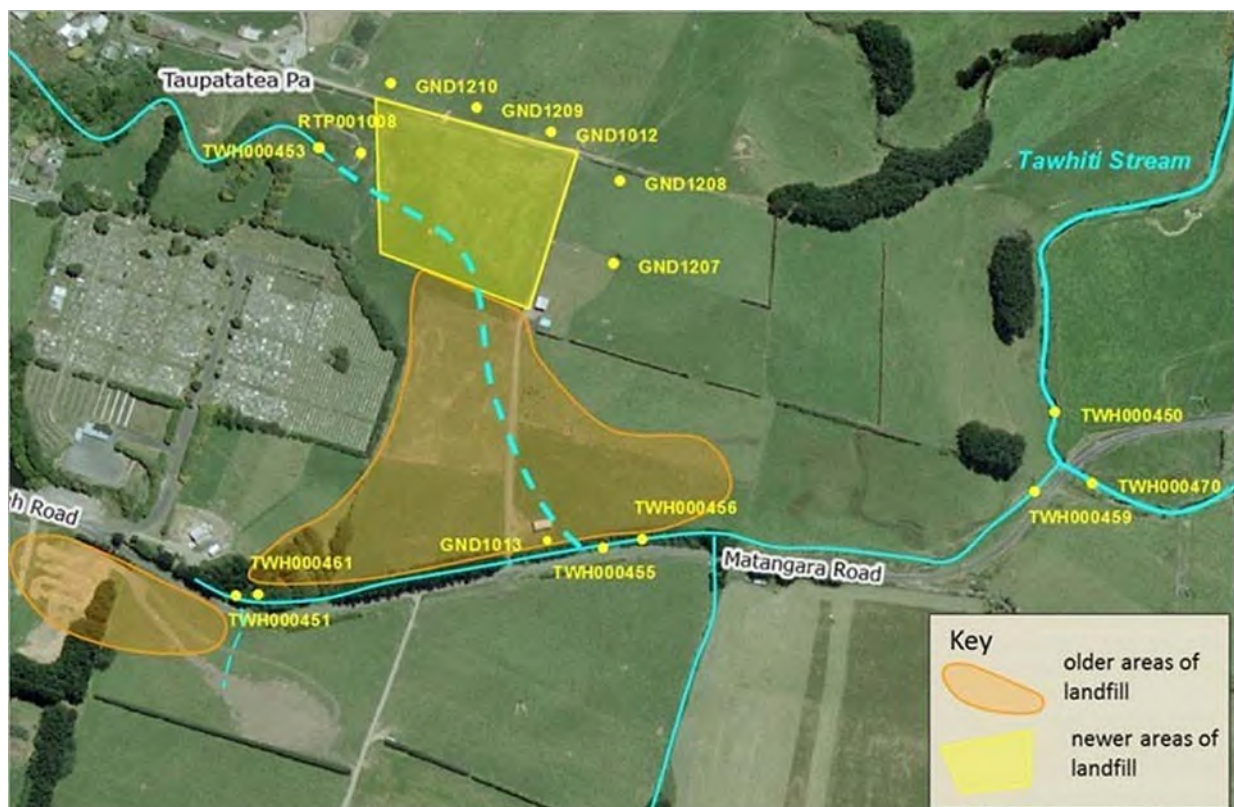


Figure 3 Aerial view of Hawera landfill and sampling sites

3.2 Results

3.2.1 Inspection

One inspection was undertaken during the period under review.

3 November 2021

The cap was intact and well-grassed, with no sign of ponding. No slumping, cracking or erosion was noted. The batters were tidy and well-maintained. There was no evidence of recent grazing. The stormwater drains were clear and dry. The leachate system was tidy and operational with no sign of spills or overflows. No odour or dust issues were noted. Methane was not detected during the inspection. The site was unoccupied and fully secure with permanent fencing.

3.2.2 Results of discharge monitoring

Two leachate samples were collected at the leachate sump (site RTP001008) during the year under review. The results are presented in Table 4 and the location of the sampling site is shown in Figure 3.

Results indicate that waste in the landfill is still actively degrading and releasing contaminants. The high alkalinity, chloride, chemical oxygen demand (COD) and ammoniacal nitrogen concentrations are typical values for landfill leachate and, as expected, these contaminants are gradually trending down over time (Figure 4, Figure 5, and Figure 6). All of the results obtained during the year under review were below the maximum values previously recorded, although a number were above the historical medians.

Table 4 Chemical analysis of the Hawera landfill leachate samples

Parameter	Unit	8 October 2021	28 April 2022	Historical Data (1998-2021)		
				Min	Max	Median
Alkalinity Total	g/m ³ CaCO ₃	640	1,010	130	1,310	923
Ammoniacal nitrogen	g/m ³ N	65	127	0.308	176	113
Un-ionised ammonia	g/m ³	0.24	0.75	0.00022	1.26	0.36
Chloride	g/m ³	134	270	41	1,100	240
Chromium Dissolved	g/m ³	0.0006	0.0013	0.0005	<0.03	<0.03
Conductivity @ 25°C *	mS/m	166	272	48.6	352	246
Dissolved reactive phosphorus	g/m ³ P	<0.004	<0.004	<0.003	0.030	0.004
Filtered COD	g/m ³	80	147	11	290	116
Iron Acid Soluble	g/m ³	15	29	0.38	72	31
Mercury Total	g/m ³	<0.00008	<0.00008	<0.00008	0.0016	<0.0001
Nitrite/nitrate nitrogen	g/m ³ N	1.73	0.35	<0.01	3.97	0.07
pH	pH	7.0	7.2	6.4	7.7	6.9
Temperature	°C	16.2	17.8	12.9	36.2	16.9
Zinc Dissolved	g/m ³	0.0076	0.0012	<0.0010	0.086	0.009

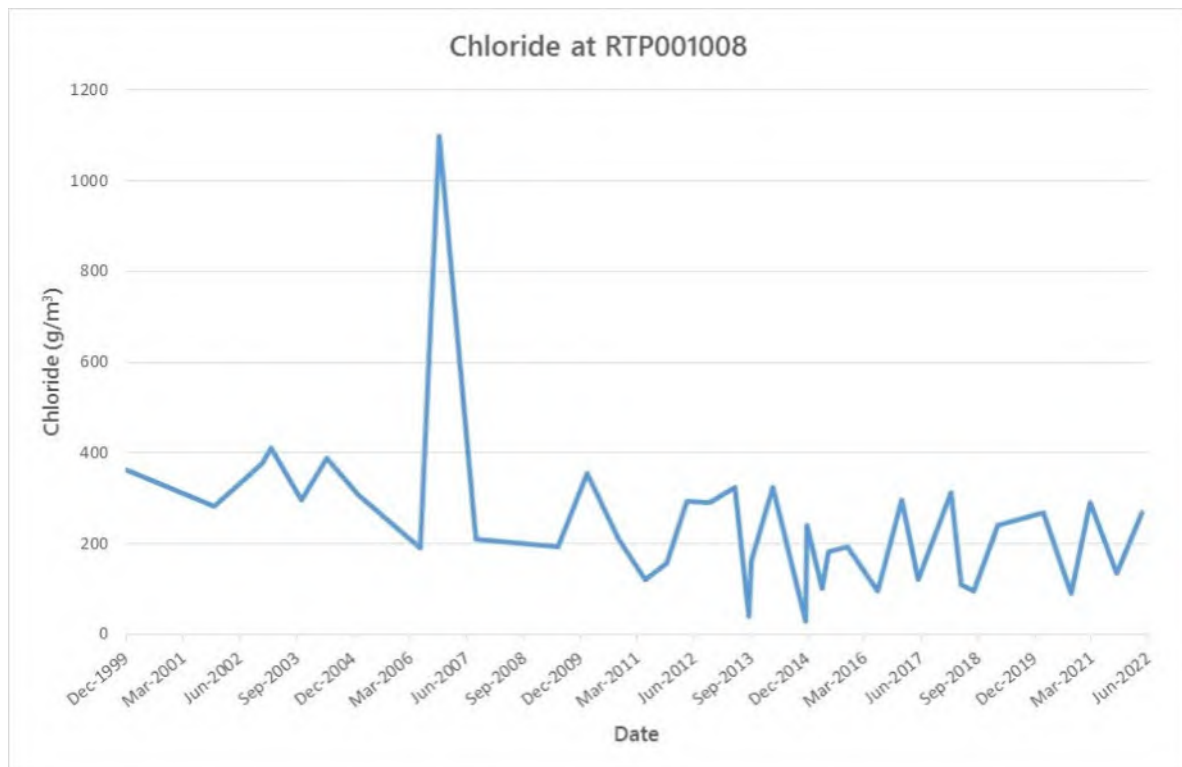


Figure 4 Hawera landfill leachate chloride concentration; 1999-2022

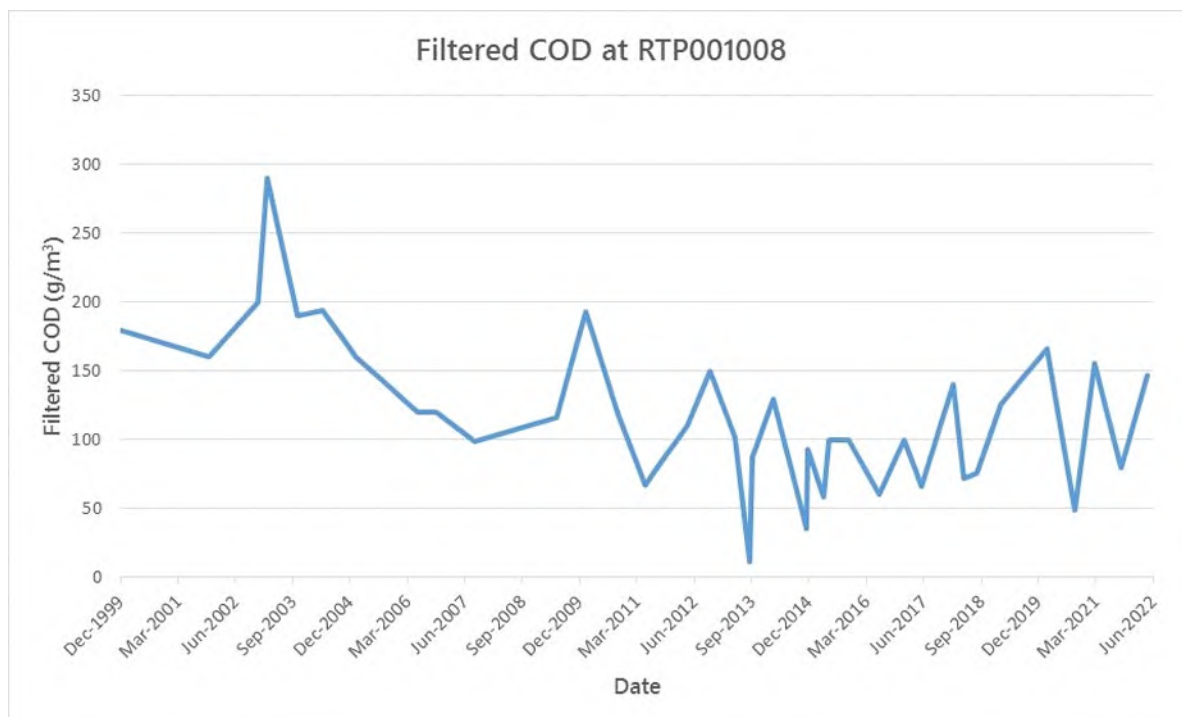


Figure 5 Hawera landfill leachate filtered chemical oxygen demand; 1999-2022

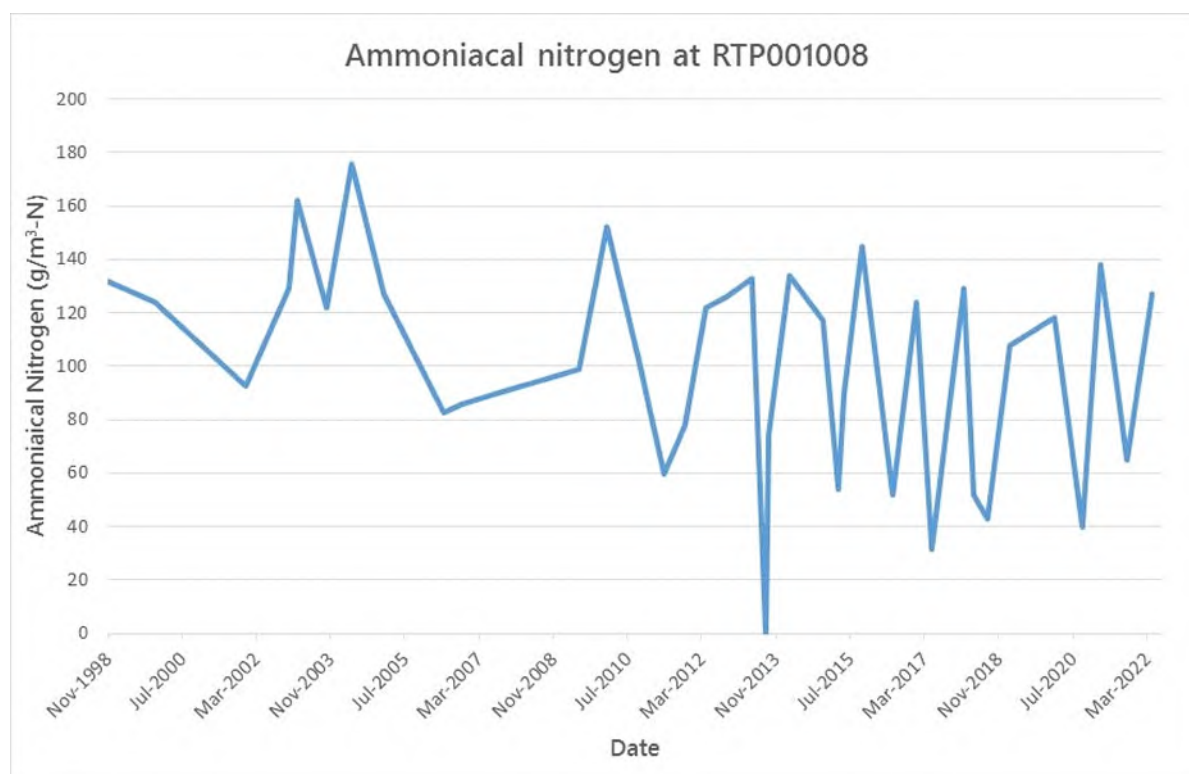


Figure 6 Hawera landfill leachate ammoniacal nitrogen, 1998-2022

As most of this leachate is pumped to the Hawera wastewater treatment plant, the majority of the contaminants found in these samples have no direct effect on surface waters near the site. However, they do give an indication of the contaminant concentrations present in the subsurface flows that have the potential to enter groundwater at this site, due to the lack of an engineered liner. It is noted that most of the contaminants show a distinct seasonal variation.

3.2.3 Results of groundwater monitoring

Two groundwater surveys were undertaken during the year under review at three of the bores, GND1012, GND1013, and GND1209 (Figure 3). The results of the chemical analyses are set out in Table 5.

As with previous monitoring periods, bore GND1012 exhibits elevated levels of landfill contamination indicators, such as increased chlorides, alkalinity, iron, and ammoniacal nitrogen. This bore is immediately adjacent to, and down gradient of the landfill footprint, and in recent years has contained a similar level of contaminants to the leachate as indicated by the relative alkalinity, conductivity and chemical oxygen demands. It is noted that bore GND1013 is further away from the most recently landfilled areas and as a result has far lower levels of these landfill indicators (Figure 7, Figure 8 and Figure 9).

GND1209 has been sampled sporadically in the past and was added back into the monitoring programme during the current monitoring period. Historically this bore on the northern side of the fill area has had consistently high results (at or above that of GND1012) but monitoring was discontinued due to deterioration of the bore (which has now been reinstated). Results from the current monitoring period showed similar levels of contaminants to GND1012.

Table 5 Chemical analyses of groundwater samples from the bores at Hawera landfill

Parameter	Unit	GND1012		GND1013		GND1209	
		8 Oct 2021	28 Apr 2022	8 Oct 2021	28 Apr 2022	8 Oct 2021	28 Apr 2022
Alkalinity	g/m ³ CaCO ₃	620	530	102	106	490	530
Chloride	g/m ³	102	83	17	16	220	230
Filtered COD	g/m ³	57	41	< 6	<6	45	48
Conductivity @ 25°C	mS/m	161	128	33.6	30.6	171	174
Dissolved reactive phosphorus	g/m ³	<0.004	0.113	<0.004	<0.004	<0.004	0.014
Acid soluble iron	g/m ³	86	66	<0.02	<0.02	30	24
Level	m	4.05	4.22	3.34	3.44	6.77	7.08
Unionised ammonia	g/m ³	0.076	0.092	<0.00001	<0.00004	0.120	0.077
Ammoniacal nitrogen	g/m ³ N	46	40	<0.010	<0.010	40	43
Nitrite/nitrate nitrogen	g/m ³ N	0.134	2.1	5.2	2.8	0.128	0.029
pH	pH	6.7	6.8	6.4	7.0	6.9	6.7
Temperature	°C	15.9	16.4	15.1	16.5	15.4	16.3
Dissolved zinc	g/m ³	<0.001	<0.001	0.0033	0.0069	0.0015	<0.001

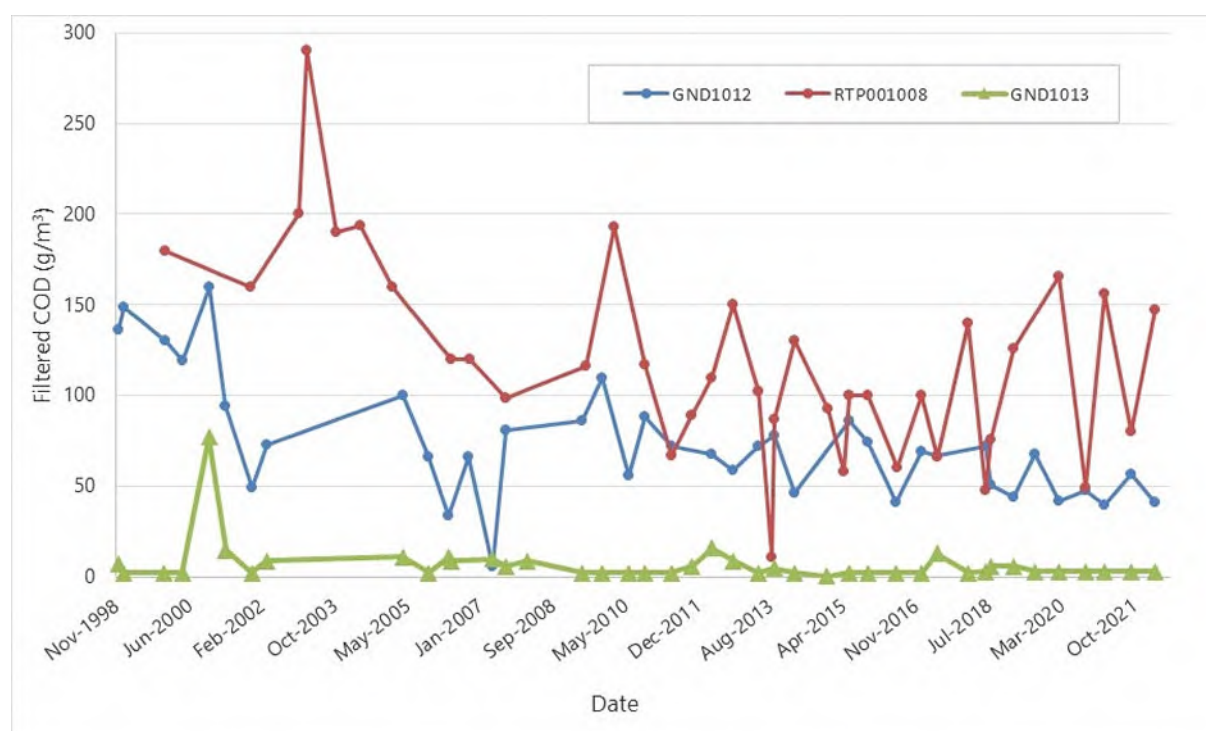


Figure 7 Comparison of filtered chemical oxygen demand between GND1012, GND1013 and RTP001008

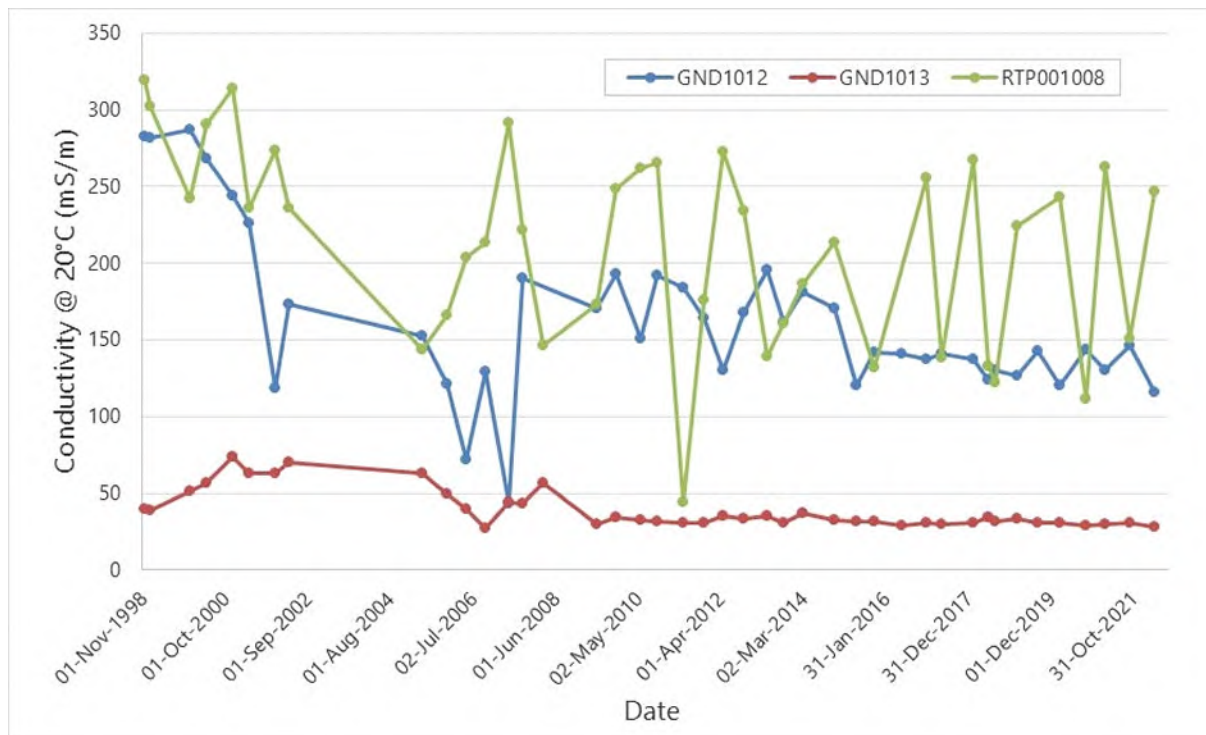


Figure 8 Comparison of conductivity between GND1012, GND1013 and RTP001008

* conductivity is now measured @25°C and results from June 2018 have been converted to 20°C for the graph

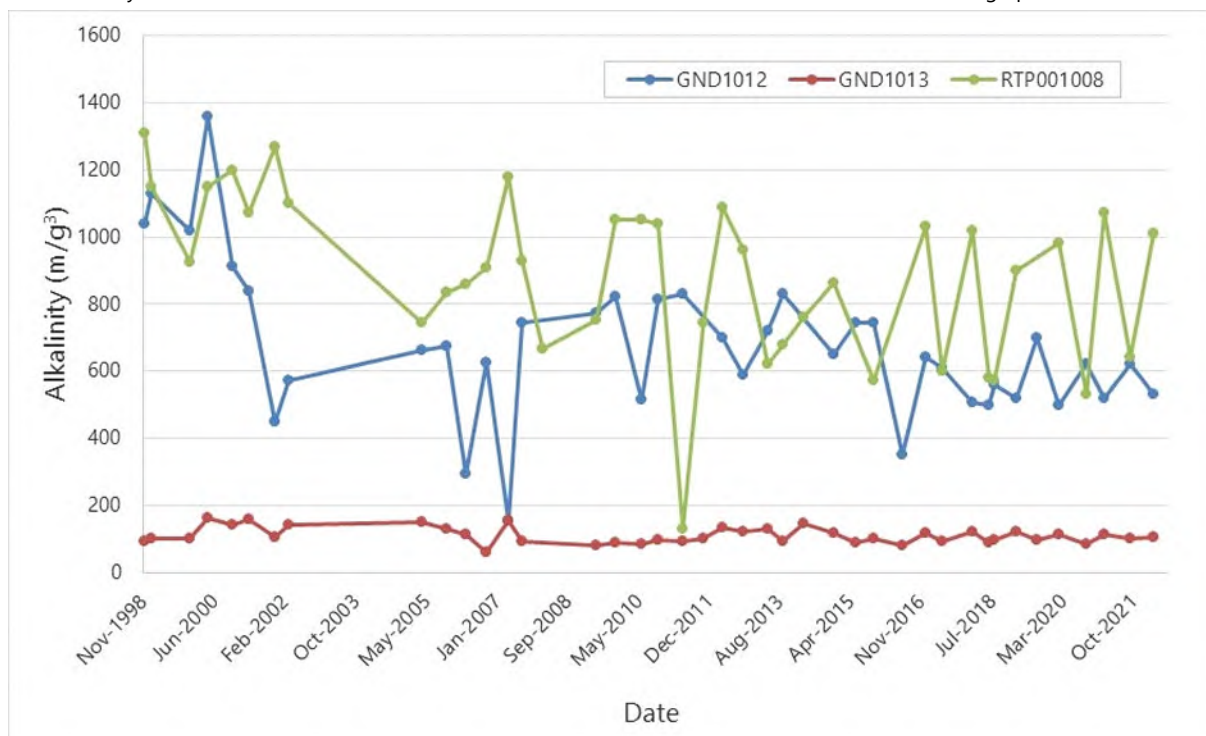


Figure 9 Comparison of alkalinity between GND1012, GND1013 and RTP001008

3.2.4 Results of surface water monitoring

Nine surface water sites (Figure 3) were sampled on one occasion during the period under review. The results of the chemical analysis of these samples are given in Table 6.

The discharge from the landfill tributary culvert contains elevated levels of ammoniacal nitrogen, BOD, iron and alkalinity when compared to the upstream landfill tributary site (TWH000453); this may indicate that some landfill contamination is seeping into the culvert as it passes under the landfill.

The roadside tributary shows moderate levels of contamination, mostly in the form of BOD, iron and ammoniacal nitrogen. Historically, the uppermost monitoring site in the roadside tributary has been found to contain similar levels of contaminants to the landfill tributary at the culvert outlet, which is unsurprising given the extent of historical filling in the area as shown in Figure 3.

During the year under review, the water quality results from the Tawhiti Stream sites show that the inflow from the roadside tributary is not having a significant effect on the water quality in the Tawhiti Stream at the consent compliance point (TWH000470). Although the alkalinity, conductivity and ammoniacal nitrogen were elevated in the roadside tributary above the confluence with the stream, these parameters were found to have reduced in the stream downstream of the confluence.

It is however noted that it is likely that there are also groundwater flows from the landfill area towards the stream to the north-west of the site. At this stage there are no monitoring sites upstream of these potential groundwater inflows, and so TWH000450 may not be a true control site for monitoring of this landfill.

This situation and the potential implications will be considered more during the consent renewal process which was still underway at the end of the period under review.

Table 6 Chemical analysis of surface water in the vicinity of the Hawera landfill site, 3 November 2021

Parameter	Unit	Roadside tributaries upstream of landfill tributary			Landfill tributary		Roadside tributary downstream of landfill tributary		Tawhiti Stream	
		TWH000451 20m u/s of SW drain	TWH000461 SW trib in-flow culvert	TWH000452 u/s landfill culvert	TWH000453 10 m u/ s of landfill	TWH000455 Discharge from culvert under landfill	TWH000456 50 m d/s of landfill culvert	TWH000459 10 m u/s confluence	TWH000450 u/s of Matangara Road and roadside tributary	TWH000470 d/s of Matangara Road and roadside tributary
Alkalinity	g/m ³	132	114	118	78	110	114	95	68	69
BOD	g/m ³	5.6	0.8	2.0	0.5	1.2	1.4	1.6	0.5	0.9
Conductivity @25°C	mS/m	38.3	35.2	36.2	27.9	34.8	35.8	33.9	27.1	27.5
Dissolved reactive phosphorus	g/m ³	0.01	<0.004	<0.004	0.007	0.008	<0.004	0.007	0.026	0.026
Acid soluble iron	g/m ³	17	4.3	3.3	0.9	3.4	2.8	1.6	1.3	1.3
Unionised ammonia	g/m ³ -N	0.027	0.0115	0.0135	0.00064	0.0069	0.0075	0.0121	<0.00013	0.00049
Ammoniacal nitrogen	g/m ³ -N	3.1	1.4	1.04	0.053	2.7	1.6	0.56	<0.010	0.036
Nitrate/nitrite nitrogen	g/m ³	0.23	1.1	1.4	1.8	2.1	1.7	1.5	2.4	2.3
pH	pH	7.6	7.5	7.7	7.7	7.0	7.3	8.0	7.7	7.8
Temperature	Deg C	12.8	13.8	13.3	12.3	12.9	13.1	13.1	13.3	13.3
Dissolved zinc	g/m ³	<0.001	0.0137	0.0112	0.0067	0.0078	0.0102	0.0032	<0.0010	<0.0010

3.2.5 Investigations, interventions, and incidents

In the 2021-2022 period, the Council was not required to undertake significant additional investigations and interventions, or record incidents, in association with STDC's conditions in the Hawera landfill resource consents or provisions in Regional Plans.

3.3 Discussion

3.3.1 Discussion of site performance

In general, the Hawera landfill was well managed and the consent holder has an up-to-date management and contingency plan in place for the site. The final cap appeared in good condition and was found to be well grassed at the time of the inspection.

3.3.2 Environmental effects of exercise of consents

The physicochemical monitoring associated with consent 0444-4 indicates the leachate discharge from the landfill shows some minor effects on the water quality in the culvert flowing below the landfill, and on water quality in the roadside tributary. Despite this, no significant effect on the water quality of the Tawhiti Stream was found.

Groundwater in the immediate vicinity of the deposited refuse is affected by the presence of the landfill, however no significant effects were detected in the adjacent waterways monitored. Further adjustments may be made to groundwater monitoring in 2022-2023 based on any requirements of special conditions attached to consent 0444-5.

3.3.3 Evaluation of performance

A tabular summary of STDC's compliance record at Hawera landfill for the year under review is set out in Tables 7 and 8.

Table 7 Summary of performance for Hawera closed landfill leachate consent 0444-4

Purpose: To discharge up to 2,800 m³/day of leachate and stormwater from the closed Matangara landfill, Hawera, to groundwater and into an unnamed tributary of the Tawhiti Stream in the Tangahoe catchment		
Condition requirement	Means of monitoring during period under review	Compliance achieved?
1. Best practicable option to prevent or minimise any likely adverse effects on the environment	Inspection and water sampling	Yes
2. Maintain adequate capping and vegetative cover	Inspection	Yes
3. Provide a landfill post-closure management plan	Programme management	Yes
4. Adhere to the landfill management plan	Programme management	Yes
5. Maintain drains, ponds and contours on site to minimise unwanted water movement and ponding on site	Inspection	Yes
6. Maintain the leachate collection system	Inspection	Yes

Purpose: To discharge up to 2,800 m³/day of leachate and stormwater from the closed Matangara landfill, Hawera, to groundwater and into an unnamed tributary of the Tawhiti Stream in the Tangahoe catchment		
Condition requirement	Means of monitoring during period under review	Compliance achieved?
7. Mixing zone shall extend 20 m downstream from point of discharge	N/A	N/A
8. Discharge shall not adversely affect the receiving waters	Inspection and water sampling	Yes
9. Monitoring of groundwater, surface water and leachate	Water sampling	Yes
10. Monitoring bores shall be maintained	Inspection	Yes
11. Optional review provision re contamination of the unnamed tributary of the Tawhiti Stream	Not required	N/A
12. Optional review provision re environmental effects	Consent has expired	N/A
Overall assessment of consent compliance and environmental performance in respect of this consent		High
Overall assessment of administrative performance in respect of this consent		High

N/A = not applicable

Table 8 Summary of performance for Hawera closed landfill culvert/diversion consent 5831-2

Purpose: To divert an unnamed tributary of the Tawhiti Stream		
Condition requirement	Means of monitoring during period under review	Compliance achieved?
1. Diversion pipe to be kept as clear as is practicable	Inspection and liaison with consent holder	Yes
2. Obstruction of fish passage prohibited	Not assessed	N/A
3. Optional review provision re environmental effects	Provision for optional review in June 2025	N/A
Overall assessment of consent compliance and environmental performance in respect of this consent		High
Overall assessment of administrative performance in respect of this consent		High

N/A = not applicable

During the year, STDC demonstrated a high level of environmental and high level of administrative performance with the resource consents as defined in Appendix II.

3.3.4 Recommendations from the 2020-2021 Annual Report

In the 2020-2021 Annual Report it was recommended:

1. THAT in the first instance, monitoring of discharges from Hawera landfill in the 2021-2022 year remains similar to the 2020-2021 monitoring programme.
2. THAT should there be any issues with environmental or administrative performance in the 2021-2022, monitoring of the closed Hawera landfill may be adjusted to reflect any additional investigation or intervention as found necessary.

Recommendation one was implemented, while it was not considered necessary to carry out additional monitoring as per recommendation two.

3.3.5 Alterations to monitoring programmes for 2022-2023

In designing and implementing the monitoring programmes for water discharges in the region, the Council has taken into account:

- the extent of information already made available through monitoring or through other means to date;
- its relevance under the RMA;
- the Council's obligations to monitor consented activities and their effects under the RMA;
- The record of administrative and environmental performance of the consent holder; and
- reporting to the regional community.

The Council also takes into account the scope of assessments required at the time of renewal of permits, and the need to maintain a sound understanding of industrial processes within Taranaki exercising resource consents.

It is proposed that for 2022-2023, the programme remains similar to 2021-2022. Further adjustments may be made to surface and groundwater monitoring in 2022-2023 based on any requirements of special conditions attached to consent 0444-5.

It should be noted that the proposed programme represents a reasonable and risk-based level of monitoring for the site in question. The Council reserve the right to subsequently adjust the programme from that initially prepared, should the need arise if potential or actual non-compliance is determined at any time during 2022-2023.

3.4 Recommendations

1. THAT in the first instance, monitoring of discharges from Hawera landfill in the 2022-2023 year remains similar to the 2021-2022 monitoring programme, with adjustments made if required when consent 0444-5 is granted.
2. THAT should there be any issues with environmental or administrative performance in the 2022-2023, monitoring of the closed Hawera landfill may be adjusted to reflect any additional investigation or intervention as found necessary.

4 Kaponga landfill

4.1 Site description

STDC (previously as Eltham District Council) operated the Kaponga landfill from the 1970's to 1993. The Kaponga landfill site is located in a gully that also has a wetland fed by a number of springs emanating from within the landfill (Figure 10). This landfill closed in 1993. The cap has been covered by pasture for over a decade and the site is now part of a dairy farm. On closure, the site was sown in suitable pasture grasses to ensure rapid stormwater runoff and minimise percolation through the capping layer. Raupo growth on the lower face of the reinstated surface provides some natural attenuation of leachate and hence gives protection to the Waiokura Stream.

STDC holds water discharge permit 3459-3 to cover the discharge of leachate and stormwater from Kaponga landfill into an unnamed tributary of the Waiokura Stream.

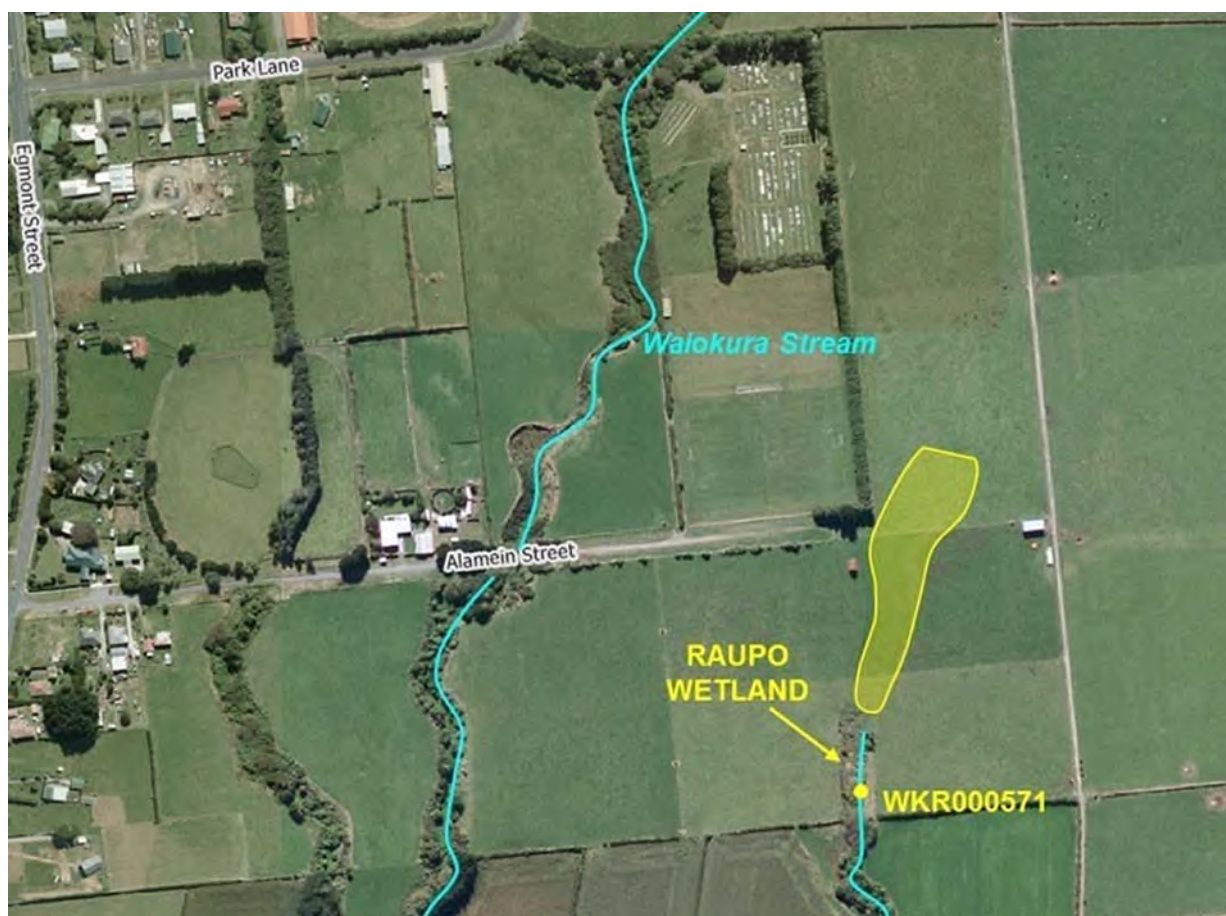


Figure 10 Aerial view of the Kaponga landfill site

4.2 Results

Monitoring of this site is scheduled to be undertaken on a triennial basis, with the programme next scheduled for monitoring in the 2023-2024 year.

4.2.1 Investigations, interventions, and incidents

In the 2021-2022 period, the Council was not required to undertake significant additional investigations and interventions, or record incidents, in association with STDC's conditions in the Kaponga landfill resource consents or provisions in Regional Plans.

4.3 Discussion

4.3.1 Evaluation of performance

A tabular summary of STDC's compliance record for the Kaponga landfill for the year under review is set out in Table 9.

Table 9 Summary of performance for Kaponga closed landfill stormwater and leachate consent 3459-3

Purpose: To discharge stormwater and leachate from the former Kaponga landfill site into an unnamed tributary of the Waiohira Stream		
Condition requirement	Means of monitoring during period under review	Compliance achieved?
1. Adopt best practice	Inspection	N/A
2. Prepare and maintain a site contingency plan	Plan on file from August 2013	N/A
3. Monitor ground and surface water on and near the site	Monitoring programme in place	N/A
4. Maintain all stormwater and leachate collection systems	Inspection	N/A
5. No adverse impact on aquatic life	Inspection and sampling	N/A
6. Optional review provision re environmental effects	No further provision for review	N/A
Overall assessment of consent compliance and environmental performance in respect of this consent		N/A
Overall assessment of administrative performance in respect of this consent		N/A

N/A = not applicable

During the year, the environmental and administrative performance in relation to the Kaponga landfill consent as defined in Appendix II was not assessed.

4.3.2 Recommendations from the 2020-2021 Annual Report

In the 2020-2021 Annual Report it was recommended:

1. THAT in the first instance, the Kaponga landfill triennial monitoring programme remains in place with monitoring next scheduled for the 2023-2024 period.
2. THAT should there be any issues with environmental or administrative performance in 2021-2022, monitoring of the Kaponga landfill may be adjusted to reflect any additional investigation or intervention as found necessary.

Recommendation one was implemented, while it was not considered necessary to carry out additional investigations or interventions as per recommendation two.

4.3.3 Alterations to monitoring programmes for 2022-2023

In designing and implementing the monitoring programmes for air/water discharges in the region, the Council has taken into account:

- the extent of information already made available through monitoring or other means to date;
- its relevance under the RMA;
- the Council's obligations to monitor consented activities and their effects under the RMA;
- the record of administrative and environmental performances of the consent holder; and
- reporting to the regional community.

The Council also takes into account the scope of assessments required at the time of renewal of permits, and the need to maintain a sound understanding of industrial processes within Taranaki exercising resource consents.

It is proposed that for 2022-2023, the programme remains unchanged, with triennial monitoring next scheduled for the 2023-2024 period.

It should be noted that the proposed programme represents a reasonable and risk-based level of monitoring for the site in question. The Council reserves the right to subsequently adjust the programme from that initially prepared, should the need arise if potential or actual non-compliance is determined at any time during 2022-2023.

4.4 Recommendations

1. THAT in the first instance, the Kaponga landfill triennial monitoring programme remains in place with monitoring next scheduled for the 2023-2024 period.
2. THAT should there be any issues with environmental or administrative performance in 2022-2023, monitoring of the Kaponga landfill may be adjusted to reflect any additional investigation or intervention as found necessary.

5 Manaia landfill

5.1 Site description

The Manaia community landfill was in operation from the 1980s and STDC has held consent 3952, which authorises the discharge of both leachate and stormwater from the site since 1991. The landfill initially serviced the township of Manaia and the surrounding rural areas exclusively. However, with the closure of the Matangara landfill (Hawera) in June 1998 and the Opunake landfill in November 1999, the landfill's catchment expanded to service these other areas until it closed in June 2006.

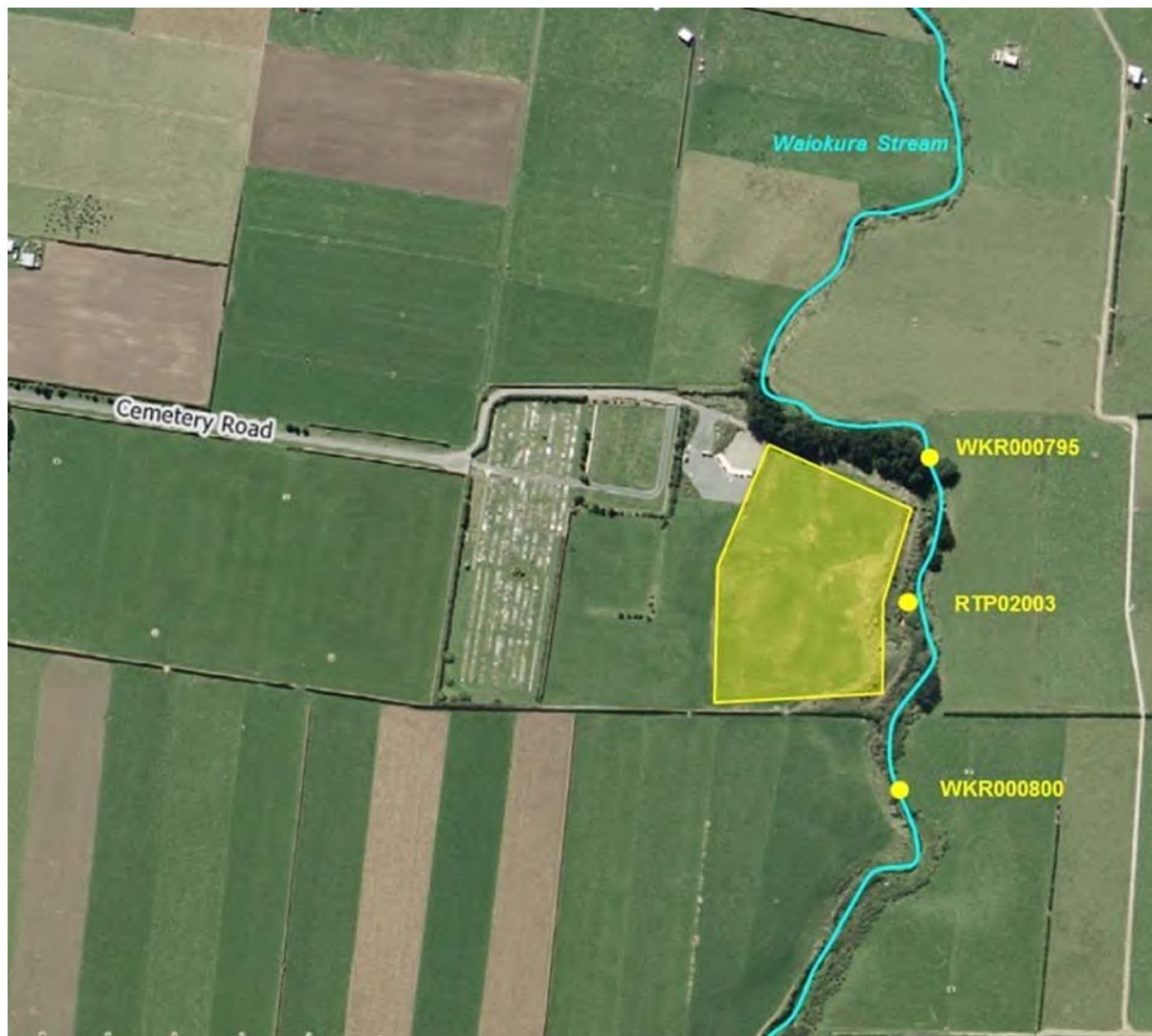


Figure 11 Aerial view of Manaia landfill showing sampling sites and landfill footprint

5.2 Results

5.2.1 Inspections

Two inspections were carried out during the monitoring year. The inspections focused on the condition of the cap and the management of stormwater and leachate.

26 October 2021

The top of the cap was clear and well grassed and the boundary batters were in good condition. The stormwater/leachate drains from the cap were clear and dry. The leachate pond was empty and was not discharging at the time of the inspection. Stock were not present and no signs of recent grazing were observed. Signage and fencing was intact and permanent. The boundary fencing on the cap was in good condition. The transfer station was tidy and unoccupied at the time, with no windblown refuse. No odour or dust issues were noted.

30 May 2022

The top of the cap was in good condition, with good grass coverage and no obvious slips, slumping or ponding. There was a lot of water movement and the stormwater and leachate drains were all operating well. The leachate pond was half full and not discharging at the time of the inspection. There were no stock on the cap or evidence of recent grazing. The fencing surrounding the landfill cap was in good condition, however fences following the Waiokura Stream were badly damaged. Cattle were present in the belt following the stream.

5.2.2 Results of discharge and receiving environment monitoring

During the year under review samples were collected from the leachate pond and the Waiokura Stream upstream (u/s) and downstream (d/s) of the landfill (Figure 11) on two occasions. The results are presented in Table 10.

Table 10 Chemical analysis of discharge and receiving waters at Manaia landfill

		26 October 2021			30 May 2022		
Parameter	Unit	WKR000795 u/s landfill	Leachate RTP002003	WKR000800 d/s of landfill	WKR000795 u/s landfill	Leachate RTP002003	WKR000800 d/s of landfill
Alkalinity	g/m ³ CaCO ₃	-	-	-	54	320	55
BOD	g/m ³	-	-	-	1.4	4.6	0.8
Conductivity @ 25°C	mS/m	27.8	81.1	28.0	27.8	85.2	28.2
Dissolved reactive phosphorus	g/m ³ P	-	-	-	0.024	<0.04	0.027
Acid soluble iron	g/m ³	-	-	-	0.6	<0.4	0.6
Unionised ammonia	g/m ³ N	0.00016	0.00175	0.00025	0.00015	0.0143	0.00024
Ammoniacal nitrogen	g/m ³ N	0.014	0.174	0.020	0.027	2.8	0.042
Nitrite/nitrate nitrogen	g/m ³ N	-	-	-	4.1	0.56	4.1
pH	pH	7.6	7.4	7.6	7.4	7.4	7.4
Suspended solids	g/m ³	-	-	-	27	4	20
Temperature	Deg.C	15.7	18.8	15.8	13.1	11.0	13.1
Dissolved zinc	g/m ³	<0.001	0.0037	<0.001	<0.001	0.0042	<0.001

On both sampling occasions results generally showed little change in water quality between the upstream and downstream sites. This is consistent with historical data and indicates that the presence of the landfill is having little, if any, effect on water quality in the Waiokura Stream. Unionised ammonia concentrations were well below the 0.025 g/m³ consent limit and guideline given in the Regional Freshwater Plan to protect aquatic ecosystems that may be subjected to long term exposure.

5.2.3 Investigations, interventions, and incidents

In the 2021-2022 period, the Council was not required to undertake significant additional investigations and interventions, or record incidents, in association with STDC's conditions in the Manaia landfill resource consents or provisions in Regional Plans.

5.3 Discussion

5.3.1 Discussion of site performance

No issues were noted with regards to the site or site management during the monitoring period.

5.3.2 Environmental effects of exercise of consents

There was little variation in water quality in the Waiokura Stream above and below the landfill site, and this is comparable to historical data. The results gathered during this and previous monitoring periods, indicate that the presence of the landfill is not causing any significant adverse effects on the receiving environment.

5.3.3 Evaluation of performance

A tabular summary of STDC's compliance record at Manaia landfill for the year under review is set out in Table 11.

Table 11 Summary of performance for Manaia consent 3952-2

Purpose: To discharge leachate and stormwater from the closed Manaia landfill and from composting operations into the Waiokura Stream		
Condition requirement	Means of monitoring during period under review	Compliance achieved?
1. STDC shall adopt the best practicable option	Programme management	Yes
2. STDC shall prepare a site contingency plan	Plan updated September 2019	Yes
3. Prepare a landfill management plan	Plan updated September 2019	Yes
4. STDC shall notify the Council of changes to plans prior to changes	Liaison with consent holder	Yes
5. Monitor site, ground and surface water on and near the site	Water sampling	Yes
6. Install leachate and stormwater collection, treatment and discharge systems	Inspections	Yes

Purpose: To discharge leachate and stormwater from the closed Manaia landfill and from composting operations into the Waiokura Stream		
Condition requirement	Means of monitoring during period under review	Compliance achieved?
7. Limits on BOD and NH ₃ in the Waiokura Stream	Water sampling	Yes
8. Optional review provision re environmental effects	No further provision for review prior to expiry	N/A
Overall assessment of consent compliance and environmental performance in respect of this consent		High
Overall assessment of administrative performance in respect of this consent		High

N/A = not applicable

During the year, STDC demonstrated a high level of environmental and administrative performance in relation to the Manaia landfill consent as defined in Appendix II.

5.3.4 Recommendations from the 2020-2021 Annual Report

In the 2020-2021 Annual Report, it was recommended:

1. THAT in the first instance, the monitoring of discharges from the closed landfill at Manaia in the 2021-2022 year continues at the same level as in 2020-2021.
2. THAT should there be issues with environmental or administrative performance in 2021-2022, monitoring of the Manaia landfill may be adjusted to reflect any additional investigation or intervention as found necessary.

Recommendation one was implemented, while it was not considered necessary to carry out additional investigations or interventions as per recommendation two.

5.3.5 Alterations to monitoring programmes for 2022-2023

In designing and implementing the monitoring programmes for water discharges in the region, the Council has taken into account:

- the extent of information already made available through monitoring or other means to date;
- its relevance under the RMA;
- the Council's obligations to monitor consented activities and their effects under the RMA;
- the record administrative and environmental performance of the consent holder; and
- reporting to the regional community.

The Council also takes into account the scope of assessments required at the time of renewal of permits, and the need to maintain a sound understanding of industrial processes within Taranaki exercising resource consents.

It is proposed that for 2022-2023, the monitoring programme remains unchanged.

It should be noted that the proposed programme represents a reasonable and risk-based level of monitoring for the site in question. The Council reserves the right to subsequently adjust the programme from that initially prepared, should the need arise if potential or actual non-compliance is determined at any time during 2022-2023.

5.4 Recommendations

1. THAT in the first instance, the monitoring of discharges from the closed landfill at Manaia in the 2022-2023 year continues at the same level as in 2021-2022.
2. THAT should there be issues with environmental or administrative performance in 2022-2023, monitoring of the Manaia landfill may be adjusted to reflect any additional investigation or intervention as found necessary.

6 Opunake landfill

6.1 Site description

The Opunake landfill was operational from 1979, closing in 1999 with the expiry of the 20 year lease of the land. The landfill site is located on Whitcombe Road, and was used to service the township of Opunake and the surrounding rural areas. Waste from Rahotu and Pungarehu was also disposed of at the landfill. The 4.73 ha site was initially operated in an uncontrolled manner for many years with a significant amount of rubbish being burnt. In 1990 a ban on fires was imposed and the site began to operate under restricted hours. In 1999 STDC submitted a landfill closure plan and had the site reinstated.

STDC holds water discharge permit 0526-4 to discharge stormwater and leachate from the closed Opunake landfill into the Otahi Stream.



Figure 12 Aerial view of Opunake landfill footprint and sampling sites

6.2 Results

6.2.1 Inspections

Two compliance monitoring inspections were carried out at the closed Opunake landfill during the year under review.

20 October 2021

The cap and batters were intact and well-grassed with no slumping, cracking or exposed refuse. No stock were observed and there was no evidence of recent grazing. The areas around the water troughs appeared to be in good condition. The stormwater drains were clear and dry. Leachate systems appeared to be

functioning well and there was no sign of any overflow to the public track. The leachate pond was not discharging. The site was unoccupied at the time, and no odour or dust issues were noted.

30 May 2022

The cap and batters were intact and well-grassed with no slumping, cracking or exposed refuse. Approximately 40 calves were present in a fenced off section of the cap. The stormwater and leachate systems appeared to be functioning well with no sign of any overflow to the public track. The leachate pond was not discharging. Fencing was in good condition and overall the site was tidy. No odour or dust issues were noted.

6.2.2 Results of discharge and receiving environment monitoring

Samples were collected from the leachate drain, and the Otahi Stream at sites above, below and adjacent to the landfill (Figure 12) on 20 October 2021. The results are presented in Table 12.

Table 12 Chemical analysis of receiving water samples taken at Opunake closed landfill, 20 October 2021

Parameter	Units	OTH000310 u/s of landfill	OTH000320 Adjacent to landfill	RTP002002 Leachate	OTH000340 d/s of landfill
Alkalinity	g/m ³ CaCO ₃	65	66	570	66
Biochemical oxygen demand	g/m ³	<0.4	<0.4	2.5	1.0
Conductivity @ 25°C	mS/m	24.9	24.8	133	25.1
Dissolved reactive phosphorus	g/m ³	0.042	0.044	< 0.004	0.043
Acid soluble iron	g/m ³	0.6	0.6	3.3	0.6
Unionised ammonia	g/m ³ N	0.00025	0.00019	0.4	0.00028
Ammoniacal nitrogen	g/m ³ N	0.022	0.017	14.8	0.019
pH	pH	7.6	7.6	7.9	7.7
Temperature	Deg.C	15.0	14.9	18.2	14.9
Dissolved zinc	g/m ³	<0.0010	<0.0010	0.069	<0.0010

There was very little difference in water quality between sites upstream and downstream of the landfill and the water quality at the downstream site was good, complying with consent conditions with regards to unionised ammonia, ammoniacal nitrogen, pH and dissolved zinc. As the leachate discharges at a slow rate, the amount of dilution available in the Otahi Stream ensures that the level of contaminants in the stream remain at an acceptable level.

These results, and those from previous years, indicate that the presence of the landfill is not having a significant adverse effect on surface water quality.

6.2.3 Investigations, interventions, and incidents

In the 2021-2022 period, the Council was not required to undertake significant additional investigations and interventions, or record incidents, in association with STDC's conditions in the Opunake landfill resource consent or provisions in Regional Plans.

6.3 Discussion

6.3.1 Discussion of site performance

The landfill has been closed for several years and has reverted to pasture. In general, the Opunake landfill was well managed, and the consent holder has a management and contingency plan in place for the site.

6.3.2 Environmental effects of exercise of consents

The results of inspections and water sampling did not indicate that the presence of the closed landfill was having any adverse effects on the environment.

6.3.3 Evaluation of environmental performance

A tabular summary of STDC's compliance record at the Opunake landfill for the year under review is set out in Table 13.

Table 13 Summary of performance for Opunake closed landfill stormwater and leachate consent 0526-4

Purpose: To discharge stormwater and leachate from the closed Opunake landfill into the Otahi Stream		
Condition requirement	Means of monitoring during period under review	Compliance achieved?
1. STDC shall adopt the best practicable option	Programme management and inspections	Yes
2. Landfill cap and stormwater and leachate drainage systems to be maintained	Inspections	Yes
3. Site operated in accordance with a 'Management Plan'	Management Plan updated September 2019	Yes
4. Standards in water quality downstream	Water sampling	Yes
5. There shall be no adverse impact on aquatic life as a result of discharges	Inspections and water sampling	Yes
1. Optional review provision	Provision for optional review in June 2024	N/A
Overall assessment of consent compliance and environmental performance in respect of this consent		High
Overall assessment of administrative performance in respect of this consent		High

N/A = not applicable

During the year, STDC demonstrated a high level of environmental and administrative performance in relation to the Opunake landfill consent as defined in Appendix II.

6.3.4 Recommendations from the 2020-2021 Annual Report

In the 2020-2021 Annual Report it was recommended:

1. THAT in the first instance, monitoring of discharges from Opunake landfill in the 2021-2022 year continues at the same level as in 2020-2021.

2. THAT should there be any issues with the environmental or administrative performance in 2021-2022, monitoring of the Opunake landfill may be adjusted to reflect any additional investigation or intervention as found necessary.

Recommendation one was implemented, while it was not considered necessary to carry out additional investigations or interventions as per recommendation two.

6.3.5 Alterations to monitoring programmes for 2022-2023

In designing and implementing the monitoring programmes for water discharges in the region, the Council has taken into account:

- the extent of information made already made available through monitoring or other means to date;
- its relevance under the RMA;
- the Council's obligations to monitor consented activities and their effects under the RMA;
- the record of administrative and environmental performance of the consent holder; and
- reporting to the regional community.

The Council also takes into account the scope of assessments required at the time of renewal of permits, and the need to maintain a sound understanding of industrial processes within Taranaki exercising resource consents.

It is proposed that for 2022-2023, the monitoring programme remains unchanged.

It should be noted that the proposed programme represents a reasonable and risk-based level of monitoring for the site in question. The Council reserves the right to subsequently adjust the programme from that initially prepared, should the need arise if potential or actual non-compliance is determined at any time during 2022-2023.

6.4 Recommendations

1. THAT in the first instance, monitoring of discharges from Opunake landfill in the 2022-2023 year continues at the same level as in 2021-2022.
2. THAT should there be any issues with the environmental or administrative performance in 2022-2023, monitoring of the Opunake landfill may be adjusted to reflect any additional investigation or intervention as found necessary.

7 Otakeho landfill

7.1 Site description

The Otakeho landfill (Figure 13) was a small uncontrolled landfill that STDC closed in 1991. STDC at the time also applied for a consent to discharge leachate and stormwater into the Taikatu Stream. This consent was renewed in 2000, 2005, and recently in November 2018. Consent 3953-4 allows for discharge of leachate and stormwater onto and into land where it may enter water.

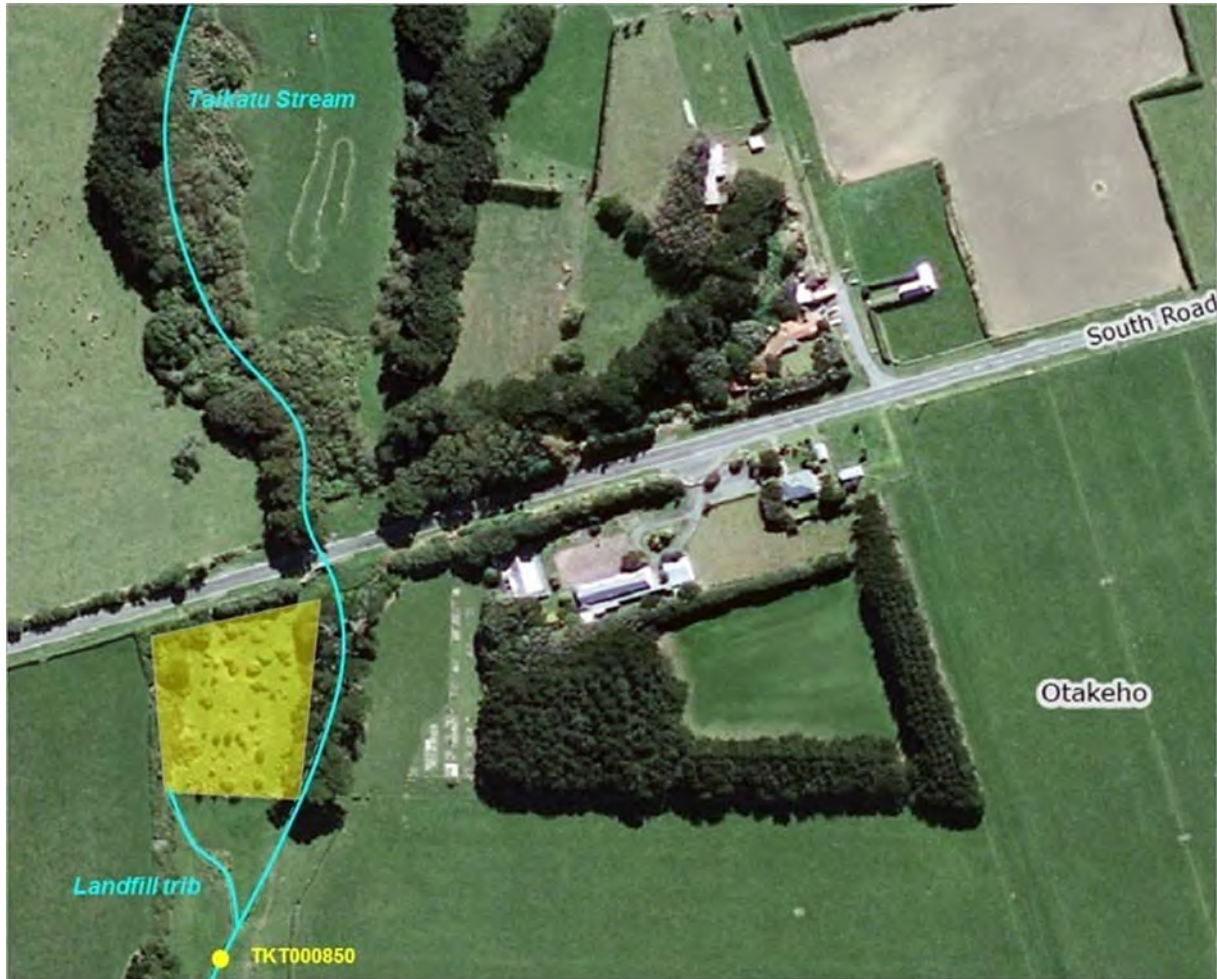


Figure 13 Aerial image of Otakeho landfill and monitoring site in the Taikatu Stream

7.2 Results

Monitoring of this site is scheduled to be undertaken on a triennial basis, with monitoring next scheduled in 2022-2023.

7.2.1 Investigations, interventions, and incidents

In the 2021-2022 period, the Council was not required to undertake significant additional investigations and interventions, or record incidents, relating to the Otakeho closed landfill, either conditions in the resource consent or provisions in Regional Plans.

7.3 Discussion

7.3.1 Evaluation of performance

A tabular summary of STDC's compliance record at the Otakeho landfill for the year under review is set out in Table 14.

Table 14 Summary of performance for Otakeho closed landfill stormwater and leachate consent 3953-4

<i>Purpose: To discharge leachate and stormwater from the closed Otakeho Municipal Landfill onto and into land where it may enter water</i>		
Condition requirement	Means of monitoring during period under review	Compliance achieved?
1. BPO to prevent or minimise any likely adverse effects on the environment	Not monitored during period under review	N/A
2. Landfill cap and stormwater and leachate drainage systems maintained	Inspections	N/A
3. Operation of site in accordance with 'Management Plan'	Management Plan received July 2019	Yes
4. Standards to be met in receiving waters below mixing zone	Sampling	N/A
5. Effects not to be caused in receiving waters	Inspections and sampling	N/A
6. Optional review provision re environmental effects	No further option for review prior to expiry	N/A
Overall assessment of consent compliance and environmental performance in respect of this consent		N/A
Overall assessment of administrative performance in respect of this consent		N/A

N/A = not applicable

During the year, the environmental and administrative performance in relation to the Otakeho closed landfill consent were not assessed.

7.3.2 Recommendations from the 2020-2021 Annual Report

In the 2020-2021 Annual Report it was recommended:

1. THAT in the first instance, the Otakeho landfill triennial monitoring programme remains in place with monitoring next scheduled to be implemented in the 2022-2023 period.
2. THAT should there be issues with environmental or administrative performance in 2020-2021, monitoring of the Otakeho landfill may be adjusted to reflect any additional investigation or intervention as found necessary.

Recommendation one was implemented, while it was not considered necessary to carry out additional monitoring as per recommendation two.

7.3.3 Alterations to monitoring programmes for 2022-2023

In designing and implementing the monitoring programmes for water discharges in the region, the Council has taken into account:

- the extent of information already made available through monitoring or other means to date;
- its relevance under the RMA;
- the Council's obligations to monitor consented activities and their effects under the RMA;
- the record of administrative and environmental performance of the consent holder; and
- reporting to the regional community.

The Council also takes into account the scope of assessments required at the time of renewal of permits, and the need to maintain a sound understanding of industrial processes within Taranaki exercising resource consents.

It is proposed that for 2022-2023, the monitoring programme remains unchanged.

It should be noted that the proposed programme represents a reasonable and risk-based level of monitoring for the site in question. The Council reserves the right to subsequently adjust the programme from that initially prepared, should the need arise if potential or actual non-compliance is determined at any time during 2022-2023.

7.4 Recommendations

1. THAT in the first instance, the Otakeho landfill triennial monitoring programme remains in place with monitoring next scheduled to be implemented in the 2022-2023 period.
2. THAT should there be issues with environmental or administrative performance in 2022-2023, monitoring of the Otakeho landfill may be adjusted to reflect any additional investigation or intervention as found necessary.

8 Patea landfill

8.1 Site Description

Prior to 1991, the Patea landfill was a largely uncontrolled landfill servicing the residents of Patea. In 1992 STDC applied for resource consents to continue operating the landfill under the RMA. The landfill continued to operate until December 2007 and was then covered with a light clay cap. Full landfill closure works commenced in August 2008 and were completed in November of the same year.

STDC holds water discharge permits 0427-3 and 7268-1 to cover the discharge of leachate and stormwater from the Patea landfill, and the discharge of stormwater from earthworks associated with the closure of Patea landfill, into an unnamed tributary of the Patea River. STDC also holds air discharge permit 4636-2 to cover discharge emissions into the air from Patea municipal landfill.

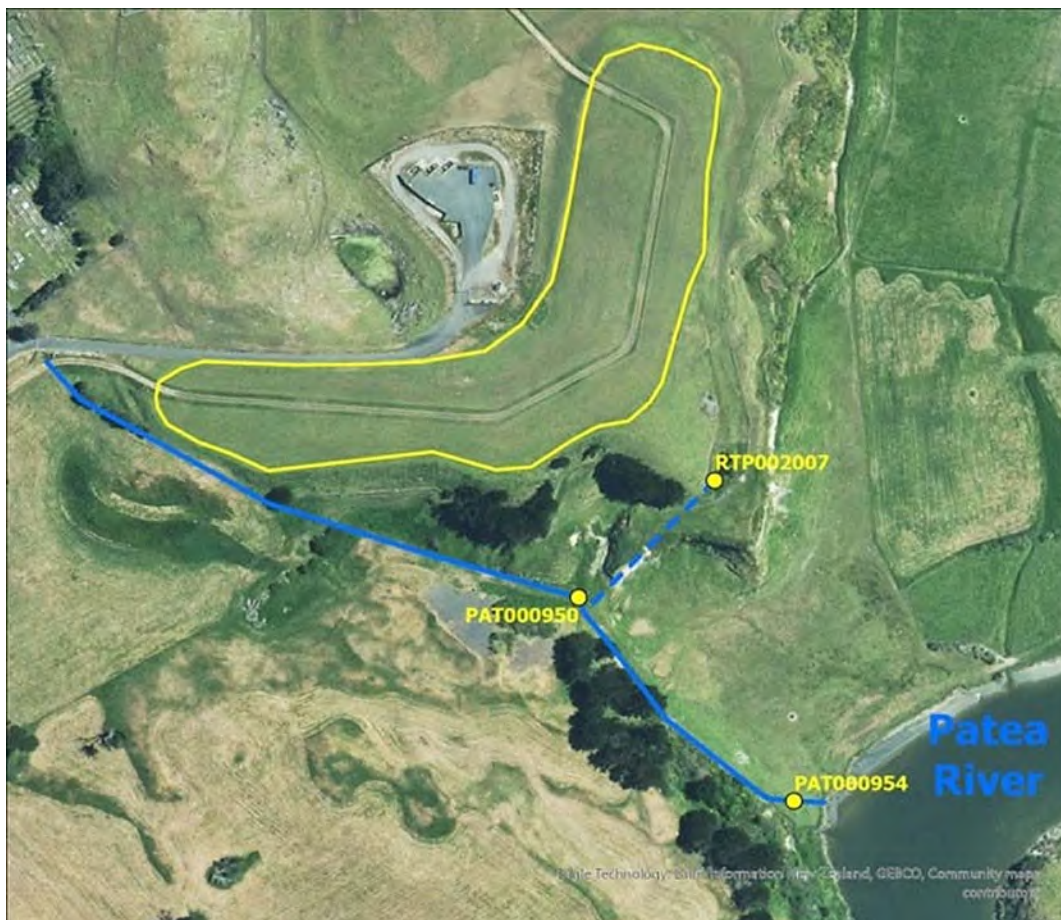


Figure 14 Aerial view of the landfill at Patea showing sampling sites (landfill footprint in yellow)

8.2 Results

8.2.1 Inspections

Three routine compliance monitoring inspections were undertaken at the Patea landfill site during the monitoring period.

28 October 2021

The perimeter stormwater collection drains were clear and dry. The cap was intact with no signs of slumping or ponding, this was well grassed with no signs of recent grazing. The bund wall around the cap appeared

to be intact. The fencing was permanent and the site was secure. The area around the cap was tidy with little inorganic matter observed.

17 May 2022

The perimeter stormwater collection drains were discharging and there was a high flow entering the lower leachate interceptor pit. This was at a high level and discharging (Photo 1). The cap was intact with no signs of slumping or ponding. No cattle were observed in the paddock at the time of the inspection. The bund wall around the cap appeared to be intact. The area around the cap was tidy with little inorganic matter observed.

30 May 2022

The cap was in good condition, with adequate grass coverage and no signs of slumping or ponding. The bund wall around the cap was in good condition. The perimeter stormwater collection drains contained water and overland flow was present from the top of the hill down towards the gully. Leachate was present in overland flow with a visible sheen in puddles. Drainage discharge to the stream was clear and uncoloured, with no impacts noted in the receiving water. There were no stock present at the time of the inspection. Fencing was intact and permanent and the site was secure.



Photo 1 Patea Landfill leachate/stormwater discharge May 2022

8.2.2 Discharge and receiving water monitoring

During the 2021-2022 period six water samples were taken at the site. The leachate/stormwater (RTP002007), upstream (PAT000950) and downstream of the landfill (PAT00954) were sampled. The location of the sampling sites is shown in Figure 14 and the results from the chemical analysis of these samples are set out in Table 15.

The results indicate that there was some contamination in the collected leachate in the form of elevated alkalinity, BOD, and ammoniacal nitrogen levels in the samples. The sample collected on 17 May 2022 contained levels of contaminants much lower than usual due to the large amount of stormwater dilution in discharge.

The unionised ammonia concentration increased downstream of the discharge, however this remained below the 0.025 g/m³ Regional Fresh Water Plan guideline in the tributary.

Any discharges to the Patea River are unlikely to have a significant adverse effect due to minor levels of contaminants found and the large dilution potential available.

Table 15 Chemical analysis of samples taken in the vicinity of the Patea closed landfill site

Parameter	Unit	28 October 2021			17 May 2022		
		RTP002007 leachate	PAT000950 upstream	PAT000954 downstream	RTP002007 leachate	PAT000950 upstream	PAT000954 downstream
Alkalinity	g/m ³ CaCO ₃	500	119	119	51	52	78
BOD	g/m ³	109	2.8	2.5	3.2	4.4	7.0
Conductivity @ 25°C	mS/m	120	62.2	62.6	15.9	22.7	29.9
Acid soluble iron	g/m ³	0.7	1.8	1.6	1.0	12	6.0
Unionised ammonia	g/m ³ N	0.116	0.0090	0.0147	0.0085	0.0022	0.0154
Ammoniacal nitrogen	g/m ³ N	24	1.07	0.58	2.2	0.31	1.6
pH	g/m ³	7.2	7.5	7.9	7.1	7.3	7.5
Temperature	°C	17.6	16.0	16.3	17.9	17.1	16.8
Dissolved zinc	g/m ³	<0.001	<0.001	<0.001	0.0062	0.0013	0.0044

8.2.3 Investigations, interventions, and incidents

In the 2021-2022 period, the Council was not required to undertake significant additional investigations and interventions, or record incidents, relating to the Patea closed landfill, either conditions in the resource consent or provisions in Regional Plans.

8.3 Discussion

8.3.1 Discussion of site performance

The site was well managed during the 2021-2022 monitoring period, with no issues noted during inspections.

8.3.2 Environmental effects of exercise of consents

Leachate will continue to generate at the site for some time and this generally seeps out to land via the bluff on the western edge of the land filled area. The information gathered during the period under review indicates that the landfill's presence is unlikely to be having any significant effect on the environment.

8.3.3 Evaluation of performance

A tabular summary of STDC's compliance record for the Patea landfill for the year under review is set out in Tables 16 to 18.

Table 16 Summary of performance for Patea closed landfill stormwater and leachate consent 0427-3

Purpose: To discharge surface stormwater and leachate from the Patea municipal landfill into an unnamed tributary of the Patea River		
Condition requirement	Means of monitoring during period under review	Compliance achieved?
1. Prepare and maintain a site contingency plan	Plan updated September 2019	Yes
2. Prepare and maintain a landfill management plan	Plan updated September 2019	Yes
3. Advise of any changes being made to the management plan or the site contingency plan	Liaison with consent holder	Yes
4. Comply with information submitted in support of application	Programme management	Yes
5. Monitor ground and surface water on and near the site	Water sampling	Yes
6. Maintain all stormwater and leachate collection systems	Inspections	Yes
7. No adverse impact on aquatic life or receiving water quality	Inspections and water sampling	Yes
8. Adopt the best practicable option to prevent or minimise any likely adverse effects on the environment	Programme management	Yes
9. Optional review provision re environmental effects	No further opportunities for review	N/A
Overall assessment of consent compliance and environmental performance in respect of this consent		High
Overall assessment of administrative performance in respect of this consent		High

N/A = not applicable

Table 17 Summary of performance for Patea closed landfill air discharge consent 4636-2

Purpose: To discharge emissions into the air from the Patea municipal landfill activities		
Condition requirement	Means of monitoring during period under review	Compliance achieved?
1. Prepare and maintain a site contingency plan	Updated September 2019	Yes
2. Prepare and maintain a landfill operations and management plan	Updated September 2019	Yes
3. Advise of any changes being made to the management plan or the site contingency plan	Liaison with consent holder	Yes

Purpose: To discharge emissions into the air from the Patea municipal landfill activities		
Condition requirement	Means of monitoring during period under review	Compliance achieved?
4. No material shall be burnt on site	Inspections	Yes
5. Comply with information submitted with the application	Programme management	Yes
6. Adopt the best practicable option to prevent or minimise any likely adverse effects on the environment	Inspections	Yes
7. Optional review provision re environmental effects	No further opportunities for review	N/A
Overall assessment of consent compliance and environmental performance in respect of this consent		High
Overall assessment of administrative performance in respect of this consent		High

N/A = not applicable

Table 18 Summary of performance for Patea closed landfill stormwater and sediment consent 7268-1

Purpose: <i>To discharge stormwater and sediment onto and into land and into an unnamed tributary of the Patea River from earthworks associated with the closure of the Patea Landfill</i>		
Condition requirement	Means of monitoring during period under review	Compliance achieved?
1. Adopt best practicable option	Not monitored during period under review	N/A
2. Exercise consent in accordance with application	Not monitored during period under review	N/A
3. Notify before exercising consent	Not monitored during period under review	N/A
4. Take reasonable steps to minimise effects	Not monitored during period under review	N/A
5. Reinstatement and stabilisation as soon as possible	Not monitored during period under review	N/A
6. A lapse condition	N/A	N/A
7. Optional review provision re environmental effects	No further opportunities for review	N/A
Overall assessment of consent compliance and environmental performance in respect of this consent		N/A –consent no longer exercised
Overall assessment of administrative performance in respect of this consent		

N/A = not applicable

During the year, STDC demonstrated a high level of environmental and administrative performance in relation to the Patea landfill consents as defined in Appendix II.

8.3.4 Recommendations from the 2020-2021 Annual Report

In the 2020-2021 Annual Report, it was recommended:

1. THAT in the first instance, the monitoring of discharges from the closed Patea landfill in the 2021-2022 year remains unchanged from that of 2020-2021.
2. THAT should there be issues with environmental or administrative performance in 2021-2022, monitoring of the Patea landfill may be adjusted to reflect any additional investigation or intervention as found necessary

Recommendation one was implemented, while it was not considered necessary to undertake additional monitoring as per recommendation two.

8.3.5 Alterations to monitoring programmes for 2022-2023

In designing and implementing the monitoring programmes for air/water discharges in the region, the Council has taken into account:

- the extent of information already made available through monitoring or other means to date;
- its relevance under the RMA;
- the Council's obligations to monitor consented activities and their effects under the RMA;
- the record of administrative and environmental performances of the consent holder; and
- reporting to the regional community.

The Council also takes into account the scope of assessments required at the time of renewal of permits, and the need to maintain a sound understanding of industrial processes within Taranaki exercising resource consents.

It is proposed that for 2022-2023, the monitoring programme remains unchanged.

It should be noted that the proposed programme represents a reasonable and risk-based level of monitoring for the site in question. The Council reserves the right to subsequently adjust the programme from that initially prepared, should the need arise if potential or actual non-compliance is determined at any time during 2022-2023.

8.4 Recommendations

1. THAT in the first instance, the monitoring of discharges from the closed Patea landfill in the 2022-2023 year remains unchanged from that of 2021-2022.
2. THAT should there be issues with environmental or administrative performance in 2022-2023, monitoring of the Patea landfill may be adjusted to reflect any additional investigation or intervention as found necessary.

9 Summary of recommendations

1. THAT in the first instance, the monitoring of discharges from the closed landfill at Eltham in the 2022-2023 year continue at the same level as in 2021-2022.
2. THAT should there be any issues with environmental or administrative performance in 2022-2023, monitoring of the closed landfill at Eltham may be adjusted to reflect any additional investigation or intervention as found necessary.
3. THAT in the first instance, monitoring of discharges from Hawera landfill in the 2022-2023 year remains similar to the 2021-2022 monitoring programme, with adjustments made if required when consent 0444-5 is granted.
4. THAT should there be any issues with environmental or administrative performance in the 2022-2023, monitoring of the closed Hawera landfill may be adjusted to reflect any additional investigation or intervention as found necessary.
5. THAT in the first instance, the Kaponga landfill triennial monitoring programme remains in place with monitoring next scheduled for the 2023-2024 period.
6. THAT should there be any issues with environmental or administrative performance in 2022-2023, monitoring of the Kaponga landfill may be adjusted to reflect any additional investigation or intervention as found necessary.
7. THAT in the first instance, the monitoring of discharges from the closed landfill at Manaia in the 2022-2023 year continues at the same level as in 2021-2022.
8. THAT should there be issues with environmental or administrative performance in 2022-2023, monitoring of the Manaia landfill may be adjusted to reflect any additional investigation or intervention as found necessary.
9. THAT in the first instance, monitoring of discharges from Opunake landfill in the 2022-2023 year continues at the same level as in 2021-2022.
10. THAT should there be any issues with the environmental or administrative performance in 2022-2023, monitoring of the Opunake landfill may be adjusted to reflect any additional investigation or intervention as found necessary.
11. THAT in the first instance, the Otakeho landfill triennial monitoring programme remains in place with monitoring next scheduled to be implemented in the 2022-2023 period.
12. THAT should there be issues with environmental or administrative performance in 2021-2022, monitoring of the Otakeho landfill may be adjusted to reflect any additional investigation or intervention as found necessary.
13. THAT in the first instance, the monitoring of discharges from the closed Patea landfill in the 2022-2023 year remains unchanged from that of 2021-2022.
14. THAT should there be issues with environmental or administrative performance in 2022-2023, monitoring of the Patea landfill may be adjusted to reflect any additional investigation or intervention as found necessary.

Glossary of common terms and abbreviations

The following abbreviations and terms may be used within this report:

Biomonitoring	Assessing the health of the environment using aquatic organisms.
BOD	Biochemical oxygen demand. A measure of the presence of degradable organic matter, taking into account the biological conversion of ammonia to nitrate.
BODF	Biochemical oxygen demand of a filtered sample.
Bund	A wall around a tank to contain its contents in the case of a leak.
CBOD	Carbonaceous biochemical oxygen demand. A measure of the presence of degradable organic matter, excluding the biological conversion of ammonia to nitrate.
COD	Chemical oxygen demand. A measure of the oxygen required to oxidise all matter in a sample by chemical reaction.
Conductivity	Conductivity, an indication of the level of dissolved salts in a sample, usually measured at 25°C and expressed in mS/m.
DO	Dissolved oxygen.
DRP	Dissolved reactive phosphorus.
g/m ³	Grams per cubic metre, and equivalent to milligrams per litre (mg/L). In water, this is also equivalent to parts per million (ppm), but the same does not apply to gaseous mixtures.
Incident	An event that is alleged or is found to have occurred that may have actual or potential environmental consequences or may involve non-compliance with a consent or rule in a regional plan. Registration of an incident by the Council does not automatically mean such an outcome had actually occurred.
Intervention	Action/s taken by Council to instruct or direct actions be taken to avoid or reduce the likelihood of an incident occurring.
Investigation	Action taken by Council to establish what were the circumstances/events surrounding an incident including any allegations of an incident.
Incident register	The incident register contains a list of events recorded by the Council on the basis that they may have the potential or actual environmental consequences that may represent a breach of a consent or provision in a Regional Plan.
L/s	Litres per second.
MCI	Macroinvertebrate community index; a numerical indication of the state of biological life in a stream that takes into account the sensitivity of the taxa present to organic pollution in stony habitats.
mS/m	Millisiemens per metre.
Mixing zone	The zone below a discharge point where the discharge is not fully mixed with the receiving environment. For a stream, conventionally taken as a length equivalent to 7 times the width of the stream at the discharge point.
NH ₄	Ammonium, normally expressed in terms of the mass of nitrogen (N).
NH ₃	Unionised ammonia, normally expressed in terms of the mass of nitrogen (N).
pH	A numerical system for measuring acidity in solutions, with 7 as neutral. Numbers lower than 7 are increasingly acidic and higher than 7 are increasingly alkaline. The scale is logarithmic i.e. a change of 1 represents a ten-fold change in strength. For example, a pH of 4 is ten times more acidic than a pH of 5.

Physicochemical	Measurement of both physical properties (e.g. temperature, clarity, density) and chemical determinants (e.g. metals and nutrients) to characterise the state of an environment.
Resource consent	Refer Section 87 of the RMA. Resource consents include land use consents (refer Sections 9 and 13 of the RMA), coastal permits (Sections 12, 14 and 15), water permits (Section 14) and discharge permits (Section 15).
RMA	<i>Resource Management Act 1991</i> and including all subsequent amendments.
SS	Suspended solids.
SQMCI	Semi quantitative macroinvertebrate community index.
Temp	Temperature, measured in °C (degrees Celsius).

For further information on analytical methods, contact a Science Services Manager.

Bibliography and references

- Ministry for the Environment (2004): Module 2: Hazardous Waste Guidelines, Landfill Waste Acceptance Criteria and Landfill Classification.
- Ministry for the Environment. 2018. Best Practice Guidelines for Compliance, Monitoring and Enforcement under the Resource Management Act 1991. Wellington: Ministry for the Environment.
- Taranaki Regional Council (2022): STDC, Eltham, Hawera, Kaponga, Manaia, Patea, Opunake, and Otakeho Landfills Annual Report 2020-2021. Technical Report 21-67.
- Taranaki Regional Council (2021): STDC, Eltham, Hawera, Kaponga, Manaia, Patea, Opunake, and Otakeho Landfills Annual Report 2019-2020. Technical Report 20-90.
- Taranaki Regional Council (2019): STDC, Eltham, Hawera, Kaponga, Manaia, Patea, Opunake, and Otakeho Landfills Annual Report 2018-2019. Technical Report 19-18.
- Taranaki Regional Council (2018): STDC, Eltham, Hawera, Kaponga, Manaia, Patea, Opunake, and Otakeho Landfills Annual Report 2016-2017. Technical Report 17-39.
- Taranaki Regional Council (2018): STDC, Eltham, Hawera, Kaponga, Manaia, Patea, Opunake, and Otakeho Landfills Annual Report 2017-2018. Technical Report 18-30.
- Taranaki Regional Council (2017): STDC, Eltham, Hawera, Kaponga, Manaia, Patea, Opunake, and Otakeho Landfills Annual Report 2015-2016. Technical Report 16-73.
- Taranaki Regional Council (2016): STDC, Eltham, Hawera, Kaponga, Manaia, Patea, Opunake, and Otakeho Landfills Annual Report 2014-2015. Technical Report 15-109.
- Taranaki Regional Council (2015): STDC, Eltham, Hawera, Kaponga, Manaia, Patea, Opunake, and Otakeho Landfills Annual Report 2013-2014. Technical Report 14-99.
- Taranaki Regional Council (2013): STDC, Eltham, Hawera, Kaponga, Manaia, Patea, Opunake, and Otakeho Landfills Annual Report 2012-2013. Technical Report 13-36.
- Taranaki Regional Council (2012): STDC, Eltham, Hawera, Kaponga, Manaia, Patea, Opunake, and Otakeho Landfills Annual Report 2011-2012. Technical Report 12-68.
- Taranaki Regional Council (2011): STDC, Eltham, Hawera, Kaponga, Manaia, Patea, Opunake, and Otakeho Landfills Annual Report 2010-2011. Technical Report 11-36.
- Taranaki Regional Council (2010): STDC, Eltham, Hawera, Kaponga, Manaia, Patea, Opunake, and Otakeho Landfills: Annual Report 2009-2010. Technical Report 10-30.
- Taranaki Regional Council (2009): STDC, Eltham, Hawera, Kaponga, Manaia, Patea, Opunake, and Otakeho Landfills Annual Report 2008-2009. Technical Report 09-52.
- Taranaki Regional Council (2008): STDC, Eltham, Hawera, Kaponga, Manaia, Patea, Opunake, and Otakeho Landfills Annual Report 2007-2008. Technical Report 08-48.
- Taranaki Regional Council (2007): STDC, Eltham, Hawera, Kaponga, Manaia, Patea, Opunake, and Otakeho Landfills Annual Report 2005-2007 Technical Report 07-47.
- Taranaki Regional Council (2006): STDC, Eltham, Hawera, Kaponga, Manaia, Patea, Opunake, and Otakeho Landfills Annual Report 2004-05. Technical Report 05-98.
- Taranaki Regional Council (2005): STDC, Eltham Wastewater Treatment Plant Monitoring Programme Annual Report 2004-05. Technical Report 2005-69.

- Taranaki Regional Council (2004): STDC, Eltham, Hawera, Kaponga, Manaia, Patea, Opunake, and Otakeho Landfills Annual Report 2003-04. Technical Report 04-68.
- Taranaki Regional Council (2003): STDC, Eltham, Hawera, Kaponga, Manaia, Patea, Opunake, Otakeho and Waverley Landfills Annual Report 2002-03. Technical Report 03-57.
- Taranaki Regional Council (2002): STDC, Eltham, Hawera, Kaponga, Manaia, Patea, Opunake, Otakeho and Waverley Landfills Annual Report 2001-02. Technical Report 02-39.
- Taranaki Regional Council (2001): STDC, Eltham, Hawera, Kaponga, Manaia, Patea, Opunake, Otakeho and Waverley Landfills Annual Report 2000-01. Technical Report 01-43.
- Taranaki Regional Council (2000): STDC, Eltham, Hawera, Kaponga, Manaia, Patea, Opunake, Otakeho and Waverley Landfills Annual Report 1999-00. Technical Report 00-50.
- Taranaki Regional Council (1999): STDC, Eltham, Hawera, Kaponga, Manaia, Patea, Opunake, Otakeho and Waverley Landfills Annual Report 1998-99. Technical Report 99-08.
- Taranaki Regional Council (1998): STDC, Eltham, Hawera, Kaponga, Manaia, Patea, Opunake, Otakeho and Waverley Landfills Annual Report 1997-98. Technical Report 98-18.
- Taranaki Regional Council (1997): STDC, Eltham, Hawera, Kaponga, Manaia, Patea, Opunake, Otakeho and Waverley Landfills Annual Report 1996/97. Technical Report 97-27.
- Taranaki Regional Council (1996): STDC, Eltham, Hawera, Kaponga, Manaia, Patea, Opunake, Otakeho and Waverley Landfills Annual Report 1995/96. Technical Report 96-25.
- Taranaki Regional Council (1995): STDC, Eltham, Hawera, Kaponga, Manaia, Patea, Opunake, Otakeho and Waverley Landfills Annual Report 1994/95. Technical Report 95-65.
- Taranaki Regional Council (1994): STDC, Eltham, Hawera, Kaponga, Manaia, Patea, Opunake, Otakeho and Waverley Landfills Annual Report 1993/94. Technical Report 94-16.
- Taranaki Regional Council (1993): STDC, Eltham, Hawera, Kaponga, Manaia, Patea, Opunake, Otakeho and Waverley Landfills Annual Report 1992/93. Technical Report 93-47.
- Taranaki Regional Council (1992): STDC: Eltham Landfill, Hawera Landfill, Kaponga Landfill, Opunake Landfill, Patea Landfill, Waverley Landfill Annual Report 1991/92. Technical Report 92-14.
- Taranaki Regional Council (1991): STDC: Eltham Landfill, Hawera Landfill, Kaponga Landfill, Opunake Landfill, Patea Landfill, Waverley Landfill Annual Report 1990/91. Technical Report 91-15.
- Taranaki Regional Council (1990): STDC: Eltham Landfill, Hawera Landfill, Kaponga Landfill, Opunake Landfill, Patea Landfill, Waverley Landfill Annual Report 1989/90. Technical Report 90-43.

Appendix I

Resource consents held by STDC (in alphabetical order)

(For a copy of the signed resource consent
please contact the TRC Consents department)

Water abstraction permits

Section 14 of the RMA stipulates that no person may take, use, dam or divert any water, unless the activity is expressly allowed for by a resource consent or a rule in a regional plan, or it falls within some particular categories set out in Section 14. Permits authorising the abstraction of water are issued by the Council under Section 87(d) of the RMA.

Water discharge permits

Section 15(1)(a) of the RMA stipulates that no person may discharge any contaminant into water, unless the activity is expressly allowed for by a resource consent or a rule in a regional plan, or by national regulations. Permits authorising discharges to water are issued by the Council under Section 87(e) of the RMA.

Air discharge permits

Section 15(1)(c) of the RMA stipulates that no person may discharge any contaminant from any industrial or trade premises into air, unless the activity is expressly allowed for by a resource consent, a rule in a regional plan, or by national regulations. Permits authorising discharges to air are issued by the Council under Section 87(e) of the RMA.

Discharges of wastes to land

Sections 15(1)(b) and (d) of the RMA stipulate that no person may discharge any contaminant onto land if it may then enter water, or from any industrial or trade premises onto land under any circumstances, unless the activity is expressly allowed for by a resource consent, a rule in a regional plan, or by national regulations. Permits authorising the discharge of wastes to land are issued by the Council under Section 87(e) of the RMA.

Land use permits

Section 13(1)(a) of the RMA stipulates that no person may in relation to the bed of any lake or river use, erect, reconstruct, place, alter, extend, remove, or demolish any structure or part of any structure in, on, under, or over the bed, unless the activity is expressly allowed for by a resource consent, a rule in a regional plan, or by national regulations. Land use permits are issued by the Council under Section 87(a) of the RMA.

Coastal permits

Section 12(1)(b) of the RMA stipulates that no person may erect, reconstruct, place, alter, extend, remove, or demolish any structure that is fixed in, on, under, or over any foreshore or seabed, unless the activity is expressly allowed for by a resource consent, a rule in a regional plan, or by national regulations. Coastal permits are issued by the Council under Section 87(c) of the RMA.

Discharge Permit
Pursuant to the Resource Management Act 1991
a resource consent is hereby granted by the
Taranaki Regional Council

Name of
Consent Holder: South Taranaki District Council
Private Bag 902
HAWERA

Consent Granted
Date: 16 December 2003

Conditions of Consent

Consent Granted: To discharge surface stormwater and leachate from the Patea municipal landfill into an unnamed tributary of the Patea River at or about GR: Q21:360-611

Expiry Date: 1 June 2022

Review Date(s): June 2010, June 2016

Site Location: Patea Municipal Landfill, Scotland Street, Patea

Legal Description: Lot 1 DP 20064 Pt Sec 8 Patea Sbrn All DP 3495 Town of Patea Blk VII Carlyle SD

Catchment: Patea

General conditions

- a) On receipt of a requirement from the Chief Executive, Taranaki Regional Council the consent holder shall, within the time specified in the requirement, supply the information required relating to the exercise of this consent.
- b) Unless it is otherwise specified in the conditions of this consent, compliance with any monitoring requirement imposed by this consent must be at the consent holder's own expense.
- c) The consent holder shall pay to the Council all required administrative charges fixed by the Council pursuant to section 36 in relation to:
 - i) the administration, monitoring and supervision of this consent; and
 - ii) charges authorised by regulations.

Special conditions

- 1. Within three months of granting of this consent the consent holder shall prepare and maintain a site contingency plan to the satisfaction of the Chief Executive, Taranaki Regional Council, outlining measures and procedures undertaken to prevent spillage or accidental discharge of contaminants and procedures carried out should such a spillage or discharge occur. This shall be reviewed by the Council on an annual basis.
- 2. Within three months of granting of this consent the consent holder shall prepare and maintain a landfill operations and management plan to the satisfaction of the Chief Executive, Taranaki Regional Council, and shall adhere to such a plan in so far as they concern the exercise of this consent at all times. This shall be reviewed by the Council on an annual basis.
- 3. The consent holder shall advise the Taranaki Regional Council one month prior to any changes being made to the operation and management plan and/or site contingency plan. Should the Taranaki Regional Council wish to review either of these plans, one month's notice shall be provided to the consent holder.
- 4. The exercise of this resource consent shall be carried out in general accordance with the information submitted in support of the application [2705].
- 5. The monitoring of the site and adjacent surface and groundwaters shall be to the satisfaction of the Chief Executive, Taranaki Regional Council
- 6. The leachate and stormwater diversion, collection, treatment and discharge systems shall be maintained to the satisfaction of the Chief Executive, Taranaki Regional Council.
- 7. Any discharge shall not, in the opinion of the Chief Executive, Taranaki Regional Council, cause nor be likely to cause any significant adverse effects on aquatic life or receiving water quality.
- 8. Notwithstanding any conditions within this consent, the consent holder shall at all times adopt the best practicable option as defined in Section 2 of the Resource Management Act 1991, to prevent or minimise any actual or potential effect on the environment arising from any discharge at the site.

Consent 0427-3

9. In accordance with section 128 and section 129 of the Resource Management Act 1991, the Taranaki Regional Council may serve notice of its intention to review, amend, delete or add to the conditions of this resource consent by giving notice of review during the month of June 2010 and/or June 2016, for the purpose of ensuring that the conditions are adequate to deal with any adverse effects on the environment arising from the exercise of this resource consent, which were either not foreseen at the time the application was considered or which it was not appropriate to deal with at the time.

Signed at Stratford on 16 December 2003

For and on behalf of
Taranaki Regional Council

Director-Resource Management

Discharge Permit
Pursuant to the Resource Management Act 1991
a resource consent is hereby granted by the
Taranaki Regional Council

Name of
Consent Holder: South Taranaki District Council
Private Bag 902
HAWERA

Consent Granted
Date: 28 June 2001

Conditions of Consent

Consent Granted: To discharge up to 2800 cubic metres/day of leachate and stormwater from the closed Matangara Landfill, Hawera, to groundwater and into an unnamed tributary of the Tawhiti Stream in the Tangahoe catchment at or about GR: Q21:214-788

Expiry Date: 1 June 2016

Review Date(s): June 2004, June 2010

Site Location: former Matangara Landfill, Matangara Road, Hawera

Legal Description: Lot 2 DP 20563 Lot 2 DP 20819 Blk VI Hawera SD

Catchment: Tangahoe

Tributary: Tawhiti

General conditions

- a) That on receipt of a requirement from the Chief Executive, Taranaki Regional Council (hereinafter the Chief Executive), the consent holder shall, within the time specified in the requirement, supply the information required relating to the exercise of this consent.
- b) That unless it is otherwise specified in the conditions of this consent, compliance with any monitoring requirement imposed by this consent must be at the consent holder's own expense.
- c) That the consent holder shall pay to the Council all required administrative charges fixed by the Council pursuant to section 36 in relation to:
 - i) the administration, monitoring and supervision of this consent; and
 - ii) charges authorised by regulations.

Special conditions

- 1) The consent holder shall at all times adopt the best practicable option, as defined in the Resource Management Act 1991, to prevent or minimise any or likely adverse effects on the environment associated with the discharges of leachate and/or stormwater from the site.
- 2) The consent holder shall maintain an adequate landfill capping and vegetative cover on the site to the satisfaction of the Chief Executive, Taranaki Regional Council.
- 3) The consent holder shall provide a landfill post-closure management plan to the satisfaction of the Chief Executive, Taranaki Regional Council by 1 December 2001; such plan to address site security, litter control, vegetation cover, stormwater diversion, leachate control, site contouring, and cover placement and compaction, in addition to any other matters relevant to the exercise of this consent.
- 4) The consent holder shall adhere to the landfill management plan insofar as it concerns the exercise of this consent at all times.
- 5) The consent holder shall maintain stormwater drains, the sediment detention pond, and/or ground contours at the site, in order to minimise stormwater movement across, or ponding on the site.
- 6) The consent holder shall maintain the leachate collection system at the site in order to minimise leachate discharges to the environment at the site.
- 7) The mixing zone in each condition of this consent shall extend for a distance of 20 metres downstream of the point of the discharge of leachate and stormwater at the confluence of the unnamed tributary of the Tawhiti Stream and the Tawhiti Stream.
- 8) After allowing for reasonable mixing the consent holder shall ensure that the discharge shall not give rise to any of the following effects in the receiving waters of the Tawhiti Stream:
 - a) the production of any conspicuous oil or grease films, scums or foams, or floatable or suspended material;
 - b) any conspicuous change in colour or visual clarity;
 - c) any emission of objectionable odour;
 - d) the rendering of fresh water unsuitable for consumption by farm animals;
 - e) any significant adverse effects on aquatic life.
- 9) Monitoring of surface waters, groundwater and leachate on or in the vicinity of the site shall be undertaken to the satisfaction of the Chief Executive, Taranaki Regional Council.

Consent 0444-4

- 10) The two existing monitoring bores shall be maintained to the satisfaction of the Chief Executive, Taranaki Regional Council.
- 11) In accordance with section 128 and section 129 of the Resource Management Act 1991, the Taranaki Regional Council may review any or all of the conditions of this consent in June each year after this consent was granted, should further chemical sampling of the unnamed tributary of the Tawhiti Stream reveal levels of contamination resulting in significant adverse environmental effects.
- 12) In accordance with section 128 and section 129 of the Resource Management Act 1991, the Taranaki Regional Council may serve notice of its intention to review, amend, delete or add to the conditions of this resource consent by giving notice of review during the month of June 2004 and/or June 2010, for the purpose of ensuring that the conditions are adequate to deal with any adverse effects on the environment arising from the exercise of this resource consent, which were either not foreseen at the time the application was considered or which it was not appropriate to deal with at the time.

Signed at Stratford on 28 June 2001

For and on behalf of
Taranaki Regional Council

Director-Resource Management

Discharge Permit
Pursuant to the Resource Management Act 1991
a resource consent is hereby granted by the
Taranaki Regional Council

Name of
Consent Holder: South Taranaki District Council
Private Bag 902
Hawera 4640

Decision Date 28 November 2018

Commencement Date 28 November 2018

Conditions of Consent

Consent Granted: To discharge stormwater and leachate from the closed
Opunake landfill into the Otahi Stream

Expiry Date: 1 June 2029

Review Date(s): June 2024

Site Location: Whitcombe Road, Opunake

Grid Reference (NZTM) 1673060E-5633373N

Catchment: Otahi

*For General, Standard and Special conditions
pertaining to this consent please see reverse side of this document*

General condition

- a. The consent holder shall pay to the Taranaki Regional Council all the administration, monitoring and supervision costs of this consent, fixed in accordance with section 36 of the Resource Management Act 1991.

Special conditions

1. The consent holder shall at all times adopt the best practicable option, as defined in section 2 of the Resource Management Act 1991, to prevent or minimise any adverse effects on the environment from the exercise of this consent.
2. The landfill cap and stormwater and leachate drainage systems shall be maintained in a manner that:
 - a) prevents ponding and erosion;
 - b) minimises stormwater infiltration into the cap and/or filled area;
 - c) retains a reasonable cover of appropriate vegetation;
 - d) ensures water troughs do not leak or overflow; and
 - e) ensures stormwater is adequately diverted and/or drained away from the landfill cap.
3. The site shall be operated in accordance with a 'Management Plan' prepared by the consent holder within 3 months of granting of this consent, and approved by the Chief Executive, Taranaki Regional Council, acting in a certification capacity. The plan shall detail how the site will be managed to achieve compliance with the conditions of this consent and shall include but not be limited to:
 - a) specifying the consent holder's monitoring schedule for the site;
 - b) maintenance of the landfill cap to minimise erosion, ponding and stormwater infiltration;
 - c) maintenance and management of the stormwater drains on and around the landfill to ensure stormwater is adequately diverted and/or drained away from the landfill cap.
4. After reasonable mixing the receiving waters downstream of the discharge shall meet the following standards:
 - a) unionised ammonia concentration less than 0.025 g/m³;
 - b) ammoniacal nitrogen level concentration less than 0.9 g/m³;
 - c) pH within the range of 6.0 and 9.0; and
 - d) dissolved zinc concentration less than or equal to 0.05 g/m³.
5. The discharge shall not cause the following effects in the receiving waters after reasonable mixing:
 - a) the production of any conspicuous oil or grease films, scums or foams, or floatable or suspended materials;
 - b) any conspicuous change in the colour or visual clarity;
 - c) any emission of objectionable odour;
 - d) the rendering of fresh water unsuitable for consumption by farm animals;
 - e) any significant adverse effects on aquatic life.

6. In accordance with section 128 and section 129 of the Resource Management Act 1991, the Taranaki Regional Council may serve notice of its intention to review, amend, delete or add to the conditions of this resource consent by giving notice of review during the month of June 2024 for the purpose of ensuring that the conditions are adequate to deal with any adverse effects on the environment arising from the exercise of this resource consent, which were either not foreseen at the time the application was considered or which it was not appropriate to deal with at the time.

Signed at Stratford on 28 November 2018

For and on behalf of
Taranaki Regional Council

A D McLay
Director - Resource Management

Discharge Permit
Pursuant to the Resource Management Act 1991
a resource consent is hereby granted by the
Taranaki Regional Council

Name of
Consent Holder: South Taranaki District Council
Private Bag 902
HAWERA

Consent Granted
Date: 17 March 2005

Conditions of Consent

Consent Granted: To discharge stormwater and leachate from the former Eltham landfill site into the Mangawhero Stream in the Waingongoro catchment at or about GR: Q20:223-949

Expiry Date: 1 June 2023

Review Date(s): June 2011, June 2017

Site Location: Castle Street, Eltham

Legal Description: Lot 1 DP 9279 Blk X Ngaere SD

Catchment: Waingongoro

Tributary: Mangawhero

General conditions

- a) On receipt of a requirement from the Chief Executive, Taranaki Regional Council the consent holder shall, within the time specified in the requirement, supply the information required relating to the exercise of this consent.
- b) Unless it is otherwise specified in the conditions of this consent, compliance with any monitoring requirement imposed by this consent must be at the consent holder's own expense.
- c) The consent holder shall pay to the Council all required administrative charges fixed by the Council pursuant to section 36 in relation to:
 - i) the administration, monitoring and supervision of this consent; and
 - ii) charges authorised by regulations.

Special conditions

- 1. The consent holder shall at all times adopt the best practicable option, as defined in section 2 of the Resource Management Act 1991, to prevent or minimise any adverse effects on the environment from the exercise of this consent.
- 2. Within three months of granting this consent the consent holder shall prepare and maintain a site contingency plan to the satisfaction of the Chief Executive, Taranaki Regional Council, outlining measures and procedures undertaken to prevent spillage or accidental discharge of contaminants and procedures carried out should such spillage or discharge occur.
- 3. The consent holder shall monitor the site and adjacent surface and groundwaters to the satisfaction of the Chief Executive, Taranaki Regional Council.
- 4. Any discharge shall not, in the opinion of the Chief Executive, Taranaki Regional Council, cause nor be likely to cause any significant adverse effects on aquatic life or receiving water quality.
- 5. In accordance with section 128 and section 129 of the Resource Management Act 1991, the Taranaki Regional Council may serve notice of its intention to review, amend, delete or add to the conditions of this resource consent by giving notice of review during the month of June 2011 and/or June 2017, for the purpose of ensuring that the conditions are adequate to deal with any adverse effects on the environment arising from the exercise of this resource consent, which were either not foreseen at the time the application was considered or which it was not appropriate to deal with at the time.

Signed at Stratford on 17 March 2005

For and on behalf of
Taranaki Regional Council

Director-Resource Management

Discharge Permit
Pursuant to the Resource Management Act 1991
a resource consent is hereby granted by the
Taranaki Regional Council

Name of
Consent Holder: South Taranaki District Council
Private Bag 902
HAWERA 4640

Change To
Conditions Date: 29 October 2008 [Granted: 20 January 2005]

Conditions of Consent

Consent Granted: To discharge leachate and stormwater from the closed
Manaia landfill and from composting operations into the
Waiokura Stream at or about (NZTM)
1697799E-5620638N

Expiry Date: 1 June 2023

Review Date(s): June 2011, June 2017

Site Location: Cemetery Road, Manaia

Legal Description: Pt Sec 23 Blk VII Waimate SD

Catchment: Waiokura

*For General, Standard and Special conditions
pertaining to this consent please see reverse side of this document*

General conditions

- a) On receipt of a requirement from the Chief Executive, Taranaki Regional Council the consent holder shall, within the time specified in the requirement, supply the information required relating to the exercise of this consent.
- b) Unless it is otherwise specified in the conditions of this consent, compliance with any monitoring requirement imposed by this consent must be at the consent holder's own expense.
- c) The consent holder shall pay to the Council all required administrative charges fixed by the Council pursuant to section 36 in relation to:
 - i) the administration, monitoring and supervision of this consent; and
 - ii) charges authorised by regulations.

Special conditions

Conditions 1 – 6 [unchanged]

- 1. The consent holder shall at all times adopt the best practicable option, as defined in section 2 of the Resource Management Act 1991, to prevent or minimise any adverse effects on the environment from the exercise of this consent.
- 2. Within three months of granting this consent the consent holder shall prepare and maintain a site contingency plan to the satisfaction of the Chief Executive, Taranaki Regional Council, outlining measures and procedures undertaken to prevent spillage or accidental discharge of contaminants and procedures carried out should such a spillage or discharge occur.
- 3. Within three months of granting this consent the consent holder shall prepare and maintain a landfill management plan to the satisfaction of the Chief Executive, Taranaki Regional Council, and shall adhere to such a plan in so far as it concerns the exercise of this consent at all times.
- 4. The consent holder shall advise the Taranaki Regional Council one month prior to any changes being made to the landfill management plan and/or the site contingency plan referred to in special conditions 3 and 4. Should the Taranaki Regional Council wish to review either of these plans, one month's notice shall be provided to the consent holder.
- 5. The consent holder shall monitor the site and adjacent surface water and ground water to the satisfaction of the Chief Executive, Taranaki Regional Council.
- 6. The consent holder shall install and maintain leachate and stormwater diversion, collection, treatment and discharge systems, to the satisfaction of the Chief Executive, Taranaki Regional Council.

[Condition 7 – changed]

7. That after reasonable mixing, any discharge from the closed landfill or composting operations shall not cause Waiohira Stream to exceed the following parameters;
- a rise in biochemical oxygen demand of 2.0 g/m³
 - unionised ammonia of 0.025 g/m³

[Condition 8-unchanged]

8. In accordance with section 128 and section 129 of the Resource Management Act 1991, the Taranaki Regional Council may serve notice of its intention to review, amend, delete or add to the conditions of this resource consent by giving notice of review during the month of June 2011 and/or June 2017, for the purpose of ensuring that the conditions are adequate to deal with any adverse effects on the environment arising from the exercise of this resource consent, which were either not foreseen at the time the application was considered or which it was not appropriate to deal with at the time.

Signed at Stratford on 29 October 2008

For and on behalf of
Taranaki Regional Council

Director-Resource Management

Discharge Permit
Pursuant to the Resource Management Act 1991
a resource consent is hereby granted by the
Taranaki Regional Council

Name of
Consent Holder: South Taranaki District Council
Private Bag 902
Hawera 4640

Decision Date 6 November 2018

Commencement Date 6 November 2018

Conditions of Consent

Consent Granted: To discharge leachate and stormwater from the closed
Otakeho Municipal Landfill onto and into land where it may
enter water

Expiry Date: 1 June 2022

Review Date(s): June 2020

Site Location: State Highway 45, Otakeho

Grid Reference (NZTM) 1689033E-5621752N

Catchment: Taikatu

*For General, Standard and Special conditions
pertaining to this consent please see reverse side of this document*

General condition

- a. The consent holder shall pay to the Taranaki Regional Council all the administration, monitoring and supervision costs of this consent, fixed in accordance with section 36 of the Resource Management Act 1991.

Special conditions

1. The consent holder shall at all times adopt the best practicable option, as defined in section 2 of the Resource Management Act 1991, to prevent or minimise any adverse effects on the environment from the exercise of this consent.
2. The landfill cap and stormwater and leachate drainage systems shall be maintained in a manner that:
 - a) prevents ponding and erosion;
 - b) minimises stormwater infiltration into the cap and/or filled area; and
 - c) ensures stormwater is adequately diverted and/or drained away from the landfill cap.
3. The site shall be operated in accordance with a 'Management Plan' prepared by the consent holder within 3 months of granting of this consent, and approved by the Chief Executive, Taranaki Regional Council, acting in a certification capacity. The plan shall detail how the site will be managed to achieve compliance with the conditions of this consent and shall include but not be limited to:
 - a) specifying the consent holders monitoring schedule for the site;
 - b) maintenance of the landfill cap to minimise erosion, ponding and stormwater infiltration;
 - c) maintenance and management of the stormwater drains on and around the landfill to ensure stormwater is adequately diverted and/or drained away from the landfill cap.
4. After reasonable mixing the receiving waters downstream of the discharge shall meet the following standards:
 - a) unionised ammonia concentration less than 0.025 g/m³;
 - b) ammoniacal nitrogen level concentration less than 0.9 g/m³;
 - c) pH within the range of 6.0 and 9.0; and
 - d) dissolved zinc concentration less than or equal to 0.05 g/m³.
5. The discharge shall not cause the following effects in the receiving waters after reasonable mixing:
 - a) the production of any conspicuous oil or grease films, scums or foams, or floatable or suspended materials;
 - b) any conspicuous change in the colour or visual clarity;
 - c) any emission of objectionable odour;
 - d) the rendering of fresh water unsuitable for consumption by farm animals;
 - e) any significant adverse effects on aquatic life.

Consent 3953-4.0

6. In accordance with section 128 and section 129 of the Resource Management Act 1991, the Taranaki Regional Council may serve notice of its intention to review, amend, delete or add to the conditions of this resource consent by giving notice of review during the month of June 2020, for the purpose of ensuring that the conditions are adequate to deal with any adverse effects on the environment arising from the exercise of this resource consent, which were either not foreseen at the time the application was considered or which it was not appropriate to deal with at the time.

Signed at Stratford on 6 November 2018

For and on behalf of
Taranaki Regional Council

A D McLay
Director - Resource Management

Discharge Permit
Pursuant to the Resource Management Act 1991
a resource consent is hereby granted by the
Taranaki Regional Council

Name of
Consent Holder: South Taranaki District Council
Private Bag 902
HAWERA

Consent Granted
Date: 17 March 2005

Conditions of Consent

Consent Granted: To discharge stormwater and leachate from the former
Kaponga landfill site into an unnamed tributary of the
Waiokura Stream at or about GR: P20:095-960

Expiry Date: 1 June 2023

Review Date(s): June 2011, June 2017

Site Location: Alamein Street, Kaponga

Legal Description: Sec 77 Blk XI Kaupokonui SD

Catchment: Waiokura

General conditions

- a) On receipt of a requirement from the Chief Executive, Taranaki Regional Council the consent holder shall, within the time specified in the requirement, supply the information required relating to the exercise of this consent.
- b) Unless it is otherwise specified in the conditions of this consent, compliance with any monitoring requirement imposed by this consent must be at the consent holder's own expense.
- c) The consent holder shall pay to the Council all required administrative charges fixed by the Council pursuant to section 36 in relation to:
 - i) the administration, monitoring and supervision of this consent; and
 - ii) charges authorised by regulations.

Special conditions

- 1. The consent holder shall at all times adopt the best practicable option, as defined in section 2 of the Resource Management Act 1991, to prevent or minimise any adverse effects on the environment from the exercise of this consent.
- 2. Within three months of granting this consent the consent holder shall prepare and maintain a site contingency plan to the satisfaction of the Chief Executive, Taranaki Regional Council, outlining measures and procedures undertaken to prevent spillage or accidental discharge of contaminants and procedures carried out should such a spillage or discharge occur.
- 3. The consent holder shall monitor the site and adjacent surface and groundwaters to the satisfaction of the Chief Executive, Taranaki Regional Council.
- 4. The consent holder shall install and monitor the leachate and stormwater diversion, collection, treatment and discharge systems, to the satisfaction of the Chief Executive, Taranaki Regional Council.
- 5. Any discharge shall not, in the opinion of the Chief Executive, Taranaki Regional Council, cause nor be likely to cause any significant adverse effects on aquatic life or receiving water quality.
- 6. In accordance with section 128 and section 129 of the Resource Management Act 1991, the Taranaki Regional Council may serve notice of its intention to review, amend, delete or add to the conditions of this resource consent by giving notice of review during the month of June 2011 and/or June 2017, for the purpose of ensuring that the conditions are adequate to deal with any adverse effects on the environment arising from the exercise of this resource consent,

Consent 3459-3

which were either not foreseen at the time the application was considered or which it was not appropriate to deal with at the time.

Signed at Stratford on 17 March 2005

For and on behalf of
Taranaki Regional Council

Director-Resource Management

Discharge Permit
Pursuant to the Resource Management Act 1991
a resource consent is hereby granted by the
Taranaki Regional Council

Name of
Consent Holder: South Taranaki District Council
Private Bag 902
HAWERA

Consent Granted
Date: 16 December 2003

Conditions of Consent

Consent Granted: To discharge emissions into the air from the Patea
municipal landfill activities at or about GR: Q21:360-611

Expiry Date: 1 June 2022

Review Date(s): June 2010, June 2016

Site Location: Patea Municipal Landfill, Scotland Street, Patea

Legal Description: Lot 1 DP 20064 Pt Sec 8 Patea Sbrn All DP 3495 Town of
Patea Blk VII Carlyle SD

General conditions

- a) On receipt of a requirement from the Chief Executive, Taranaki Regional Council the consent holder shall, within the time specified in the requirement, supply the information required relating to the exercise of this consent.
- b) Unless it is otherwise specified in the conditions of this consent, compliance with any monitoring requirement imposed by this consent must be at the consent holder's own expense.
- c) The consent holder shall pay to the Council all required administrative charges fixed by the Council pursuant to section 36 in relation to:
 - i) the administration, monitoring and supervision of this consent; and
 - ii) charges authorised by regulations.

Special conditions

- 1. Within three months of granting of this consent the consent holder shall prepare and maintain a site contingency plan to the satisfaction of the Chief Executive, Taranaki Regional Council, outlining measures and procedures undertaken to prevent spillage or accidental discharge of contaminants and procedures carried out should such a spillage or discharge occur. This shall be reviewed by the Council on an annual basis.
- 2. Within three months of granting of this consent the consent holder shall prepare and maintain a landfill operations and management plan to the satisfaction of the Chief Executive, Taranaki Regional Council, and shall adhere to such a plan in so far as they concern the exercise of this consent at all times. This shall be reviewed by the Council on an annual basis.
- 3. The consent holder shall advise the Taranaki Regional Council one month prior to any changes being made to the operation and management plan and/or site contingency plan. Should the Taranaki Regional Council wish to review either of these plans, one month's notice shall be provided to the consent holder.
- 4. No material is to be burnt at the landfill site.
- 5. The exercise of this resource consent shall be carried out in general accordance with the information submitted in support of the application [2707].
- 6. Notwithstanding any conditions within this consent, the consent holder shall at all times adopt the best practicable option as defined in Section 2 of the Resource Management Act 1991, to prevent or minimise any actual or potential effect on the environment arising from any discharge at the site.

Consent 4636-2

7. In accordance with section 128 and section 129 of the Resource Management Act 1991, the Taranaki Regional Council may serve notice of its intention to review, amend, delete or add to the conditions of this resource consent by giving notice of review during the month of June 2010 and/or June 2016, for the purpose of ensuring that the conditions are adequate to deal with any adverse effects on the environment arising from the exercise of this resource consent, which were either not foreseen at the time the application was considered or which it was not appropriate to deal with at the time.

Signed at Stratford on 16 December 2003

For and on behalf of
Taranaki Regional Council

Director-Resource Management

Water Permit
Pursuant to the Resource Management Act 1991
a resource consent is hereby granted by the
Taranaki Regional Council

Name of
Consent Holder: South Taranaki District Council
Private Bag 902
Hawera 4640

Decision Date: 28 June 2016

Commencement Date: 28 June 2016

Conditions of Consent

Consent Granted: To divert an unnamed tributary of the Tawhiti Stream

Expiry Date: 1 June 2034

Review Date(s): June 2019, June 2022, June 2025, June 2028

Site Location: Matangara Road, Hawera

Grid Reference (NZTM) 1711330E-5617098N (inlet of diversion)
1711522E-5616758N (outlet of diversion)

Catchment: Tangahoe

Tributary: Tawhiti

*For General, Standard and Special conditions
pertaining to this consent please see reverse side of this document*

General condition

- a. The consent holder shall pay to the Taranaki Regional Council all the administration, monitoring and supervision costs of this consent, fixed in accordance with section 36 of the Resource Management Act 1991.

Special conditions

1. The consent holder shall at all times ensure that the diversion pipe is as clear as is practicable of any blockages.
2. The structure shall not obstruct fish passage.
3. In accordance with section 128 and section 129 of the Resource Management Act 1991, the Taranaki Regional Council may serve notice of its intention to review, amend, delete or add to the conditions of this resource consent by giving notice of review during the month of June 2019 and/or June 2022 and/or June 2025 and/or June 2028, for the purpose of ensuring that the conditions are adequate to deal with any adverse effects on the environment arising from the exercise of this resource consent, which were either not foreseen at the time the application was considered or which it was not appropriate to deal with at the time.

Signed at Stratford on 28 June 2016

For and on behalf of
Taranaki Regional Council

A D McLay
Director - Resource Management

Discharge Permit
Pursuant to the Resource Management Act 1991
a resource consent is hereby granted by the
Taranaki Regional Council

Name of
Consent Holder: South Taranaki District Council
Private Bag 902
HAWERA 4640

Consent Granted
Date: 26 March 2008

Conditions of Consent

Consent Granted: To discharge stormwater and sediment onto and into land
and into an unnamed tributary of the Patea River from
earthworks associated with the closure of the Patea
Landfill at or about 2636144E-6161215N

Expiry Date: 1 June 2022

Review Date(s): June 2010, June 2016

Site Location: Patea Landfill, Scotland Street, Patea

Legal Description: All DP 3495

Catchment: Patea

*For General, Standard and Special conditions
pertaining to this consent please see reverse side of this document*

General conditions

- a) On receipt of a requirement from the Chief Executive, Taranaki Regional Council the consent holder shall, within the time specified in the requirement, supply the information required relating to the exercise of this consent.
- b) Unless it is otherwise specified in the conditions of this consent, compliance with any monitoring requirement imposed by this consent must be at the consent holder's own expense.
- c) The consent holder shall pay to the Council all required administrative charges fixed by the Council pursuant to section 36 in relation to:
 - i) the administration, monitoring and supervision of this consent; and
 - ii) charges authorised by regulations.

Special conditions

- 1. The consent holder shall at all times adopt the best practicable option, as defined in section 2 of the Resource Management Act 1991, to prevent or minimise any adverse effects on the environment from the exercise of this consent.
- 2. The exercise of this consent shall be undertaken generally in accordance with the documentation submitted in support of application 4931. In the case of any contradiction between the documentation submitted in support of application 4931 and the conditions of this consent, the conditions of this consent shall prevail.
- 3. The consent holder shall notify the Chief Executive, Taranaki Regional Council, in writing at least seven days prior to the exercise of this consent. Notification shall include the consent number and a brief description of the activity consented and be emailed to worknotification@trc.govt.nz. Notification by fax or post is acceptable only if the consent holder does not have access to email.
- 4. The consent holder shall take all reasonable steps to:
 - a. minimise the amount of sediment discharged to the stream;
 - b. minimise the amount of sediment that becomes suspended in the stream; and
 - c. mitigate the effects of any sediment in the stream.

Undertaking work in accordance with Guidelines for Earthworks in the Taranaki region, by the Taranaki Regional Council, will achieve compliance with this condition.

- 5. All earthwork areas shall be stabilised vegetatively or otherwise as soon as is practicable immediately following completion of soil disturbance activities.
- 6. This consent shall lapse on the expiry of five years after the date of issue of this consent, unless the consent is given effect to before the end of that period or the Taranaki Regional Council fixes a longer period pursuant to section 125(1)(b) of the Resource Management Act 1991.

Consent 7268-1

7. In accordance with section 128 and section 129 of the Resource Management Act 1991, the Taranaki Regional Council may serve notice of its intention to review, amend, delete or add to the conditions of this resource consent by giving notice of review during the month of June 2010 and/or June 2016, for the purpose of ensuring that the conditions are adequate to deal with any adverse effects on the environment arising from the exercise of this resource consent, which were either not foreseen at the time the application was considered or which it was not appropriate to deal with at the time.

Signed at Stratford on 26 March 2008

For and on behalf of
Taranaki Regional Council

Director-Resource Management

Appendix II

Categories used to evaluate environmental and
administrative performance

Categories used to evaluate environmental and administrative performance

Environmental performance is concerned with actual or likely effects on the receiving environment from the activities during the monitoring year. Administrative performance is concerned with the Company's approach to demonstrating consent compliance in site operations and management including the timely provision of information to Council (such as contingency plans and water take data) in accordance with consent conditions.

Events that were beyond the control of the consent holder and unforeseeable (that is a defence under the provisions of the RMA can be established) may be excluded with regard to the performance rating applied. For example loss of data due to a flood destroying deployed field equipment.

The categories used by the Council for this monitoring period, and their interpretation, are as follows:

Environmental Performance

High: No or inconsequential (short-term duration, less than minor in severity) breaches of consent or regional plan parameters resulting from the activity; no adverse effects of significance noted or likely in the receiving environment. The Council did not record any verified unauthorised incidents involving environmental impacts and was not obliged to issue any abatement notices or infringement notices in relation to such impacts.

Good: Likely or actual adverse effects of activities on the receiving environment were negligible or minor at most. There were some such issues noted during monitoring, from self-reports, or during investigations of incidents reported to the Council by a third party but these items were not critical, and follow-up inspections showed they have been dealt with. These minor issues were resolved positively, co-operatively, and quickly. The Council was not obliged to issue any abatement notices or infringement notices in relation to the minor non-compliant effects; however abatement notices may have been issued to mitigate an identified potential for an environmental effect to occur.

For example:

- High suspended solid values recorded in discharge samples, however the discharge was to land or to receiving waters that were in high flow at the time;
- Strong odour beyond boundary but no residential properties or other recipient nearby.

Improvement required: Likely or actual adverse effects of activities on the receiving environment were more than minor, but not substantial. There were some issues noted during monitoring, from self-reports, or during investigations of incidents reported to the Council by a third party. Cumulative adverse effects of a persistent minor non-compliant activity could elevate a minor issue to this level. Abatement notices and infringement notices may have been issued in respect of effects.

Poor: Likely or actual adverse effects of activities on the receiving environment were significant. There were some items noted during monitoring, from self-reports, or during investigations of incidents reported to the Council by a third party. Cumulative adverse effects of a persistent moderate non-compliant activity could elevate an 'improvement required' issue to this level. Typically there were grounds for either a prosecution or an infringement notice in respect of effects.

Administrative performance

High: The administrative requirements of the resource consents were met, or any failure to do this had trivial consequences and were addressed promptly and co-operatively.

Good: Perhaps some administrative requirements of the resource consents were not met at a particular time, however this was addressed without repeated interventions from the Council staff. Alternatively

adequate reason was provided for matters such as the no or late provision of information, interpretation of 'best practical option' for avoiding potential effects, etc.

Improvement required: Repeated interventions to meet the administrative requirements of the resource consents were made by Council staff. These matters took some time to resolve, or remained unresolved at the end of the period under review. The Council may have issued an abatement notice to attain compliance.

Poor: Material failings to meet the administrative requirements of the resource consents. Significant intervention by the Council was required. Typically there were grounds for an infringement notice.