

South Taranaki District Council Ōpunake WWTP

Monitoring Programme Annual Report 2024/25 Technical Report 2025-19

Taranaki Regional Council Private Bag 713 Stratford

ISSN: 1178-1467 (Online)

Document: TRCID-2128948281-10721 (Word) Document: TRCID-1188382587-1191 (Pdf)

August 2025

Executive summary

South Taranaki District Council (STDC) operates a municipal wastewater treatment plant (WWTP) located on South Road at Ōpunake, in the Otahi and Heimama catchments. This is a three-stage treatment system comprised of a primary oxidation pond, a wetlands treatment system, and a subsurface, reticulated soakage trench system that subsequently discharges to an unnamed coastal stream between the Otahi Stream and the Heimama Stream.

This report for the period July 2024 to June 2025 describes the monitoring programme implemented by 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.

During the monitoring period, South Taranaki District Council demonstrated a high level of environmental performance and high level of administrative performance.

STDC holds one resource consent to discharge treated wastewater, which includes a total of ten conditions setting out the requirements that it must satisfy. STDC also hold a resource consent to occupy the coastal marine area with the outfall structure. This includes three conditions setting out requirements that STDC must satisfy.

The Council's monitoring programme for the year under review included four inspections and 53 water samples collected for physicochemical analysis (ten samples analysing the effluent quality from the system, and 43 samples monitoring water quality at nearby contact recreational beach bathing sites).

The monitoring indicated that the treatment system was treating the municipal wastewater to the extent that no significant effects were expected in the receiving waters of the Tasman Sea. The water quality of nearby popular beach bathing sites was generally very good.

For reference, in the 2024/25 year, consent holders were found to achieve a high level of environmental performance and compliance for 815 (86%) of a total of 946 consents monitored through the Taranaki tailored monitoring programmes, while for another 101 (11%) of the consents a good level of environmental performance and compliance was achieved. A further 29 (3%) of consents monitored required improvement in their performance, while the remaining 1 (<1%) achieved a rating of poor.

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 2025/26 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 2024 to June 2025 by the Council describing the monitoring programme associated with resource consents held by South Taranaki District Council (STDC). STDC operates a municipal wastewater treatment plant (WWTP) situated on South Road at Ōpunake.

This report covers the results and findings of the monitoring programme implemented by the Council in respect of the consents held by STDC that relate to the discharge of treated wastewater in the Otahi and Heimama catchments. This report is the 35th annual report to be prepared by the Council to cover STDC's discharge and its 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 though annual programmes;
- the resource consents held by STDC in the Otahi/Heimama catchments and the Tasman Sea;
- the nature of the monitoring programme in place for the period under review; and
- a description of the activities and operations conducted at the Opunake WWTP.

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 2025/26 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 socialeconomic 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 2024/25 year, consent holders were found to achieve a high level of environmental performance and compliance for 815 (86%) of a total of 946 consents monitored through the Taranaki tailored monitoring programmes, while for another 101 (11%) of the consents a good level of environmental performance and compliance was achieved. A further 29 (3%) of consents monitored required improvement in their performance, while the remaining 1 (<1%) achieved a rating of poor.¹

1.2 WWTP system

The Ōpunake WWTP services approximately 1360 people with around 765 sewer connections. The WWTP comprises two distinct components. The first is the interception of the town sewage by diverting the terminal sewer into a pumping station. This pumping station is located on Hector Place, adjacent to the terminal sewer leading to the outfall and diverts the sewage to a land-based treatment system located on a headland bounded by State Highway 45 and the Heimama and Otahi streams. Installation of storage at the pump station has been provided in the event of power outages, faults or breakdowns in the pumping system.

The second component is a land-based treatment system (Figure 1) and is comprised of an initial 1.25ha primary oxidation pond. Provision for aeration of this pond was made but has not been required to date. After treatment in this pond the effluent passes through a series of two combined secondary oxidation pond/wetland systems (Photo 1). Final disposal of the effluent is via a series of soakage trenches, which are backfilled with gravel and permit effluent flow along the trenches and through the side walls into a silty sand layer. This series of trenches has been designed to allow regular intervals between the use of individual trenches. The trenches are located a minimum of 30m from the coastal cliff face. The end of the trenches are connected by a common pipe that then discharges any wastewater that has not soaked into the ground to an unnamed stream, via an overland rock filter along the stream bank. The land-based treatment system was constructed during the 1993/94 period and has been operational during subsequent monitoring years. This system operates under consent 4248-2, which was renewed in November 2019.

¹ The Council has used these compliance grading criteria for more than 21 years. They align closely with the 4 compliance grades in the MfE Best Practice Guidelines for Compliance, Monitoring and Enforcement, 2018

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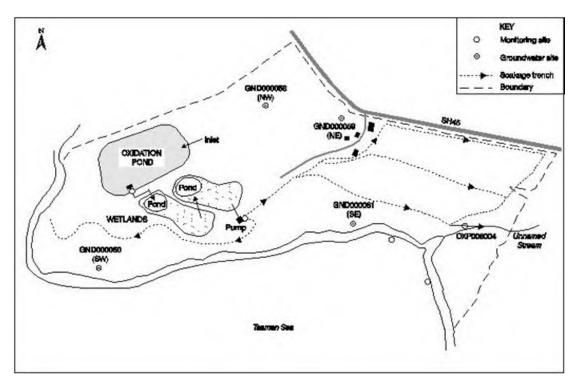


Figure 1 Schematic of Ōpunake WWTP design and layout

The site is currently leased for sheep farming in the sewage treatment area and two other areas of land in the treatment plant have been leased out for grazing of cattle (STDC, 2015).

In association with this land based sewage treatment scheme, a consent (coastal permit) was granted to allow for the use of the ocean outfall when stormwater and groundwater inflows exceed the capacity of the pump station. This allowed for the emergency discharge of untreated wastewater via the ocean outfall. This consent expired at the end of the period under review and will not be renewed, instead STDC will focus on preventing inflow and infiltration in the area in order to prevent exceedance of pump capacity.

1.3 Resource consents

STDC hold two resource consents in relation to the Ōpunake WWTP, 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 STDC during the period under review.

Table 1 Summary of resource consents held by STDC in relation to Ōpunake WWTP

| Consent number | Purpose | Granted | Review | Expires | | | | |
|----------------|---|------------------|--------------|--------------|--|--|--|--|
| | Water discharge permits | | | | | | | |
| 4248-3 | To discharge treated municipal wastewater from the Ōpunake municipal oxidation pond and wetlands treatment system onto and into land and into Unnamed Stream 34 | November 2019 | June 2030 | June 2036 | | | | |
| | Coastal permits | | | | | | | |
| 4577-4 | To occupy the coastal marine area with the Ōpunake marine outfall structure | November 2019 | June 2030 | June 2036 | | | | |

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 Opunake WWTP consisted of three primary components.

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

The Ōpunake WWTP was visited four times during the monitoring period. With regard to consents for the discharge to water, the main points of interest were plant processes with potential or actual discharges to receiving watercourses. Air inspections focused on plant processes with associated actual and potential emission sources and characteristics, including potential odour, dust, noxious or offensive emissions. Sources of data being collected by STDC were identified and accessed, so that performance in respect of operation, internal monitoring, and supervision could be reviewed by the Council. The neighbourhood was surveyed for environmental effects.

1.4.4 Water quality

The Council undertook sampling of the discharges from the site and the summer water quality at nearby recreational bathing sites.

The Ōpunake WWTP primary pond effluent was analysed for dissolved oxygen and microfloral component on four occasions. The primary pond and wetland effluents were analysed for pH, conductivity, BOD, suspended solids, and bacterial components (*E.coli*) on three occasions.

Sampling of the soakage trench treated effluent was carried out on three occasions, and the samples analysed for conductivity and *E.coli* bacteria.

Contact recreational bacteriological water quality at Ōpunake Beach and at Middleton Bay was monitored by the Council weekly between early November 2024 and late March 2025.

2. Results

2.1 Water

2.1.1 Inspections

25 July 2024

A winter Inspection was carried out during wet weather. The influent screen was operating and wastes were fully contained. The main pond was light green brown, with a slightly turbid appearance. A mild odour was noted downwind. Wildlife was numerous, with more than 250 mallard ducks.

Both wetland pond levels were normal. These were light green brown in colour and slightly turbid. The wetland sump pump was operating at the time of the inspection. Several pied stilts, a pair of oyster catchers and scaup ducks were observed. No ponding was noted in the vicinity of the overland soakage trench system. Surface water was present but this was not discharging to the coast. Sewage fungus was observed in the stream bed directly below the discharge point.

The Hector Place pumping station and the emergency overflow were also inspected and found to be satisfactory.

3 October 2024

The step screen was operating and wastes were fully contained. The main pond was dark green and turbid. There was a mild odour downwind. Wildlife was estimated at 100+ birds, mainly, mallard and paradise ducks.

Both wetland ponds were dark green and turbid. The wetland sump pump was operating at the time of the inspection. The overland soakage trench system was inspected with no issues noted. Surface water was discharging to the coast. Sewage fungus was observed directly below the discharge point, but none was found further downstream.

The Hector Place pumping station and the emergency overflow were also inspected and found to be satisfactory.

29 January 2025

A summer inspection was carried out during fine weather conditions. The step screen was operating and wastes were fully contained. The main pond had a turbid dark green appearance. There was a slightly noticeable odour. Wildlife was abundant, in excess of 1,000 birds, the majority of which were paradise ducks.

The wetland ponds were at a low level and green-brown in colour. Wildlife consisted of several ducks. The Inspecting Officer requested that the effluent discharge sump pump be started (in order to collect samples) as this was currently operating to discharge during the evenings. No boggy areas were showing on the overland trench system, with all trenches dry.

The unnamed tributary was dry above the discharge point. The treated wastewater discharge was dark green in colour with an estimated flow rate of 5L/s. There was noticeable odour around the discharge point.

The WWTP surrounds and facilities were found to be satisfactory.

The Hector Place pump station and the emergency outfall were also inspected and found to be satisfactory.

1 May 2025

The step screen was operating and wastes were fully contained. The main pond was turbid and dark brown green. There was a slightly noticeable odour around the outlet area. Approximately 150 paradise and mallard ducks, and several black swans were observed.

The wetland ponds were dark green brown. The effluent discharge sump pump was running. Wildlife consisted of six scaup ducks. No boggy areas were observed and all trenches were discharging towards the coast. The treated wastewater discharge flow rate was estimated at 7L/s.

The Hector Place pump station and the emergency outfall were satisfactory.



2.2 Results of effluent monitoring

Effluent analyses were carried out at three locations throughout the treatment system, for the purpose of monitoring the effectiveness of each stage of treatment. These locations were the primary pond effluent (OXP001002), the partially treated wetlands effluent (OXP006001), and the fully treated final discharge from the subsurface trench system (OXP006004). The results of effluent monitoring at all three sites are displayed in Table 4 and discussed in section 2.2.4.

Along with a visual survey of each component of the system, dissolved oxygen levels (DO) and the microfloral component of the pond were measured during routine monitoring inspections. These are discussed in Sections 2.2.1 and 2.2.2 respectively.

All sampling sites are displayed below in Figure 2.

2.2.1 Dissolved oxygen levels

The dissolved oxygen concentration in WWTPs varies both seasonally and during the day as a result of a combination of factors. The photosynthetic activity of the pond's microflora together with fluctuations in influent waste loadings on the system are major influencing factors. Minimum dissolved oxygen concentrations are generally recorded in the early hours of daylight, and therefore pond performance has been evaluated by standardising sampling times toward mid-morning for all regular inspection visits during the monitoring period.

The results of dissolved oxygen monitoring in the primary pond recorded adjacent to outlet are included in Table 2.

| , , | , | · | 1 71 | | |
|-----------------|--------------|-------------------|----------------------|----------------|--|
| Dete | Time (NIZCT) | Tamananatura (%C) | Dissolved Oxygen | | |
| Date | Time (NZST) | Temperature (°C) | Concentration (g/m³) | Saturation (%) | |
| 25 July 2024 | 10:50 | 11.7 | 3.70 | 33 | |
| 3 October 2024 | 10:45 | 14.9 | 6.19 | 63 | |
| 29 January 2025 | 10:10 | 20.5 | 3.66 | 41 | |
| 1 May 2025 | 12:40 | 16.5 | 7.45 | 78 | |

Table 2 Dissolved oxygen levels at the surface of the Öpunake WWTP primary pond

The results in Table 2 show a wide range of dissolved oxygen concentrations (between 33 to 78% saturation) in the surface layer of the primary pond near the outlet. These were typical of the fairly low levels generally recorded in this oxidation pond (the median of the 125 samples collected since 1994 is 43%) and reflect seasonal influences. No mechanical aeration of the pond occurs, and super-saturation is uncommon.

STDC monitor the pond continuously via an inline DO meter, this showed that dissolved oxygen levels were compliant during the 2024/25 year.

2.2.2 Microfloral component

Pond microflora are very important for the stability of the symbiotic relation between aerobic bacteria in the primary pond. These phytoplankton may be used as a bio-indicator of pond conditions, for example cyanobacteria are often present in under-loaded conditions and chlorophyceae are present in overloaded conditions. To maintain facultative conditions in a pond system there must be an algal community present in the surface layer.

The principal function of algae is the production of oxygen which maintains aerobic conditions while the main nutrients are reduced by biomass consumption. Elevated pH (due to algal photosynthetic activity) and solar radiation combine to reduce faecal bacteria numbers significantly.

Samples of the primary pond effluent were collected during the four routine monitoring inspections for chlorophyll-a analyses. Chlorophyll-a concentration can be a useful indicator of the algal population present in the system. Pearson (1996) suggested that a minimum in-pond chlorophyll-a concentration of 300mg/m³ was necessary to maintain stable facultative conditions. However, seasonal change in algal populations and also dilution by stormwater infiltration might be expected to occur in any WWTP which, together with fluctuations in waste loadings, would result in chlorophyll-a variability.

The results of primary pond chlorophyll-a analyses are provided in Table 3 together with field observations of pond appearance. With the exception of the July result, chlorophyll-a levels were high during the monitoring period, with a new maximum of 1,660mg/m³ recorded in May 2025. Historically relatively high concentrations of chlorophyll-a are found in the pond, indicative of a significant phytoplankton component.

Table 3 Chlorophyll-a levels and primary pond appearance

| Date | Time | Time Appearance | | Chlorophyll-a (mg/m³) data from July 2013 to June 2024 | | | |
|-----------------|-------|------------------------------------|---------|---|----------|--------|--|
| | | | (mg/m³) | N | Range | Median | |
| 25 July 2024 | 10:50 | Slightly turbid, light green brown | 270 | | <2-1,400 | | |
| 3 October 2024 | 10:45 | Turbid, dark green | 540 | 44 | | 220 | |
| 29 January 2025 | 10:10 | Turbid, dark green | 750 | 44 | | 339 | |
| 1 May 2025 | 12:40 | Turbid, dark green brown | 1,660 | | | | |



2.2.3 Wetlands effluent monitoring

No significant odours were associated with the system at the time of any inspection visit. Effluent levels in the wetlands are controlled by the wetland discharge pump. Minor bird numbers were observed on this section of the treatment plant, which has implications for the level of bacteria in the wetland effluent. Results of the wetlands effluent sampling are presented in Table 4.

2.2.4 Trench system effluent monitoring

When discharging, flow rates from the trench system, estimated at the outfall of the final trench, were around 5L/s, prior to the rock rip-rap outfall through which the final effluent discharged into the stream.

Three samples of the trench system treated effluent were collected from the discharge point (OXP006004); the results are presented in Table 4.

2.3 Results of receiving environment monitoring

Receiving environment monitoring consisted of contact recreational bacteriological quality surveys of the Tasman Sea at Middleton Bay and Ōpunake Beach (Figure 3). Previously water quality surveys of the receiving waters of the Tasman Sea beyond the boundary of the mixing zone with the unnamed coastal stream were also undertaken, but erosion in the area has removed access to the coast and this monitoring has been discontinued.



Figure 3 Location of receiving water sampling sites for Ōpunake WWTP

Table 4 Results of effluent analysis monitoring at each stage of the treatment plant

| Site | | | Primary pond effluent Wetlands polished effluent Final treated discharge from so | | | Wetlands polished effluent | | | e from soak | age trenches | | | |
|---------------------|--------|------------|--|---------------|-----------------|----------------------------|----------------|---------------|-------------|---------------|----------------|---------------|-------------|
| Date | | 3 Oct 2024 | 29 Jan 2025 | 1 May 2025 | 2004-2024 | 3 Oct 2024 | 29 Jan 2025 | 1 May 2025 | 2004-2024 | 3 Oct 2024 | 29 Jan 2025 | 1 May 2025 | 2004-2024 |
| Time | | 10:45 | 10:10 | 12:40 | Range | 11:10 | 10:40 | 12:55 | Range | 11:35 | 10:10 | 13:10 | Range |
| Parameter | Unit | | | | | | | | | | | | |
| Temp | °C | 14.9 | 20.5 | 16.5 | 7.7 – 23.6 | 16.1 | 18.9 | 16.3 | 4.9 – 23.6 | 15.7 | 18.7 | 16.0 | 7.9 – 23.4 |
| рН | рН | 8.2 | 7.6 | 7.9 | 6.8 – 9.3 | 9.6 | 7.6 | 8.3 | 7.1 – 9.8 | - | - | - | - |
| BOD₅ | g/m³ | - | 23 | 88 | 3.0 - 140 | - | 11 | 29 | 1.2 - 92 | - | - | - | - |
| Conductivity @25°C | mS/m | 37.3 | 56.1 | 52.0 | 31.2-82.1 | 32.2 | 60.1 | 47.6 | 30.4-55.0 | 32.9 | 61.1 | 47.9 | 31.2 – 57.0 |
| Enterococci | /100ml | 16,000 | 4,900 | 39,000 | 155 – 68,000 | 310 | 3,800 | 2,900 | 10 – 20,000 | - | - | - | - |
| E.coli* | /100ml | 64,000 | 58,000 | 65,000 | 2,100 – 700,000 | 2,800 | 18,000 | 6,200 | 7 – 17,330 | 2,700 | 10,000 | 5,400 | 10 – 7,750 |
| Ammoniacal-N | g/m³ | - | 7.4 | - | 0.055-26 | - | 2.0 | - | 0.05-15 | - | - | - | - |
| Nitrate-N+Nitrite-N | g/m³ | - | 2.4 | - | 0.02-14 | - | 0.050 | - | <0.01-7.5 | - | - | - | - |
| DRP | g/m³ | - | 4.0 | - | 1.4-5.8 | - | 2.7 | - | 0.57-5.6 | - | - | - | - |
| Total phosphorus | g/m³ | - | 5.6 | - | 2.2-7.2 | - | 5.7 | - | 1.5-6.2 | - | - | - | - |
| Suspended solids | g/m³ | 83 | 87 | 94 | 4 - 195 | 114 | 164 | 38 | 5 -183 | - | - | - | - |

^{*} *E.coli* replaces FC as a bacterial indicator following 2017 TRC protocol

2.3.1 Bacteriological recreation water quality monitoring

Contact recreational bacteriological water quality at Ōpunake Beach and at Middleton Bay was monitored by the Council weekly between early November 2024 and late March 2025. Samples are collected as part of the regional 'Can I swim here?' (CISH) monitoring programme, these are collected once per week on the same day, regardless of weather or tide.

2.3.1.1 MfE guidelines for contact recreation

Guidelines for microbiological water quality of marine recreational areas have been prepared by the Ministry for the Environment in conjunction with the Ministry of Health (MfE, 2003). The guidelines use a combination of a qualitative risk grading of the catchment, together with direct measurements of appropriate faecal indicators to assess the suitability of a site for recreation.

In addition, 'Alert' and 'Action' guideline levels are used for surveillance throughout the bathing season. These guideline levels are summarized in Table 5 and are based on keeping illness risk associated with recreational water use to less than approximately 2%. Levels are based on enterococci counts as these bacteria are the preferred indicators for marine waters. Research has shown that enterococci are the indicator most closely correlated with health effects in New Zealand marine waters, in common with general findings overseas. 'Alert' and 'Action' guideline levels are used for surveillance throughout the bathing season.

Table 5 Guideline levels for coastal contact recreation bathing sites

| | Enterococci (nos/100ml) | | | | | |
|--------|-------------------------|--------------------|----------------------------------|--|--|--|
| Mode | 'Acceptable' (green) | 'Alert' (amber) | 'Action' (red) | | | |
| Marine | <u>≤</u> 140 | 141-280 | > 280 (2 consecutive samples) | | | |

2.3.1.2 Water quality at Ōpunake Beach

Contact recreational bacteriological water quality at Ōpunake Beach was monitored by the Council on 22 occasions between early November 2024 and late March 2025.

The results of this sampling are summarised in Table 6 and illustrated in Figure 4.

Table 6 Statistical summary of bacteriological monitoring at Ōpunake Beach

| Parameter | Units | Number of samples | Minimum | Maximum | Median |
|--------------|------------|-------------------|---------|---------|--------|
| Conductivity | μS/cm@25°C | 22 | 49,400 | 53,500 | 52,500 |
| Enterococci | MPN/100ml | 22 | <10 | 183 | <10 |
| Temperature | °C | 22 | 15.5 | 21.0 | 18.8 |

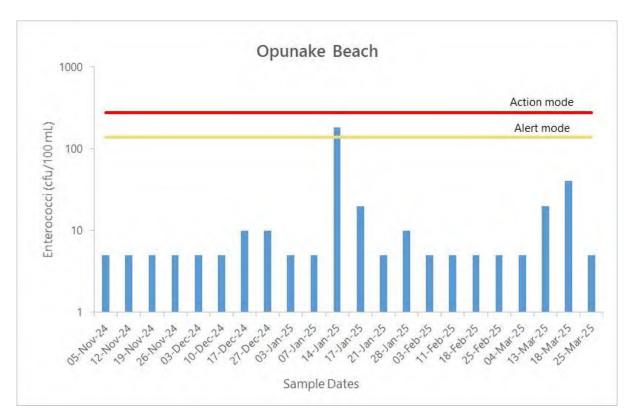


Figure 4 Enterococci results for Ōpunake Beach summer 2024/25 Note: Results of <10 are displayed on the graph as 5

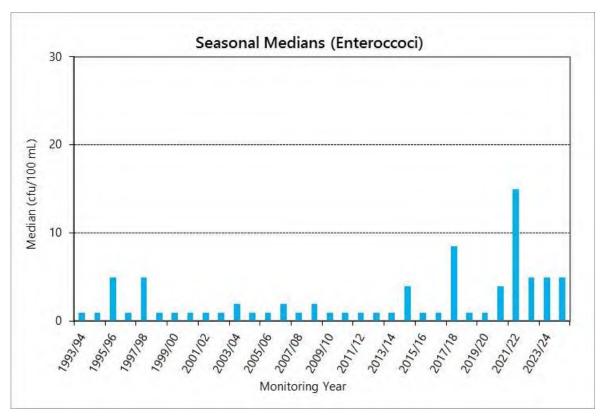


Figure 5 Median bacteriological results at Ōpunake Beach since summer 1993/94

The coastal bacteriological water quality at Ōpunake Beach was generally very good throughout the monitoring period, with a median enterococci of <10cfu/100ml. The sample collected on 14 January 2024

exceeded the 'Alert mode' guideline. A follow up sample was collected on 17 January, with levels showing a significant reduction.

Figure 5 shows that, in terms of median numbers of enterococci, the contact recreational water quality at this site is generally very good. It is noted that the protocol for sampling has changed in the last couple of years so that samples are collected irrespective of weather or tide, unlike previously where samples were collected around high tide in fine weather only. Prolonged and/or heavy rainfall will often result in high levels of enterococci in the samples as these are washed down flooded streams and rivers from farmland. This can be exacerbated by a low tide where a sea sample collected from a site near a stream mouth may contain a high proportion of freshwater.

2.3.1.3 Water quality at Middleton Bay

Contact recreational bacteriological water quality at Middleton Bay was monitored by the Council on 21 separate occasions between early November 2024 and late March 2025. The results of this sampling are summarised in Table 7 and illustrated in Figure 6.

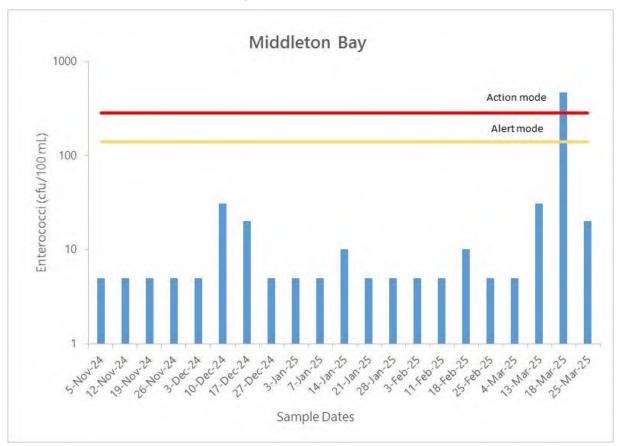


Figure 6 Bacteriological (enterococci) results from Middleton Bay during summer 2023/24 Note: Results of <10 are displayed on the graph as 5

Although not an intensively used contact recreational area, this site is monitored due to the potential for occasional discharges of untreated domestic sewage (generally following high stormwater infiltration conditions) into the coastal waters from the nearby ocean outfall.

Table 7 Statistical summary of bacteriological monitoring at Middleton Bay

| Parameter | Units | Number of samples | Minimum | Maximum | Median |
|-----------------------|------------|-------------------|---------|---------|--------|
| Specific conductivity | μS/cm@25°C | 21 | 46,900 | 53,900 | 52,700 |
| Enterococci | MPN/100ml | 21 | <10 | 464 | <10 |
| Temperature | °C | 21 | 15.7 | 21.2 | 19.0 |

The generally high water quality was emphasised by the seasonal median count of <10 enterococci (cfu/100ml) for the 21 samples collected during the survey period. The numbers of enterococci were high on one occasion (464cfu/110ml), likely due to rainfall.

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 STDC's. 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 2024/25 period, the Council was not required to undertake significant additional investigations and interventions, or record incidents, in association with STDC's conditions in resource consents or provisions in Regional Plans in relation to the Opunake WWTP.

3. Discussion

3.1 Discussion of site performance

The STDC Ōpunake WWTP was found to be generally well managed during the 2024/25 year. Good liaison was maintained between STDC and the Council.

Consent 0236-7, to discharge screened wastewater from the Ōpunake treatment plant through an outfall to the Tasman Sea on occasions when the capacity of the pump station and storage is exceeded, expired in June 2023 and will not be replaced. Instead STDC will be putting an emphasis on inflow and infiltration in the area to ensure that capacity is not exceeded. No overflows occurred from the Hector Place pump station during 2024/25.

An inflow and infiltration program is in place to reduce the amount of stormwater entering the system. During the 2024/25 year this consisted of three manhole repairs. Work in recent years in Ōpunake has resulted in a reduction in peak flows of 68% and the hydraulic retention time (HRT) of the ponds has gone from 18 days to 39 days (recommended HRT is above 20 days).

A project was initiated during the 2023/24 period, with a strategy being developed to determine the appropriate technical solution to resolve the issue of poor soakage soil infiltration of wastewater into the wetland and adjacent soakage trenches during winter months. The land was becoming saturated due to high rainfall and inflow and infiltration load. The project investigated minor improvements to the existing soakage trenches and produced a concept study for future upgrade options. As a result of this project, the land disposal pipes were replaced during June 2025.

There have been some complaints received during previous years from the public about the green colour of the discharge. In an effort to prevent this algal reduction continued to be carried out in the final wetland by ultrasonic radar.

3.2 Environmental effects of exercise of consents

Monitoring of system performance indicated that a high standard of effluent quality was produced by the oxidation pond and series of two wetlands. Wastewater quality from the wetlands was very good, reflecting the consistently high performance of the WWTP system, with significant reductions in bacterial loadings.

Bacteriological contact recreational water quality surveyed throughout the summer period at the principal coastal recreational area on Ōpunake Beach and at the nearby Middleton Bay was generally very good.

Water quality surveys of the receiving waters of the Tasman Sea beyond the boundary of the mixing zone with the unnamed coastal stream were not able to be undertaken during 2024/25 due to erosion in the area removing access to the coast. With no suitable alternative this monitoring has been discontinued. Previous monitoring over an extended time period has shown compliance with condition 5 of Consent 4248-3.0, with no significant adverse effects noted.

3.3 Evaluation of performance

A tabular summary of the consent holder's compliance record for the year under review is set out in Tables 8-9.

Table 8 Summary of performance for Consent 4248-3

Purpose: To discharge up to 2,074 cubic metres per day of treated municipal wastewater from the Ōpunake municipal oxidation pond and wetlands treatment system onto and into land and into an unnamed stream between the Otahi Stream and the Heimama Stream

| | Condition requirement | Means of monitoring during period under review | Compliance achieved? | |
|--|---|---|----------------------|--|
| 1. | Effluent to be treated via oxidation ponds, wetlands and other facilities as described in application | Inspections | Yes | |
| 2. | Adopt best practicable option | Inspections, liaison with consent holder | Yes | |
| 3. | DO to exceed 0g/m³ for at least 3 out of 24 hours per day | Consent holder reporting | Yes | |
| 4. | Consent holder to measure DO continuously and make results available to TRC | Information available on WaterOutllook | Yes | |
| 5. | Discharge not to give rise to effects beyond mixing zone | Not assessed during monitoring period due to coastal erosion preventing access to stream mouth. Previous observations and sampling shows compliance | N/A | |
| 6. | Discharge not to result in ponding on the land surface | Inspections | Yes | |
| 7. | Discharge not to result in the overland flow of wastewater | Inspections | Yes | |
| 8. | Requirements for waste transported by tanker | Liaison with consent holder | Yes | |
| 9. | Consent holder to prepare and maintain contingency plan for the site | Updated contingency plan received July 2023 | Yes | |
| 10. | Review of consent | Next option to review consent in June 2030 | N/A | |
| Overall assessment of consent compliance and environmental performance in respect of this consent Overall assessment of administrative performance in respect of this consent | | | | |

N/A = not applicable

Table 9 Summary of performance for Consent 4577-4

| Purpose: To occupy the coastal marine area with the Ōpunake marine outfall structure | | | | | | |
|--|--|----------------------|--|--|--|--|
| Condition requirement | Means of monitoring during period under review | Compliance achieved? | | | | |
| Authorises occupation by current outlet structure | | N/A | | | | |
| Consent holder to maintain structure in safe, sound and functional condition | Inspections | Yes | | | | |
| 3. Optional review of consent | Next option to review consent in June 2030 | N/A | | | | |
| Overall assessment of consent compliance and enviro Overall assessment of administrative performance in r | High High | | | | | |

N/A = not applicable

Table 10 Evaluation of environmental performance over time

| Year | Consent numbers | High | Good | Improvement req | Poor |
|---------|------------------------|------|------|-----------------|------|
| 2020/21 | 0236-7, 4248-3, 4577-4 | 3 | - | - | - |
| 2021/22 | 0236-7, 4248-3, 4577-4 | 3 | - | - | - |
| 2022/23 | 0236-7, 4248-3, 4577-4 | 3 | - | - | - |
| 2023/24 | 4248-3, 4577-4 | 2 | - | - | - |
| 2024/25 | 4248-3, 4577-4 | 2 | - | - | - |

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

3.4 Recommendations from the 2023/24 Annual Report

In the 2023/24 Annual Report, it was recommended:

- 1. THAT in the first instance, monitoring of consented activities at Ōpunake WWTP 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.

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

3.5 Alterations to monitoring programmes for 2025/26

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.

The 2025/26 monitoring programme has been altered slightly, with the removal of the recreational contact bacteriological sampling. The sampling will still be undertaken as part of the CISH monitoring programme undertaken by the Council however, changes to the sampling protocol (now all-weather sampling) mean this component no longer provides any useful information on the performance of the WWTP. Provision for extra sampling has been included in the programme in the event that an overflow occurs, or if high levels of indicator bacteria are detected in the area during CISH monitoring.

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 2025/26.

4. Recommendations

- 1. THAT in the first instance, monitoring of consented activities at Opunake WWTP in the 2025/26 year continue at a similar level as in 2024/25.
- 2. THAT recreational contact bacteriological sampling be removed from the programme. This sampling will still be undertaken as part of the CISH monitoring programme undertaken by the Council.
- 3. THAT should there be issues with environmental or administrative performance in 2025/26, 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.

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.

cfu Colony forming units. A measure of the concentration of bacteria usually expressed

as per 100 millilitre sample.

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.

E.coli Escherichia coli, an indicator of the possible presence of faecal material and

pathological micro-organisms. Usually expressed as colony forming units per 100

millilitre sample.

Ent Enterococci, an indicator of the possible presence of faecal material and

pathological micro-organisms. Usually expressed as colony forming units per 100

millilitre of sample.

Fresh Elevated flow in a stream, such as after heavy rainfall.

g/m³ 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.

HRT Hydraulic retention time.

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. m² Square metres.

MfE Ministry for the Environment.

mS/m Millisiemens per metre.

NH₄⁺ Ammonium, normally expressed in terms of the mass of nitrogen (N).

NH₃ Unionised ammonia, normally expressed in terms of the mass of nitrogen (N).

 NO_3^- Nitrate, normally expressed in terms of the mass of nitrogen (N). NO_2^- Nitrite, normally expressed in terms of the mass of nitrogen (N).

NTU Nephelometric Turbidity Unit, a measure of the turbidity of water.

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 Resource Management Act 1991 and including all subsequent amendments.

SFRG Suitability for Recreational Grading. Describes the general condition of a site based

on risk as well as indicator bacteria water quality.

SS Suspended solids.
SEM State of Environment

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

TKN Total Kjeldahl nitrogen. Combination of organic nitrogen, NH₃, and NH₄⁺.

Turb Turbidity, expressed in NTU.

WWTP Wastewater treatment plant.

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

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Appendix I

Resource consents held by South Taranaki 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 South Taranaki District Council

Consent Holder: Private Bag 902

Hawera 4640

Decision Date 12 November 2019

Commencement Date 3 December 2019

Conditions of Consent

Consent Granted: To discharge treated municipal wastewater from the

Opunake municipal oxidation pond and wetlands treatment system onto and into land and into Unnamed Stream 34

Expiry Date: 1 June 2036

Review Date(s): June 2024, June 2030

Site Location: 4443 South Road, Opunake

Grid Reference (NZTM) 1671850E-5633540N (land)

1672323E-5633419N (water)

Catchment: Unnamed Stream 34

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. Any effluent discharged shall be treated via the oxidation ponds, wetlands and other facilities as described in the application.
- 2. 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.
- 3. The dissolved oxygen concentration in the aerobic pond shall exceed 0 gm⁻³ for minimum of 3 hours during each 24-hour period ending at midnight New Zealand Standard Time.
- 4. The consent holder shall measure dissolved oxygen in the aerobic ponds continuously and make the measurements available to Chief Executive, Taranaki Regional Council on a secure website within 2 hours of being recorded.
- 5. The discharge authorised by this consent shall not give rise to any of the following effects beyond a mixing zone of 20 metres from the mouth of the receiving stream:
 - (a) the production of conspicuous oil or grease films, scums or foams, or floatable suspended materials;
 - (b) any conspicuous change in the colour or visual clarity;
 - (c) any emission of objectionable odour; or
 - (d) any significant adverse effects on marine life.
- 6. The discharge shall not result in ponding on the land surface.
 - For the purpose of this condition, ponding means wastewater on the ground surface over a continuous area exceeding 10 m² or a combined area greater than 30 m².
- 7. The discharge shall not result in overland flow of wastewater other than as authorised by this consent.
- 8. Other than septic tank cleanings, waste transported by tanker may only be discharged into the Opunake Wastewater Treatment Plant if:
 - (a) the waste comes from within the South Taranaki District;
 - (b) discharge of the waste is authorised by a licence, permit or consent and/or a trade waste agreement pursuant to a Trade Waste Bylaw; and/or
 - (c) the nature and volume of the waste and its inclusion in the discharge does not result in any significant change to the environmental effects of the discharge; and
 - (d) at the end of the calendar month following the acceptance of any waste in accordance with this condition, the consent holder provides to the Chief Executive of the Taranaki Regional Council a report which details the source, nature and volume of the tanker waste that was discharged and if relevant, reference to any licence, permit or consent and/or a trade waste agreement which authorised discharge of the waste.

Consent 4248-3.0

- 9. The consent holder shall prepare, maintain and regularly update a 'Contingency Plan' which details measures and procedures that will be undertaken to prevent and/or to avoid environmental effects from a spillage or any discharge of contaminants not authorised by this consent. The plan and any amended versions shall be provided to the Chief Executive of the Taranaki Regional Council.
- 10. 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 and/or June 2030, 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 12 November 2019

For and on behalf of Taranaki Regional Council

A D McLay

Director - Resource Management

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

Name of South Taranaki District Council

Consent Holder: Private Bag 902

Hawera 4640

Decision Date 12 November 2019

Commencement Date 12 November 2019

Conditions of Consent

Consent Granted: To occupy the coastal marine area with the Opunake marine

outfall structure

Expiry Date: 1 June 2036

Review Date(s): June 2024, June 2030

Site Location: Hector Place, Opunake

Grid Reference (NZTM) 1673027E-5632336N

Catchment: Tasman Sea

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. This consent authorises the occupation of space in the Coastal Marine Area by the outlet structure existing at the time the application for this consent was lodged, and as described in the application. Any change to the nature or scale of the structure may therefore need to be authorised by a formal process in accordance with the Resource Management Act 1991.
- 2. The consent holder shall maintain the structure in a safe and sound condition such that it continues to function effectively as an emergency wastewater outlet and protection structure.
- 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 2024 and/or June 2030, 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.

For and on behalf of

Signed at Stratford on 12 November 2019

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 <u>actual or likely effects</u> on the receiving environment from the activities during the monitoring year. Administrative performance is concerned with the Company's approach to demonstrating consent compliance <u>in site operations and management</u> 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 <u>and</u> 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.