

Stratford District Council Closed Landfills (Stratford, Huiroa and Pukengahu)

Monitoring Programme

Annual Report

2023/24

Technical Report 2024-31



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Taranaki Regional Council
Private Bag 713
Stratford

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Executive summary

The Stratford District Council (SDC) maintains a closed landfill located on Victoria Road at Stratford, in the Pātea Catchment. The landfill was closed to the public on 11 March 2002, and to commercial disposers on 23 March 2002. The site has more recently been used to dewater and dispose of oxidation pond sludge from the adjacent municipal wastewater treatment plant. This activity ceased in early 2006, and the landfill was recapped and reinstated. The only external material now accepted at the landfill is soil from a local sawmill site remediation project. This activity is covered by separate consent¹ held by a third party.

SDC also maintains closed landfills at Douglas Road, Huiroa, and Wingrove Road, Pukengahu, in the Pātea Catchment. Both the Huiroa and Pukengahu landfills have been closed since 1991 but are still monitored with regards to maintenance and leachate discharge on a triennial basis. Triennial monitoring of these sites was undertaken in the 2023/24 year.

This report for the period July 2023 to June 2024 describes the monitoring programme implemented by Taranaki Regional Council (the Council) to assess SDC'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 SDC's activities.

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

SDC holds three resource consents in association with these landfills, which allow it to discharge stormwater and leachate. These consents include a total of 17 conditions setting out the requirements that SDC must satisfy.

The Council's monitoring programme for the year under review for the Stratford closed landfill included two site inspections, six groundwater samples collected for physicochemical analysis, and two biomonitoring surveys of receiving waters. This report also includes the results of the surface water samples taken in conjunction with the Stratford Wastewater Treatment Plant (WWTP).

The monitoring showed that there were no significant adverse effects occurring as a result of the exercise of the Stratford landfill consent. There were no unauthorised incidents noted in respect to the Stratford landfill during the year under review.

The Council's monitoring programme for the year under review for the Huiroa and Pukengahu closed landfills included one site inspection each, along with two water samples collected from each site for physicochemical analysis.

The monitoring showed that there were no significant adverse effects occurring as a result of the exercise of the Huiroa or Pukengahu landfill consents. There were no unauthorised incidents noted in respect to either landfill during the year under review.

For reference, in the 2023/24 year, consent holders were found to achieve a high level of environmental performance and compliance for 864 (89%) of a total of 967 consents monitored through the Taranaki tailored monitoring programmes, while for another 75 (8%) of the consents a good level of environmental performance and compliance was achieved. A further 26 (3%) of consents monitored required improvement in their performance, while the remaining two (<1%) achieved a rating of poor.

¹ Consent 7645-1 Alby M Limited

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 2024/25 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 2023 to June 2024 by Taranaki Regional Council (the Council) on the monitoring programme associated with resource consents held by Stratford District Council (SDC). SDC maintains closed landfills on Victoria Road, Stratford, on Douglas Road, Huiroa, and on Wingrove Road, Pukengahu.

This report covers the results and findings of the monitoring programme implemented by the Council in respect of the consents held by SDC that relate to discharges of leachate and stormwater from the three closed landfills within the Pātea Catchment, in the Stratford district. The Huiroa and Pukengahu landfills are monitored on a triennial cycle, with monitoring of these undertaken in 2023/24. This report is the 28th annual /biennial report to be prepared by the Council to cover SDC's, land and water discharges and their effects.

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 SDC in the Pātea Catchment;
- the nature of the monitoring programme in place for the period under review; and
- a description of the activities and operations conducted at the sites.

Section 2 presents the results of monitoring during the period under review, including scientific and technical data.

Section 3 discusses the results, their interpretations, and their significance for the environment.

Section 4 presents recommendations to be implemented in the 2024/25 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 2023/24 year, consent holders were found to achieve a high level of environmental performance and compliance for 864 (89%) of a total of 967 consents monitored through the Taranaki tailored monitoring programmes, while for another 75 (8%) of the consents a good level of environmental performance and compliance was achieved. A further 26 (3%) of consents monitored required improvement in their performance, while the remaining two (<1%) achieved a rating of poor.²

1.2 Resource consents

SDC holds three resource consents, the details of which are summarised in the table below. Summaries of the conditions attached to each permit are set out in Section 3 of this report.

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.

Table 1 Stratford District Council landfill consents

| Consent number | Location | Purpose | Granted | Review | Expires |
|----------------|-----------|--|---------------|-----------|-------------|
| 3889-3 | Stratford | To discharge leachate into land and into groundwater adjacent to the Pātea River | December 2010 | - | 1 June 2028 |
| 3890-3 | Huiroa | To discharge stormwater and leachate from the former Huiroa landfill onto and into land in the vicinity of an unnamed tributary of the Makuri Stream | June 2016 | June 2028 | 1 June 2034 |
| 3891-3 | Pukengahu | To discharge stormwater and leachate from the former Pukengahu landfill into an unnamed tributary of the Waihapa Stream | June 2016 | June 2028 | 1 June 2034 |

² The Council has used these compliance grading criteria for more than 20 years. They align closely with the 4 compliance grades in the MfE Best Practice Guidelines for Compliance, Monitoring and Enforcement, 2018

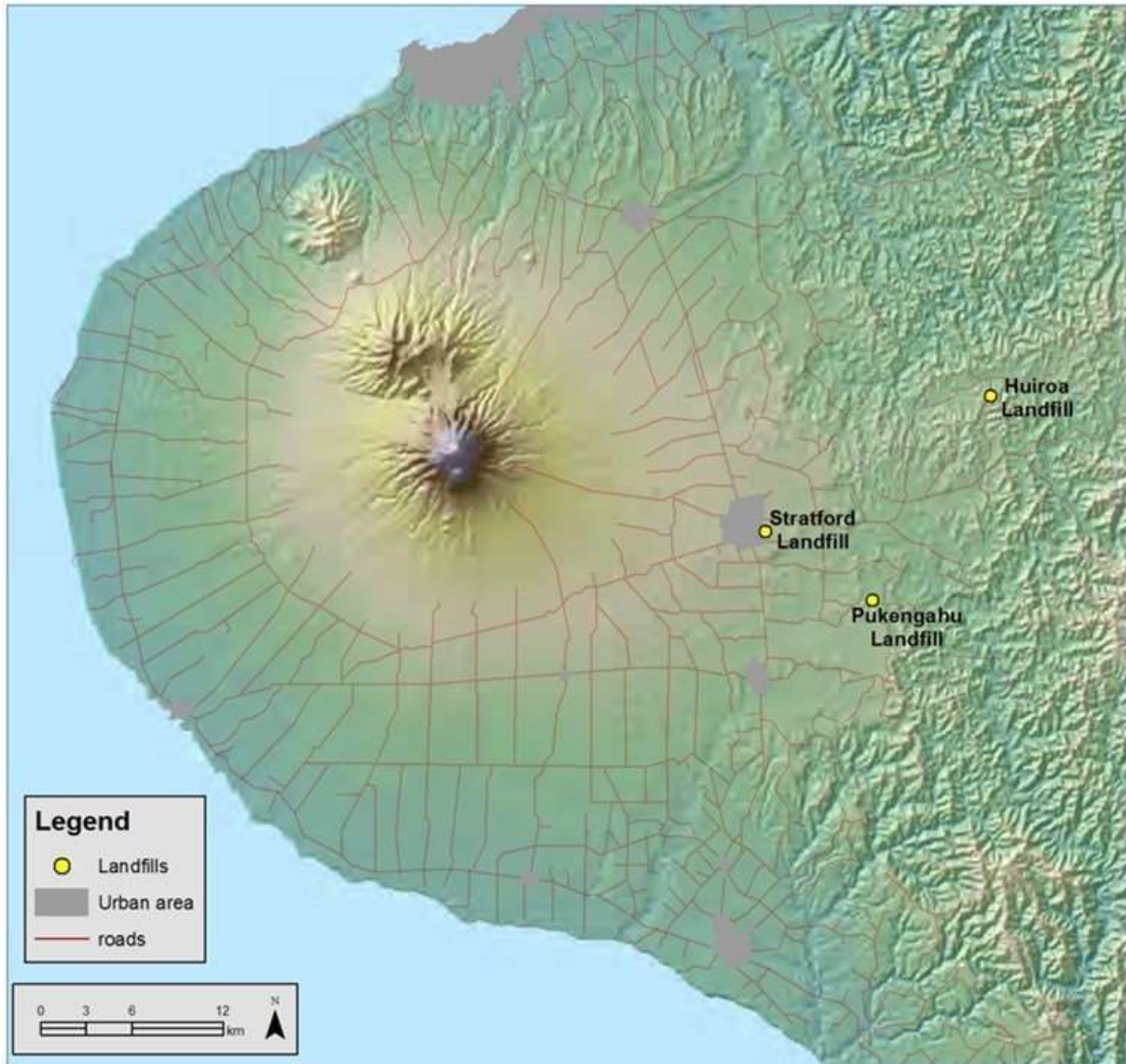


Figure 1 Regional map showing SDC landfill sites

1.3 Monitoring programme

1.3.1 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 Stratford landfill closed in 2006 and monitoring is conducted annually.

Both the Huiroa and Pukengahu landfills have been closed since 1991 but are still monitored with regards to leachate discharge and site maintenance. Monitoring at these sites is undertaken triennially, this was conducted during the 2023/24 monitoring period and is next due in 2026/27.

The monitoring programme for the SDC landfills consisted of four primary components.

1.3.2 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.

1.3.3 Site inspections

The Stratford landfill site was visited on two occasions during the monitoring period. The Huiroa and Pukengahu sites were visited on one occasion each during the monitoring period.

Landfill inspections focused on the stability, integrity, and drainage of the caps, any potential or actual discharges to receiving watercourses, including potential for leachate discharges, and visual assessment of the receiving water quality.

1.3.4 Chemical sampling

The Pātea River in the vicinity of the Stratford landfill was sampled on one occasion, and the sample analysed for black disc transparency, biochemical oxygen demand, cadmium, chloride, conductivity, chromium, dissolved oxygen, dissolved reactive phosphorus, faecal coliforms, ammoniacal nitrogen, nitrate/nitrite nitrogen, dissolved oxygen saturation, pH, suspended solids, temperature, turbidity, and zinc.

The Council also undertook sampling of the groundwater at the Stratford landfill. Groundwater was sampled at three sites on two occasions, and the samples were analysed for alkalinity, dissolved zinc, chloride, conductivity, filtered chemical oxygen demand, dissolved chromium, dissolved copper, dissolved reactive phosphorus, ammoniacal nitrogen, nitrate/nitrite nitrogen, pH, temperature, water level and dissolved zinc.

Samples of the leachate and receiving waters were collected at Huiroa and Pukengahu on one occasion each. The samples were analysed for ammoniacal nitrogen, conductivity, iron, pH, temperature, unionised ammonia, and zinc.

1.3.5 Biomonitoring surveys

Biological surveys were performed on two occasions in the Pātea River to determine whether or not the Stratford landfill has had a detrimental effect upon the macroinvertebrate communities of the river.

2. Stratford landfill at Victoria Road

2.1 Process description

SDC operated a landfill located on Victoria Road at Stratford, in the Pātea Catchment (Figure 2). The landfill was closed to the public on 11 March 2002, and to commercial disposers on 23 March 2002. All contaminated surface water from the landfill is pumped to the adjacent oxidation ponds for treatment.

In March 2004 SDC cleared a site on top of the landfill and created a bunded area for the purpose of oxidation pond sludge dewatering. This dewatering process continued through to early 2006 and the sludge was then covered and capped and the site reinstated. There has been no discharge of refuse to the landfill since 2006.

A third party currently holds a consent to discharge chromated copper arsenate (CCA) contaminated soil from the old Fazackerly timber treatment plant site as base fill to the landfill for re-contouring purposes³ (under the supervision of SDC). This consent has been exercised.



Figure 2 Stratford landfill (shaded in yellow) and sampling locations

³ This consent was granted to provide for the remediation of a local sawmill site. The consent (7645-1) is held by Alby M Limited, and compliance monitoring of Consent 7645-1 is not included in this report

2.2 Results

2.2.1 Inspections

Two routine compliance inspections were carried out during the year under review. The inspections were carried out on 5 September 2023 and 13 February 2024. On both occasions the site was in overall good condition. There was no sign of slumping, cracking or exposed landfill material. Ponding that had been observed around the central trough and northeastern areas previously had dried up and improved considerably. On both occasions, there was signs of recent grazing. The northern batter showed signs of 'tracking' and minor pugging at the time of the first inspection but was in good condition at the time of the second inspection. There was generally good vegetation cover, and no odour that could be attributed to the landfill site.

2.2.2 Results of groundwater monitoring

Groundwater samples were taken from monitoring bores up gradient (GND1015 and GND1016) and down gradient (GND1014) of the landfill on two occasions (Figure 2). The results from these samples are shown in Table 2 and Table 3.

Table 2 Results of the Stratford landfill groundwater quality survey, 5 September 2023

| Parameter | Unit | GND1014 down-gradient | GND1015 up-gradient | GND1016 up-gradient |
|------------------------------------|---------------------|--------------------------|------------------------|------------------------|
| pH | pH | 6.6 | 6.3 | 6.5 |
| Temperature | Deg. C | 14.5 | 13.5 | 14.6 |
| Depth to water (Level) | m | 3.83 | 4.22 | 2.58 |
| Alkalinity | g/m ³ | 420 | 31 | 71 |
| Dissolved arsenic | g/m ³ | < 0.0010 | < 0.0010 | < 0.0010 |
| Chloride | g/m ³ | 20 | 7.6 | 9.5 |
| Chemical oxygen demand (dissolved) | g/m ³ | 21 | < 6 | < 6 |
| Conductivity @ 25°C | µS/cm | 1061 | 112.1 | 225.5 |
| Dissolved chromium | g/m ³ | < 0.0005 | < 0.0005 | < 0.0005 |
| Dissolved copper | g/m ³ | < 0.0005 | 0.085 | < 0.0005 |
| Dissolved reactive phosphorus | g/m ³ | 0.013 | < 0.004 | < 0.004 |
| Unionised ammonia | g/m ³ -N | 0.058 | < 0.000010 | 0.000124 |
| Ammoniacal nitrogen | g/m ³ -N | 43 | < 0.010 | 0.128 |
| Nitrate/nitrite nitrogen | g/m ³ -N | < 0.002 | 1.05 | 0.052 |
| Dissolved zinc | g/m ³ | < 0.0010 | 0.0038 | 0.0063 |

Table 3 Results of the Stratford landfill groundwater quality survey, 15 February 2024

| Parameter | Unit | GND1014 down-gradient | GND1015 up-gradient | GND1016 up-gradient |
|------------------------------------|------------------|--------------------------|------------------------|------------------------|
| pH | pH | 6.6 | 6.34 | 6.74 |
| Temperature | Deg. C | 15.1 | 14.7 | 15.0 |
| Depth to water (Level) | m | 5.02 | 5.17 | 3.46 |
| Alkalinity | g/m ³ | 400 | 48 | 92 |
| Dissolved arsenic | g/m ³ | < 0.0010 | < 0.0010 | < 0.0010 |
| Chloride | g/m ³ | 20 | 7.9 | 10.5 |
| Chemical oxygen demand (dissolved) | g/m ³ | 21 | < 6 | < 6 |

| Parameter | Unit | GND1014 down-gradient | GND1015 up-gradient | GND1016 up-gradient |
|-------------------------------|--------------------------------|--------------------------|------------------------|------------------------|
| Conductivity @ 25°C | $\mu\text{S}/\text{cm}$ | 1030 | 133.9 | 290.1 |
| Dissolved chromium | g/m^3 | < 0.0005 | < 0.0005 | < 0.0005 |
| Dissolved copper | g/m^3 | < 0.0005 | 0.030 | < 0.0005 |
| Dissolved reactive phosphorus | g/m^3 | 0.137 | < 0.004 | 0.035 |
| Unionised ammonia | g/m^3 | 0.056 | 0.000029 | 0.00029 |
| Ammoniacal nitrogen | $\text{g}/\text{m}^3\text{-N}$ | 41 | 0.029 | 0.25 |
| Nitrate/nitrite nitrogen | $\text{g}/\text{m}^3\text{-N}$ | 0.006 | 0.127 | 0.011 |
| Dissolved zinc | g/m^3 | 0.0026 | 0.0042 | 0.0047 |

As with the results from previous samples taken from these monitoring bores, the groundwater down gradient of the landfill (as represented by bore GND1014), shows some evidence of contamination from the landfill.

Figure 3, Figure 4 and Figure 5 show how bore GND1014 is affected by landfill indicator species namely, ammoniacal nitrogen, chloride and zinc. The graphs also show how the levels of chloride and ammonia are apt to fluctuate against the more stable background levels found in the two bores mid and up gradient from the filled area (more so in the case of chloride and ammoniacal nitrogen). Zinc concentration levels in bore GND1014 over time have reduced in concentration. Chloride concentration levels have also reduced, and this aligns with landfill leachate trends for both parameters with time.

Figure 6 compares the unionised ammonia in the down gradient bore (GND1014) with the downstream surface water sites. Given the dependency of unionised ammonia on pH and temperature, there is a seasonal variation in ammonia levels, which presents as a saw tooth pattern. This makes it hard to determine an overall trend. Although the unionised ammonia present in the groundwater is high, this doesn't appear to have significantly influenced levels in the surface water, which remains well below the $0.025\text{g}/\text{m}^3$ guideline for the long term protection of aquatic ecosystems.

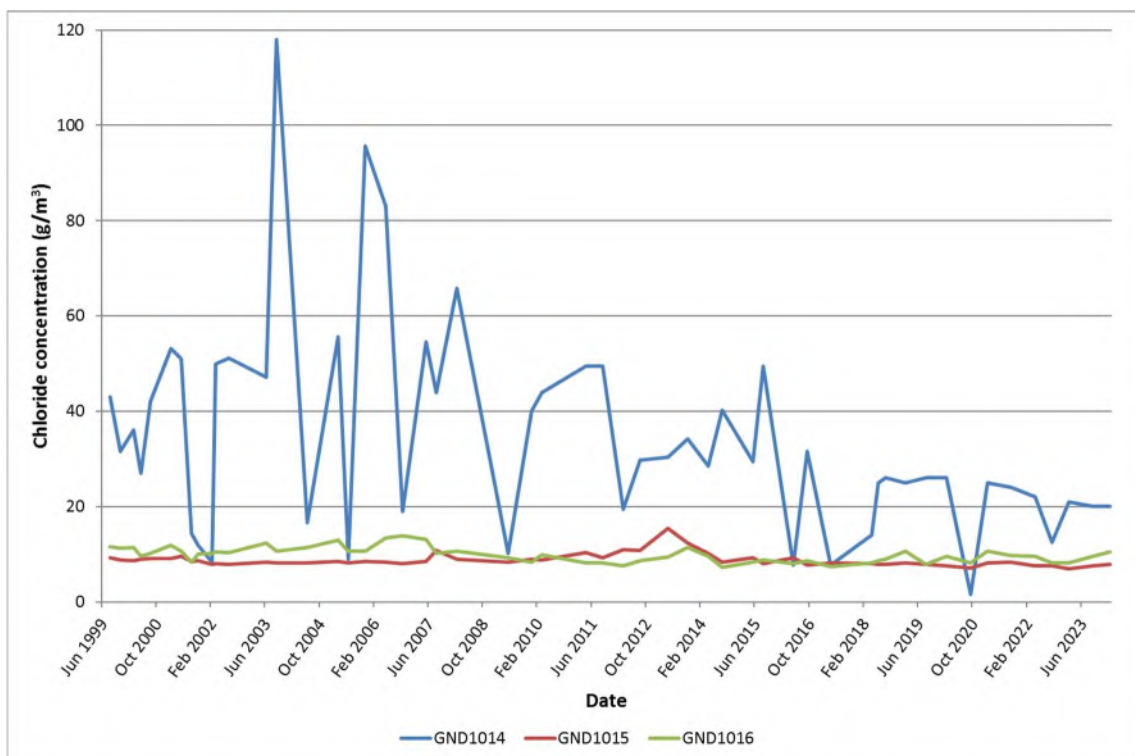


Figure 3 Graph showing chloride levels in the groundwater at the Stratford landfill

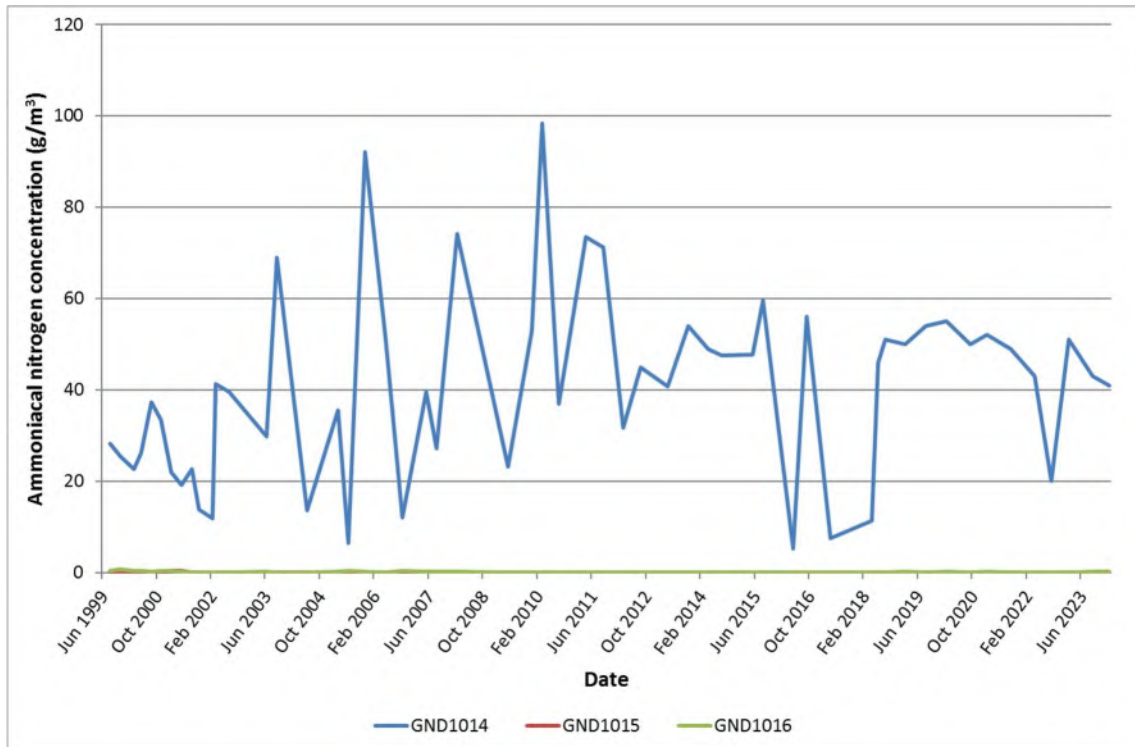


Figure 4 Graph showing ammoniacal nitrogen levels in the groundwater at the Stratford landfill

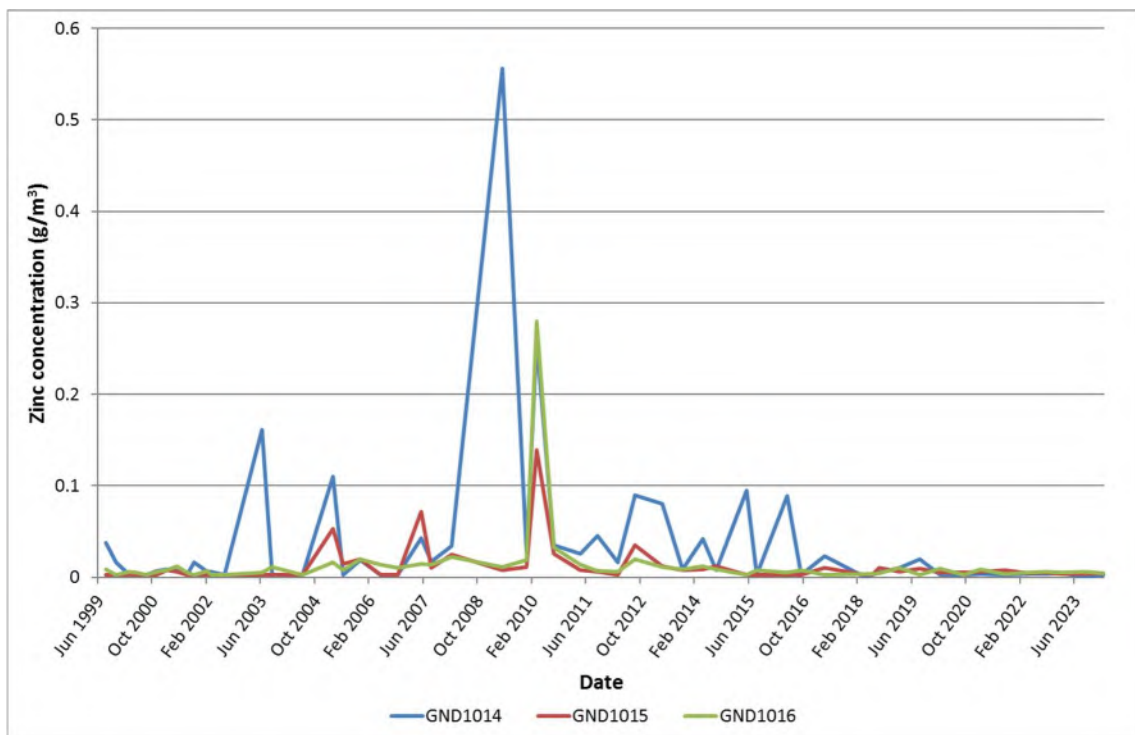


Figure 5 Graph showing dissolved zinc levels in the groundwater at the Stratford landfill

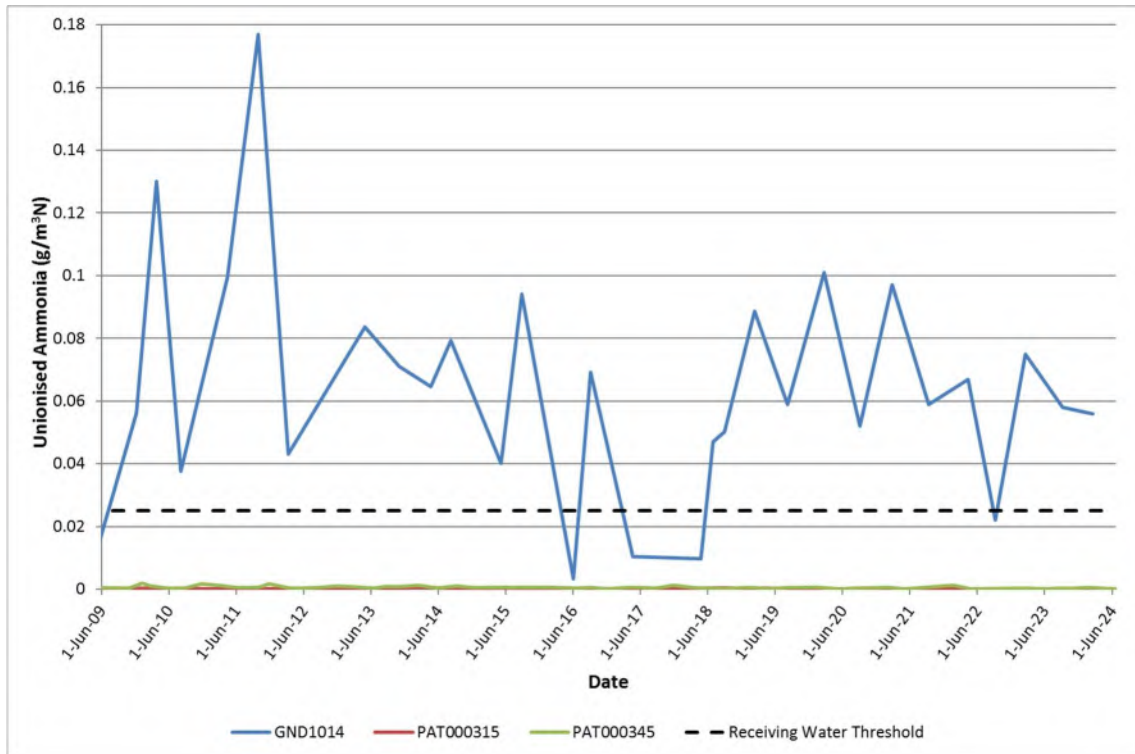


Figure 6 Graph showing unionised ammonia levels in the down gradient bore (GND1014) groundwater and the downstream surface water sites (PAT000315 and PAT000345) at the Stratford landfill

2.2.3 Results of surface water monitoring

Samples were collected from the Pātea River on 18 January 2024 and the results are set out in Table 4. This sampling was undertaken in conjunction with the monitoring of the Stratford WWTP, which is discussed in a separate report.

Table 4 Results of the Stratford landfill water quality survey

| Parameter | Units | 18 January 2024 | |
|------------------------------------|------------|-----------------------------|---|
| | | Above landfill PAT000315 | Below landfill and WWTP pond outlet PAT000345 |
| Temperature | Deg.C | 18.2 | 18.8 |
| pH | pH | 7.7 | 7.8 |
| Black disc transparency | m | 1.825 | 1.90 |
| Biochemical oxygen demand | g/m3 | 1.0 | 0.9 |
| Filtered biochemical oxygen demand | g/m3 | < 1.0 | < 1.0 |
| Cadmium (dissolved) | g/m3 | < 0.00005 | < 0.00005 |
| Chloride | g/m3 | 8.5 | 8.7 |
| Conductivity @ 25°C | µS/cm | 105 | 105 |
| Chromium (dissolved) | g/m3 | < 0.0005 | < 0.0005 |
| Dissolved oxygen | g/m3 | 8.96 | 9.27 |
| Dissolved reactive phosphorus | g/m3-P | 0.022 | 0.015 |
| E. coli | MPN/100 ml | 1733 | 1733 |
| Unionised ammonia | g/m3 | 0.0002 | 0.0005 |
| Ammoniacal nitrogen | g/m3-N | 0.012 | 0.023 |

| Parameter | Units | 18 January 2024 | |
|--------------------------|---------------------|-----------------------------|---|
| | | Above landfill PAT000315 | Below landfill and WWTP pond outlet PAT000345 |
| Nitrate/nitrite nitrogen | g/m ³ -N | 0.62 | 0.64 |
| Total suspended solids | g/m ³ | < 3 | < 3 |
| Turbidity | FNU | 0.0030 | 0.0018 |
| Dissolved zinc | g/m ³ | 18.2 | 18.8 |

There was no significant difference in the physicochemical water quality between the upstream and downstream sites for the majority of parameters measured. Unionised ammonia and ammoniacal nitrogen increased downstream. The level of unionised ammonia downstream of the landfill was still well below the 0.025g/m³ guideline for the long term protection of aquatic ecosystems.

As with the results from previous monitoring periods, the results from this period indicate that the Stratford landfill had only a very minor, if not negligible, effect on the physicochemical water quality of the Pātea River.

Figure 7 shows the ammoniacal nitrogen data gathered over the past 30 years. It is noted that as the Stratford WWTP had an upgrade in 2009, the discharge point of the WWTP and downstream monitoring sites were moved further downstream.

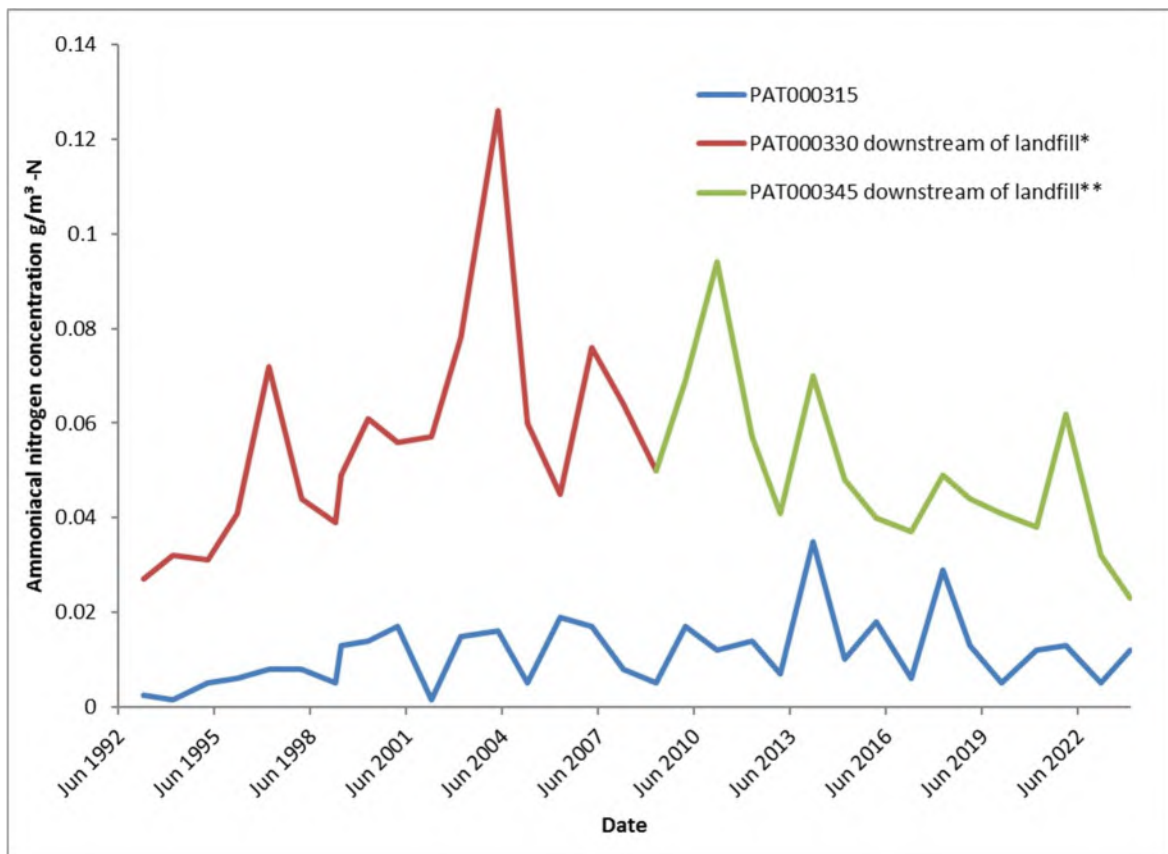


Figure 7 Graph showing ammoniacal nitrogen levels in the Pātea Stream up and downstream of the landfill (where comparative data is available)

*Downstream site prior to WWTP upgrade

**Downstream site after WWTP upgrade

Whilst there is some separation between the sites' locations, the graph indicates that a similar, stable, and modest rise in ammoniacal nitrogen has occurred in the Pātea River as result of the landfill's presence.

2.2.4 Biomonitoring

The Council's standard 'kick-sampling' technique was used at four established sites (Table 5) to collect streambed macroinvertebrates from the Pātea River on 15 November 2023 and 22 February 2024. Samples were processed to provide number of taxa (richness), MCI and SQMCI_s scores, and EPT taxa for each site.

The MCI is a measure of the overall sensitivity of the macroinvertebrate community to the effects of organic pollution in stony streams. It is based on the presence/absence of taxa with varying degrees of sensitivity to environmental conditions. The SQMCI_s takes into account taxa abundance as well as sensitivity to pollution and may reveal more subtle changes in communities. It may be the more appropriate index if non-organic impacts are occurring.

Significant differences in either the MCI or the SQMCI_s between sites indicate the degree of adverse effects (if any) of the discharges being monitored.

Both the 15 November 2023 and the 22 February 2024 macroinvertebrate survey indicated that the discharge from the Stratford closed landfill site had not had any detrimental effect on the macroinvertebrate communities of the Pātea river. No significant changes in the macroinvertebrate communities were notable between the upstream control site, and the site immediately downstream of the monitored site.

Table 5 Location of sampling sites in the Pātea River

| Site No | Location | Site code |
|---------|---|-----------|
| 1 | Swansea Road bridge (upstream of landfill and oxidation ponds' discharge) | PAT000315 |
| 2 | 150m u/s Stratford oxidation ponds' discharge | PAT000330 |
| 3a | Approximately 130m downstream of the WWTP new outfall | PAT000350 |
| 4 | 340m downstream of new Stratford WWTP discharge | PAT000351 |

Spring survey - November 2023

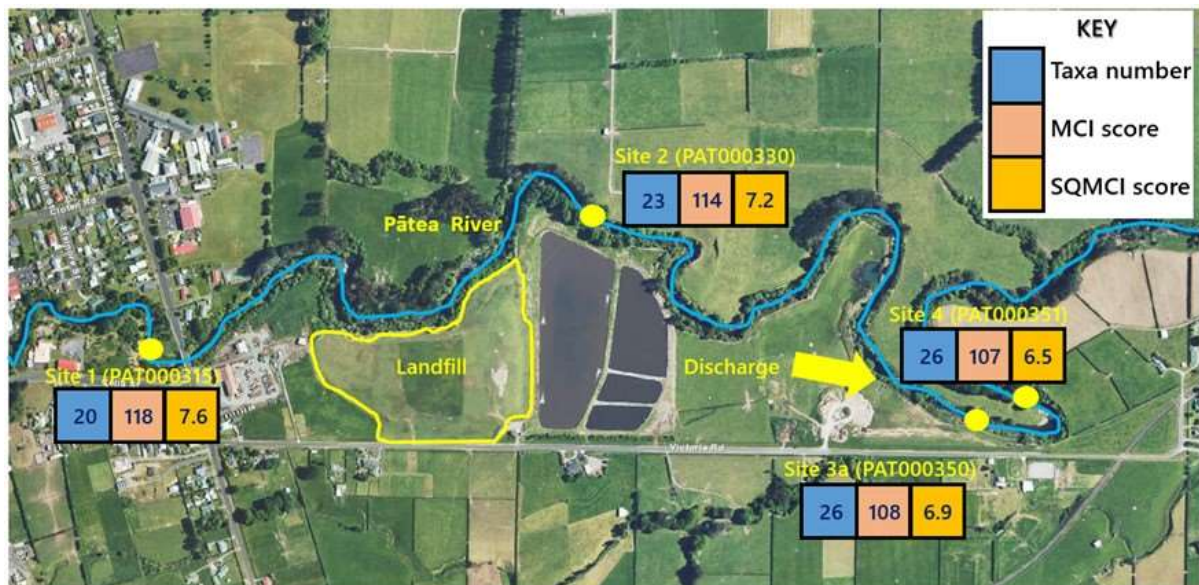


Figure 8 Results for biomonitoring sites in the Patea River (spring)

The Pātea River sites had moderate to high macroinvertebrate community richness. The 'control' site (site 1) recorded 20 taxa, while site 2 recorded 23 taxa, and both sites 3a and 4, recorded 26 taxa each (Figure 8).

MCI scores were 118, 114, 108 and 107 units at the four sites in a downstream direction respectively. These scores categorized all sites as having 'good' macroinvertebrate community health. Overall, there was a

decrease in MCI scores in a downstream direction, with a significantly lower score between the 'control' site 1 and the furthest downstream site 4.

SQMCI scores were 7.6, 7.2, 6.9 and 6.5 units at the four sites in a downstream direction, respectively, with a significant difference of 1.1 units between sites 1 and 4. These scores were reflective of 'excellent' macroinvertebrate community health at sites 1 and 2, and 'very good' macroinvertebrate community health at sites 3a and 4.

In conclusion, there was no major difference in MCI and SQMCI scores between the 'control' sites 1 and site 2, suggesting the closed landfill was not adversely affecting the macroinvertebrate community. However, there was a downstream decrease in all macroinvertebrate metrics except taxa richness, with significant declines in the MCI and SQMCI scores between the 'control' site 1 and site 4, likely due to the WWTP discharge. Despite these changes, all sites maintained MCI scores of 'good'; and SQMCI scores of 'very good' or higher macroinvertebrate community health. There was no major shift in the composition of sensitive taxa amongst sites, indicating that the decline is relatively subtle and did not adversely affect the macroinvertebrate community. Overall, the results of this survey indicate that the closed landfill did not have a significant negative effect on the macroinvertebrate community health of the Pātea River.

Summer survey - February 2024

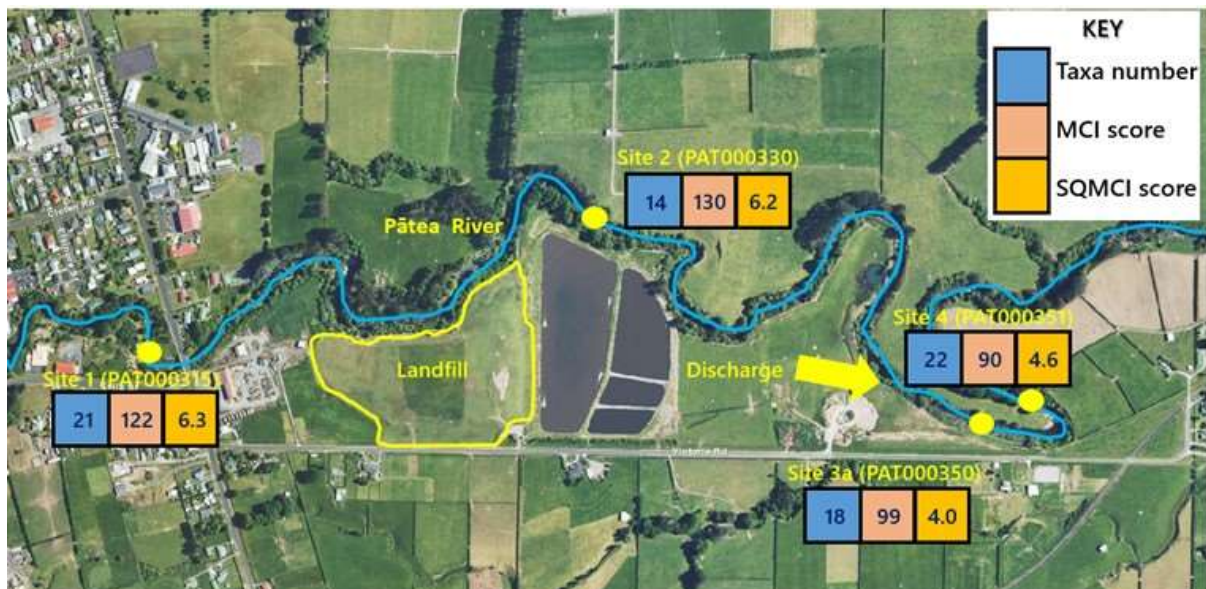


Figure 9 Results for biomonitoring sites in the Pātea River (summer)

The Pātea River sites had low to moderate macroinvertebrate community richness, with sites 1, 2, 3a and 4 recording 21, 14, 18 and 22 taxa, respectively (Figure 9). The number of EPT taxa decreased in a downstream direction (12, 9, 8, and 5 EPT taxa at sites 1, 2, 3a and 4 respectively), with the percentage of EPT taxa being 57%, 64%, 44% and 23% at sites 1, 2, 3a and 4, respectively.

MCI scores were 122, 130, 99 and 90 units at sites 1, 2, 3a and 4 respectively. These scores categorised sites 1 and 2 as having 'very good' macroinvertebrate community health, while sites 3a and 4 were categorised as having 'fair' health. Overall, sites 1 and 2 recorded MCI scores significantly greater than sites 3a and 4. Further, SQMCI scores were 6.3, 6.2, 4.0 and 4.6 units at sites 1, 2, 3a and 4, respectively. These scores were reflective of 'very good' macroinvertebrate community health at sites 1 and 2, and 'fair' macroinvertebrate community health at sites 3a and 4.

In conclusion, there was no major differences in MCI and SQMCI scores between the 'control' site 1 and site 2, suggesting that any discharges from the closed landfill did not have a significant negative effect on the macroinvertebrate community health of the Pātea River.

Copies of the biomonitoring reports are available from Council upon request.

2.2.4 Incidents, investigations, and interventions

The monitoring programme for the year was based on what was considered to be an appropriate level of monitoring, review of data, and liaison with the SDC. During the year matters may arise which require additional activity by the Council, for example provision of advice and information, or investigation of potential or actual causes of non-compliance or failure to maintain good practices. A pro-active approach, that in the first instance avoids issues occurring, is favoured.

For all significant compliance issues, as well as complaints from the public, the Council maintains a database record. The record includes events where the individual/organisation concerned has itself notified the Council. Details of any investigation and corrective action taken are recorded for non-compliant events.

Complaints may be alleged to be associated with a particular site. If there is potentially an issue of legal liability, the Council must be able to prove by investigation that the identified individual/organisation is indeed the source of the incident (or that the allegation cannot be proven).

In the 2023/24 period, the Council was not required to undertake significant additional investigations and interventions, or record incidents, in association with SDC's conditions in resource consents or provisions in Regional Plans.

2.3 Discussion

2.3.1 Discussion of site performance

SDC displayed a high level of site performance at Stratford closed landfill during the 2023/24 monitoring year. Site inspections showed the cap was well grassed with no signs of slumping, cracking or exposed refuse. All fences and troughs were intact and well maintained. No non-compliances were noted. Small areas of 'tracking' and minor pugging were found at the first inspection. These were not considered to be non-compliant at the time of inspection, however, SDC should continue to monitor this to ensure on-going compliance.

2.3.2 Environmental effects of exercise of consents

Groundwater bore GND1014 continued to exhibit some signs of contamination, however surface water sampling and biomonitoring indicated that the closed landfill was not having a significant effect on the Pātea River during the year under review. There was no evidence of odour or dust problems at the site during any inspection.

Biomonitoring results indicated that overall, the closed landfill did not have a significant effect on the macroinvertebrate community health.

2.3.3 Evaluation of performance

A tabular summary of SDC's compliance record for the year under review in regard to the Stratford landfill is set out in Table 6.

Table 6 Summary of performance for Consent 3889-3 (Stratford landfill)

| Purpose: To discharge leachate into land and into groundwater adjacent to the Pātea River | | |
|---|--|----------------------|
| Condition requirement | Means of monitoring during period under review | Compliance achieved? |
| 1. Adopt best practical option | Inspections and liaison with consent holder | Yes |
| 2. Prepare a Contingency and Maintenance Plan | Revised plan received May 2018 | Yes |
| 3. Maintain landfill site | Inspection | Yes |
| 4. Effects beyond mixing zone | Water quality and biomonitoring of the Pātea River upstream and downstream of the landfill | Yes |
| 5. Optional review | No further option 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

Table 7 Evaluation of environmental performance over time-Stratford landfill

| Year | Consent numbers | High | Good | Improvement req | Poor |
|---------|-----------------|------|------|-----------------|------|
| 2019/20 | 3889-3 | 1 | x | x | x |
| 2020/21 | 3889-3 | x | x | x | x |
| 2021/22 | 3889-3 | 1 | x | x | x |
| 2022/23 | 3889-3 | 1 | x | x | x |
| 2023/24 | 3889-3 | 1 | x | x | x |

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

2.3.4 Recommendations from the 2022/23 Annual Report

In the 2022/23 Annual Report, it was recommended:

1. THAT in the first instance, monitoring of consented activities at Stratford Landfill in the 2023/24 year continue at the same level as in 2022/23.
2. THAT should there be issues with environmental or administrative performance in 2023/24, monitoring may be adjusted to reflect any additional investigation or intervention as found necessary.

Recommendation one was implemented, while additional investigation or monitoring was not considered necessary as per recommendation two.

2.3.5 Alterations to monitoring programmes for 2024/25

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.

No planned changes have been made to the 2024/25 monitoring programme.

It should be noted that the proposed programme represents a reasonable and risk-based level of monitoring for the sites 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 2024/25.

2.4 Recommendations

1. THAT in the first instance, monitoring of consented activities at Stratford Landfill in the 2024/25 year continue at the same level as in 2023/24.
2. THAT should there be issues with environmental or administrative performance in 2024/25, monitoring may be adjusted to reflect any additional investigation or intervention as found necessary.

3. Huiroa landfill

3.1 Process description

The Huiroa landfill is sited within an elbow of Douglas Road. The dump was an uncontrolled roadside landfill used by local residents to dispose of domestic waste. The site was closed in 1991 and reinstated by SDC.

This closed landfill is monitored on a triennial basis, with inspections and sampling undertaken during 2023/24 and next scheduled in 2026/27. The location of the landfill and monitoring sites are shown in Figure 10.



Figure 10 Huiroa landfill and approximate sampling locations

3.2 Results

3.2.1 Inspection

One routine compliance monitoring inspection was carried out during the year under review. The inspection was carried out on 24 October 2023, during which the site was observed to be in good condition. The cap was in good order with good grass cover and no wilding/weed establishment. There was no slumping, cracking or exposed refuse. There were no odour or dust issues observed.

3.2.2 Results of discharge monitoring

During the year under review a sample was collected from the spring water/leachate discharge point RTP0010002. The results of the analyses are given in Table 8.

Table 8 Results of Huiroa landfill leachate discharge sampling (site RTP001002)

| Date | Ammoniacal nitrogen (g/m ³ -N) | Un-ionised ammonia (g/m ³) | Conductivity (mS/m@25°C) | Iron Acid Soluble (g/m ³) | pH | Temperature (Deg.C) | Dissolved Zinc (g/m ³) |
|-----------------|---|--|--------------------------|---------------------------------------|-----|---------------------|------------------------------------|
| 24 October 2023 | 1.09 | <0.00001 | 21.2 | 53 | 7.4 | 13.3 | 0.0053 |

The sample taken of the spring water/leachate discharge from the Huiroa landfill during the year under review showed little evidence of contamination.

3.2.3 Results of receiving environment monitoring

The small unnamed tributary of the Makuri Stream that flows approximately 70m to the northwest of the Huiroa closed landfill was sampled on one occasion during the period under review. The results are presented in Table 9.

Table 9 Results of the Makuri Stream tributary downstream of the Huiroa landfill (site MKR000012)

| Date | Ammoniacal nitrogen (g/m ³ -N) | Un-ionised ammonia (g/m ³) | Conductivity (mS/m@25°C) | Iron Acid Soluble (g/m ³) | pH | Temperature (Deg.C) | Dissolved Zinc (g/m ³) |
|-----------------|---|--|--------------------------|---------------------------------------|-----|---------------------|------------------------------------|
| 24 October 2023 | < 0.010 | <0.00001 | 13.3 | 5.9 | 7.6 | 14.3 | < 0.0010 |
| Consent limits | 0.9 | 0.025 | - | - | 6-9 | - | 0.05 |

The results obtained during the year under review complied with consent conditions. Based on the results of the sampling and the low discharge rates, it is considered that the effect the closed landfill is having on the receiving environment is minor at most.

3.2.4 Investigations, investigations, and incidents

In the 2023/24 period, the Council was not required to undertake significant additional investigations and interventions, or record incidents, in association with SDC's conditions in the Huiroa landfill resource consents or provisions in Regional Plans.

3.3 Discussion

3.3.1 Discussion of site performance

During the year under review, there were no issues in regard to ponding, excessive leachate seepage or refuse migration observed at this site. It appeared that grazing at the site had been well managed with no evidence of erosion in the stormwater channel.

3.3.2 Environmental effects of exercise of consents

There is no evidence that the exercise of the Consent 3890-3 was having any significant effect on the environment. The site was well maintained and well vegetated. There was no evidence found of refuse migrating through the cap. The samples gathered during the period under review indicated little, if any, effect on the environment.

3.3.3 Evaluation of performance

A tabular summary of SDC's compliance record for the Huiroa landfill during the period under review is set out in Table 10.

Table 10 Summary of performance for Consent 3890-3 (Huiroa closed landfill)

| Purpose: To discharge stormwater and leachate from the former Huiroa landfill onto and into land in the vicinity of an unnamed tributary of the Makuri Stream | | |
|---|--|-----------------------|
| Condition requirement | Condition requirement | Condition requirement |
| 1. Adoption of best practicable option | Inspection and liaison with consent holder | Yes |
| 2. Maintenance of cap and drainage systems | Inspection | Yes |
| 3. Site to be operated in accordance with a Management Plan | Inspection and liaison with consent holder | Yes |
| 4. Component concentration limits on water quality after mixing | Water sampling | Yes |
| 5. General water quality after mixing | Water sampling and inspection | Yes |
| 6. Optional review | Next opportunity for review June 2028 | 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 11 Evaluation of environmental performance over time - Huiroa landfill

| Year | Consent numbers | High | Good | Improvement req | Poor |
|---------|-----------------|------|------|-----------------|------|
| 2011/12 | 3890-2 | 1 | - | x | x |
| 2014/15 | 3890-2 | - | 1 | x | x |
| 2017/18 | 3890-3 | 1 | - | x | x |
| 2020/21 | 3890-3 | 1 | | x | x |
| 2023/24 | 3890-3 | 1 | x | x | x |

During the year, the environmental and administrative performance of SDC in relation to the Huiroa landfill was high.

3.3.4 Recommendations from the 2022/23 Annual Report

In the 2022/23 Annual Report, it was recommended:

1. THAT in the first instance, the triennial monitoring for the Huiroa landfill remains unchanged in the 2023/24 year, continuing at the same level, with monitoring next undertaken in 2023/24.
2. THAT should there be issues with environmental or administrative performance in 2023/24, monitoring may be adjusted to reflect any additional investigation or intervention as found necessary.

Recommendation one was implemented, while additional investigation or monitoring was not considered necessary as per recommendation two.

3.3.5 Alterations to monitoring programmes for 2024/25

In designing and implementing the monitoring programmes for air and 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 planned changes have been made to the 2024/25 monitoring programme. However, it is noted that with the triennial monitoring of the site, this is scheduled to be undertaken in the 2026/27 year.

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 2026/27.

3.4 Recommendations

1. THAT in the first instance, the triennial monitoring for the Huiroa landfill remains unchanged with monitoring scheduled to be undertaken in 2026/27.
2. THAT should there be issues with environmental or administrative performance in 2026/27, monitoring may be adjusted to reflect any additional investigation or intervention as found necessary.

4. Pukengahu landfill

4.1 Process description

The site is situated in a small gully off Wingrove Road (Figure 11). At the base of the gully is a small wetland area, which is fed by a spring that is culverted beneath the road and feeds into a small unnamed stream. The site was unmanaged and was mostly used for the discharge of domestic waste by local residents. The landfill closed in 1991 and was reinstated by SDC. It is monitored on a triennial basis, with inspections and sampling undertaken during the 2023/24 monitoring year, and next scheduled in 2026/27.

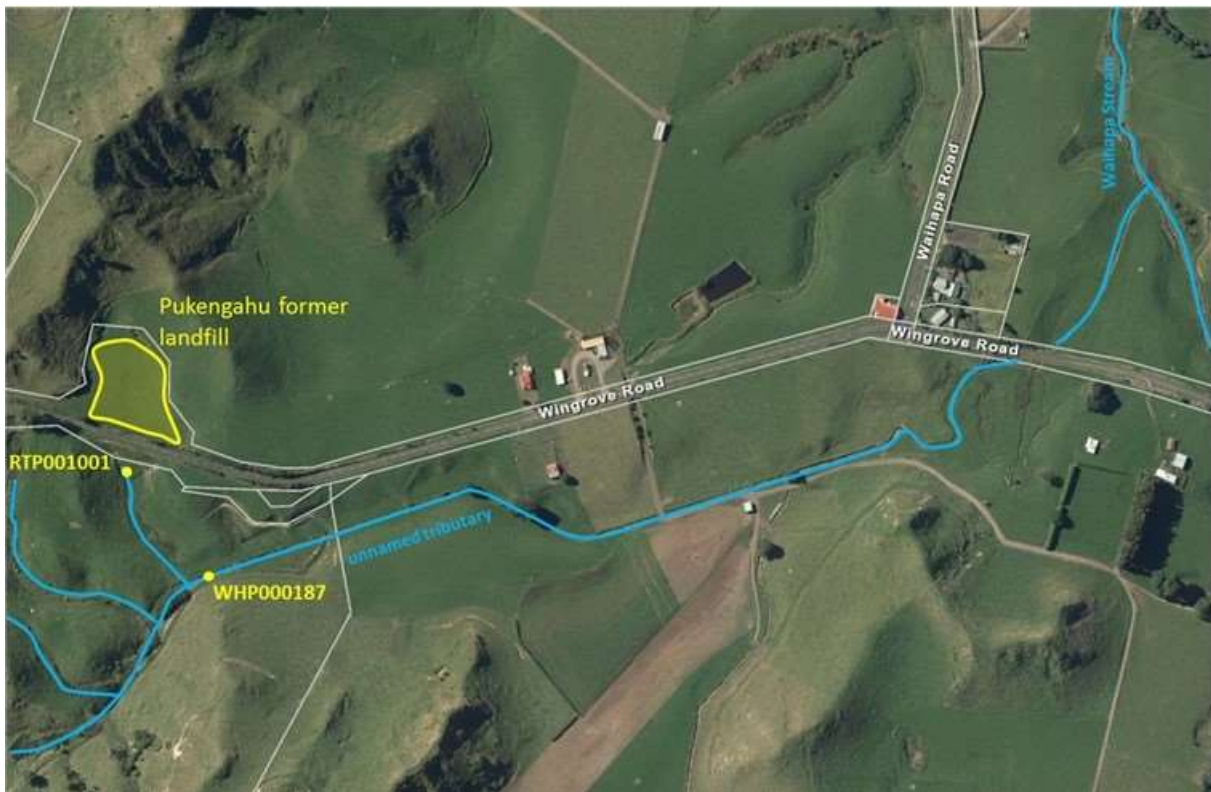


Figure 11 Pukengahu landfill and approximate sampling locations

4.2 Results

4.2.1 Inspection

One routine compliance monitoring inspection was carried out during the year under review. The inspection was carried out on 17 October 2023, during which the site was observed to be in good condition. Though the ground was soft in some places, the cap was in good order with good grass cover and no wilding/weed establishment. All fencing was in good order. There was no slumping, cracking or exposed refuse. There were no odour or dust issues observed.

4.2.2 Results of discharge monitoring

During the monitoring period a sample was taken of the discharge from the Pukengahu closed landfill. The results of the sample analysis are given in Table 12.

Table 12 Results of Pukengahu closed landfill leachate sampling (RTP001001)

| Date | Ammoniacal nitrogen (g/m ³ -N) | Un-ionised ammonia (g/m ³) | Conductivity (mS/m@25°C) | Iron Acid Soluble (g/m ³) | pH | Temperature (Deg.C) | Dissolved Zinc (g/m ³) |
|-----------------|---|--|--------------------------|---------------------------------------|-----|---------------------|------------------------------------|
| 17 October 2023 | 0.65 | <0.00001 | 21.5 | 22 | 7.0 | 14.5 | 0.0041 |

The sample taken of the leachate discharge from the Pukengahu landfill during the year under review showed little evidence of contamination. Results were similar to those obtained previously.

4.2.3 Results of receiving environment monitoring

The unnamed tributary of the Waihapa Stream that flows approximately 120m to the south of the Pukengahu closed landfill was sampled on one occasion during the period under review. The sampling site (WHP000187) was approximately five metres downstream of where the groundwater/leachate flow enters the tributary.

Table 13 Unnamed tributary of the Waihapa Stream downstream of the Pukengahu closed landfill (WHP000187)

| Date | Ammoniacal nitrogen (g/m ³ -N) | Un-ionised ammonia (g/m ³) | Conductivity (mS/m@25°C) | Iron Acid Soluble (g/m ³) | pH | Temperature (Deg.C) | Dissolved Zinc (g/m ³) |
|-----------------|---|--|--------------------------|---------------------------------------|-----|---------------------|------------------------------------|
| 17 October 2023 | 0.051 | 0.00051 | 14.9 | 1.8 | 7.5 | 14.4 | 0.0012 |
| Consent limits | 0.9 | 0.025 | - | - | 6-9 | - | 0.05 |

The results complied with the discharge standards on the consent (Table 13). These results show that the leachate from the closed Pukengahu landfill was having little, if any, effect on the water quality of the unnamed tributary of the Waihapa Stream.

4.2.4 Investigations, interventions, and incidents

In the 2023/24 period, the Council was not required to undertake significant additional investigations and interventions, or record incidents, in association with SDC's conditions in the Pukengahu landfill resource consents or provisions in Regional Plans.

4.3 Discussion

4.3.1 Discussion of site performance

During the monitoring year, there were no issues observed in regard to ponding, excessive leachate seepage or refuse migration observed at this site. Good grass coverage was maintained, and the site was managed appropriately.

4.3.2 Environmental effects of exercise of consents

There is no evidence that the exercise of the Consent 3891 was having any significant effect on the environment. The site was well maintained and well vegetated with no evidence of refuse migrating through the cap. None of the samples gathered during the period under review indicated significant effects on the environment.

4.3.3 Evaluation of performance

A tabular summary of SDC's compliance record for the Pukengahu landfill during the period under review is set out in Table 14.

Table 14 Summary of performance for Consent 3891-3 (Pukengahu closed landfill)

| Purpose: To discharge stormwater and leachate from the former Pukengahu landfill into an unnamed tributary of the Waihapa Stream | | |
|--|--|----------------------|
| Condition requirement | Means of monitoring during period under review | Compliance achieved? |
| 1. Adoption of best practicable option | Inspection and liaison with consent holder | Yes |
| 2. Maintenance of cap and drainage systems | Inspection | Yes |
| 3. Site to be operated in accordance with a Management Plan | Inspection and liaison with consent holder | Yes |
| 4. Component concentration limits on water quality after mixing | Water sampling | Yes |
| 5. General water quality after mixing | Water sampling and inspection | Yes |
| 6. Optional review | Next opportunity for review June 2028 | 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 15 Evaluation of environmental performance over time - Pukengahu landfill

| Year | Consent numbers | High | Good | Improvement req | Poor |
|---------|-----------------|------|------|-----------------|------|
| 2011/12 | 3891-2 | 1 | x | x | x |
| 2014/15 | 3891-2 | 1 | x | x | x |
| 2017/18 | 3891-3 | 1 | x | x | x |
| 2020/21 | 3891-3 | 1 | x | x | x |
| 2023/24 | 3891-3 | 1 | x | x | x |

During the year, the environmental and administrative performance of SDC in relation to the Pukengahu landfill was high.

4.3.4 Recommendations from the 2022/23 Annual Report

In the 2022/23 Annual Report, it was recommended:

1. THAT in the first instance, the triennial monitoring for the Pukengahu landfill remains unchanged in the 2023/24 year, continuing at the same level, with monitoring next undertaken in 2023/24.
2. THAT should there be issues with environmental or administrative performance in 2023/24, monitoring may be adjusted to reflect any additional investigation or intervention as found necessary.

Recommendation one was implemented, while additional investigation or monitoring was not considered necessary as per recommendation two.

4.3.5 Alterations to monitoring programmes for 2024/25

In designing and implementing the monitoring programmes for air and 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 planned changes have been made to the 2024/25 monitoring programme. However, it is noted that with the triennial monitoring of the site, this is scheduled to be undertaken in the 2026/27 year

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 2026/27.

4.4 Recommendations

1. THAT in the first instance, the triennial monitoring for the Pukengahu landfill remains unchanged, with monitoring next scheduled to be undertaken in 2026/27.
2. THAT should there be issues with environmental or administrative performance in 2026/27, monitoring 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. |
| Bund | A wall around a tank to contain its contents in the case of a leak. |
| cfu | Colony forming units. A measure of the concentration of bacteria usually expressed as per 100 millilitre sample. |
| Conductivity | Conductivity, an indication of the level of dissolved salts in a sample, usually measured at 25°C and expressed in $\mu\text{S}/\text{cm}$. |
| 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. |
| m^2 | Square Metres. |
| 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. |
| 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. |
| MPN | Most Probable Number. A method used to estimate the concentration of viable microorganisms in a sample. |
| $\mu\text{S}/\text{cm}$ | Microsiemens per centimetre. |
| 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. |

SQMCI Semi quantitative macroinvertebrate community index.

Temp Temperature, measured in °C (degrees Celsius).

For further information on analytical methods, contact a manager within the Environment Quality Department.

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- Taranaki Regional Council (1997): *Stratford District Council, Huiroa, Pukengahu and Stratford Landfills Annual Report 1996-97*. Technical Report 97-09.
- Taranaki Regional Council (1996): *Stratford District Council, Huiroa, Pukengahu and Stratford Landfills Annual Report 1995-96*. Technical Report 96-22.
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- Taranaki Regional Council (1993): *Stratford District Council, Stratford, Pukengahu and Huiroa Landfills Air and Water Monitoring Programmes Annual Report 1992-93*. Technical Report 93-35
- Taranaki Regional Council (1992): *Stratford District Council, Huiroa, Pukengahu and Stratford Landfills Annual Report 1991-92*. Technical Report 92-16.

Appendix I

Resource consents held by Stratford District Council

(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: Stratford District Council
P O Box 320
STRATFORD 4352

Decision Date: 6 December 2010

Commencement
Date: 6 December 2010

Conditions of Consent

Consent Granted: To discharge leachate into land and into groundwater
adjacent to the Patea River at or about (NZTM)
1712119E-5644346N

Expiry Date: 1 June 2028

Review Date(s): June 2016, June 2022

Site Location: Swansea Road, Stratford

Legal Description: Lots 5-6 DP Pt Lot 4 DP 1942 Lot 2 DP 11213 Blk II
Ngaere SD [Discharge source & site]

Catchment: Patea

*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 [the Council] all the administration, monitoring and supervision costs of this consent, fixed in accordance to section 36 of the Resource Management Act.

Special conditions

1. The consent holder shall at all time adopt the best practical option as defined in section 2 of the Resource Management Act 1991, to prevent or minimise any actual or likely adverse effect on the environment associated with the discharge of contaminants from the site.
2. Before 31 March 2011 the consent holder shall submit a Landfill Maintenance and Contingency Plan to the satisfaction to the Chief Executive of the Taranaki Regional Council that;
 - a) sets out the requirements and scheduling for the maintenance of the landfill cap;
 - b) identifies all other structures on the site [drains, stock watering troughs, and groundwater bores etc] that require ongoing maintenance and sets out requirements and scheduling for their maintenance;
 - c) outlines the proposed responses to inadvertent exposure of refuse, significant cap disturbance, and leachate breakouts; and
 - d) provides a list of contact details for all appropriate staff and agencies to be contacted during an emergency at the site.
3. In addition to adhering to the Landfill Maintenance and Contingency Plan as required by condition 2, the consent holder shall at all times take all reasonable steps to ensure;
 - a) that the cap is contoured is maintained in a manner that prevents ponding, stormwater infiltration and minimises leachate production;
 - b) that the cap retains a reasonable cover of appropriate vegetation;
 - c) that any stock water troughs on the site are maintained to ensure that they do not leak or overflow;
 - d) that any existing drains or other diversion structures are kept clear and functional; and
 - e) that the cap depth is maintained to the original specifications as set out in the Swansea Street Sanitary Landfill Management Plan of 1992.

4. That downstream of the discharge zone in the Patea River , beyond grid reference 1712256E-5644543N, the discharge shall not give rise to any of the following effects in the receiving waters of the Patea River:
 - a) the production of any conspicuous oil or grease films, scums or foams or floatable or suspended materials;
 - 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 effects of aquatic life.
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 2016 and/or June 2022, 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 December 2010

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: Stratford District Council
 PO Box 320
 Stratford 4352

Decision Date: 16 June 2016

Commencement Date: 16 June 2016

Conditions of Consent

Consent Granted: To discharge stormwater and leachate from the former
 Huiroa landfill onto and into land in the vicinity of an
 unnamed tributary of the Makuri Stream

Expiry Date: 1 June 2034

Review Date(s): June 2022, June 2028

Site Location: Huiroa Landfill, Douglas Road, Huiroa

Grid Reference (NZTM) 1726881E-5653373N

Catchment: Patea

Tributary: Makuri

*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) minimises stormwater infiltration into the filled area; and
 - b) 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 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 of the unnamed tributary of the Makuri Stream 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 of the unnamed tributary of the Makuri Stream;
 - 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 3890-3.0

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 2022 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 16 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: Stratford District Council
 PO Box 320
 Stratford 4352

Decision Date: 16 June 2016

Commencement Date: 16 June 2016

Conditions of Consent

Consent Granted: To discharge stormwater and leachate from the former
 Pukengahu Landfill into an unnamed tributary of the
 Waihapa Stream

Expiry Date: 1 June 2034

Review Date(s): June 2022, June 2028

Site Location: Wingrove Road, Pukengahu

Grid Reference (NZTM) 1719066E-5639665N

Catchment: Patea

Tributary: Waihapa

*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) minimises stormwater infiltration into the filled area; and
 - b) 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 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 3891-3.0

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 2022 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 16 June 2016

For and on behalf of
Taranaki Regional Council

A D McLay
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.