# Greymouth Petroleum Ltd Northern Sites

## Monitoring Programme Annual Report 2023/24

## Technical Report 2024-02

Taranaki Regional Council

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# Northern sites
## Monitoring Programme
## Annual Report
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# Executive summary

Greymouth Petroleum Ltd (the Company) operates the Turangi Production Station located on Turangi Road at Motunui, in the Parahaki catchment. The Turangi Production Station processes oil and gas from from the Company's northern Taranaki operations, including the Ohanga, Onaero and Turangi group of wellsites. The Company also operate the Kowhai-A Production Station, located on Ngatimaru Road at Tikorangi. The Kowhai-A Production Station processes product from the Kowhai-A, B, C and D wellsites.

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

**During the monitoring period, Greymouth Petroleum Ltd demonstrated a high level of environmental performance and high level of administrative performance.**

The Company holds four resource consents in relation to the Turangi and Kowhai-A production stations, which include a total of 69 conditions setting out the requirements that the Company must satisfy. The Company holds two consents to discharge stormwater and two consents to discharge emissions related to production activities into the air.

The Council's monitoring programme for the year under review included four inspections of the Turangi and Kowhai-A production stations, and an annual inspection of wellsites associated with the production stations. Six water samples were collected for physicochemical analysis, two biomonitoring surveys of receiving waters were conducted, and two ambient air quality surveys were undertaken in relation to the Turangi Production Station.

The monitoring showed that the production station sites were generally well managed. There were some issues noted at the Turangi Production Station however, these were dealt with immediately by the Company and the site remained compliant with consent conditions. Sampling of discharges and receiving waters in relation to Turangi Production Station did not find any significant adverse effects at the time of sampling, while biomonitoring in the receiving waters did not show any effect from discharges on the communities in the stream.

There were no adverse effects on the environment resulting from the exercise of the air discharge consent. Ambient air quality monitoring at the Turangi Production Station showed that levels of carbon monoxide, particulate matter and nitrogen oxides were below levels of concern at the time of sampling. No offensive or objectionable odours were detected beyond the boundary during inspections.

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.

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 good or 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 Greymouth Petroleum Limited (the Company). The Company operates the Turangi Production Station situated on Turangi Road at Motunui, in the Parahaki Catchment. The Company also operate the Kowhai-A Production Station situated on Ngatimaru Road at Tikorangi, in the Waiau catchment.

The report includes the results and findings of the monitoring programme implemented by the Council in respect of the consents held by the Company that relate to discharges to water within the Parahaki and Waiau catchments, and the air discharge permits held by the Company to cover emissions to air from the sites. This report is the 16th annual report to be prepared by the Council for the Turangi and Kowhai-A Production Station and associated sites.

### 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 the Company in the Parahaki and Waiau Catchments;
- the nature of the monitoring programme in place for the period under review; and
- a description of the activities and operations conducted at the Turangi and Kowhai-A Production Stations and associated 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.[1]

## 1.2 Process description

### 1.2.1 Turangi Production Station

The Turangi-A wellsite production facilities were commissioned in late 2006 following the successful drilling and testing of the Turangi-1 well. Two further production wells were drilled on the wellsite in 2008. The site was expanded to the south during the 2013/14 year. The production facilities currently treat condensate and gas from the Company's northern Taranaki operations, including the Ohanga, Onaero and Turangi group of wellsites.

The primary facilities at the Turangi Production Station consist of:

- Wellhead shutdown systems.
- Sand catcher and heating systems.
- Inlet separator and low temperature separator.
- Methanol storage and dosing system.
- A low pressure gas compressor.
- Flare system and flare pit.
- Storage tanks (condensate, methanol, and produced water) and a condensate load-out facility.

[1] 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

Gas is compressed, metered and exported to the national gas network. Condensate storage is located on the wellsite and currently consists of six above ground tanks and a truck load-out facility. Condensate is pumped via pipeline to the Omata tank farm, along with up to two truckloads going to the Waihapa Production Station per day. Produced formation water is stored on the site in bunded tanks prior to being pumped down the Turangi-5 well into the Mt Messenger formation for disposal.

All chemical storage is contained within bunds and isolated from the stormwater system. The stormwater drain system consists of open culverts which capture and drain general surface water run-off from the site and some surrounding farmland. Stormwater from the site passes through three sets of lined skimmer pits before discharging to land and into a tributary of the Parahaki Stream at points north and south of the access road. The separate oily water drainage system consists of a buried pipe which gathers oily water from spill containment areas (i.e. kerbed foundations and tank bunds) and directs these flows into a triple interceptor pit located near the truck loading bay. Oily water drains from the compressor house are collected in a buried fibreglass tank and are routinely pumped out into the storage tanks.

Photo 1 Turangi Production Station

### 1.2.2 Kowhai-A Production Station

The Kowhai-A Production Station (Photo 2) is located on Ngatimaru Road at Tikorangi. The site was originally developed and drilled by Swift Energy NZ Ltd in 2006. The Kowhai-A Production Station processes (separates) product from the Kowhai A, B, C and D wellsites.

Photo 2 Kowhai-A Production Station

## 1.3 Resource consents

The Company holds four 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 Consents held by the Company in relation to Turangi and Kowhai-A Production Stations

| Site | Consent number | Purpose | Granted | Review | Expires |
|---|---|---|---|---|---|
| Turangi Production Station | **6497-2** | To discharge emissions to air during flaring from well workovers and in emergency situations, and to discharge miscellaneous emissions associated with wellsite production activities at the Tūrangi-A Production Station | March 2023 | June 2027 | June 2039 |
| | **10703-1** | To discharge treated stormwater from hydrocarbon exploration and production operations at the Turangi-A Production Station, onto land and into an unnamed tributary of the Parahaki Stream and into the Parahaki Stream | Jan 2019 | June 2027 | June 2033 |
| Kowhai-A Production Station | **6719-1** | To discharge emissions to air during flaring from well workovers and in emergency situations and miscellaneous emissions associated with production activities at the Kowhai-A wellsite | Nov 2005 | - | June 2021* |
| | **10169-1** | To discharge treated stormwater from hydrocarbon exploration and production operations at the Kowhai-A wellsite onto land and into an unnamed tributary of the Waiau Stream | Jan 2016 | June 2027 | June 2033 |

* Consent renewal underway, S124 protection

### 1.3.1 Wellsite consents

The Company also holds consents for production activities at wellsites associated with the Turangi and Kowhai-A production stations. A summary of these consents is provided in Table 2.

Table 2 Consents for production activities at wellsites associated with Turangi and Kowhai–A production stations

| Wellsite | Consent number | Purpose | Issue date | Expiry |
|---|---|---|---|---|
| Epiha | **7722-1** | To discharge treated stormwater, produced water and surplus drilling water from hydrocarbon exploration and production operations at the Epiha wellsite onto and into land | Nov 2010 | June 2027 |
| | **7725-1** | To discharge emissions to air associated with production activities at the Epiha wellsite, including flaring from well workovers, and in emergency situations, and other miscellaneous activities | Nov 2010 | June 2027 |
| Kowhai-B | **9203-1** | To discharge treated stormwater and produced water from hydrocarbon exploration and production operations at the Kowhai-B wellsite onto and into land | Feb 2012 | June 2027 |
| Kowhai-B | **9204-1** | To discharge emissions to air associated with production activities at the Kowhai-B wellsite, including: flaring associated with emergencies and maintenance; and minor emissions from other miscellaneous activities | Feb 2012 | June 2027 |
| Kowhai-C | **9474-1** | To discharge emissions to air associated with hydrocarbon producing wells at the Kowhai-C wellsite | Feb 2013 | June 2027 |
| | **9478-1** | To discharge treated stormwater, treated produced water and surplus drilling water from hydrocarbon exploration and production operations at the Kowhai-C wellsite onto and into land where it may enter an unnamed tributary of the Waiau Stream | Feb 2013 | June 2027 |
| Kowhai-D | **10293-1** | To discharge emissions to air associated with hydrocarbon producing wells at the Kowhai-D wellsite | Mar 2017 | June 2033 |
| | **10294-1** | To discharge treated stormwater from hydrocarbon exploration and production operations at the Kowhai-D wellsite onto land and into an unnamed tributary of the Waitara River | May 2016 | June 2033 |
| Main-1 | **7712-1** | To discharge treated stormwater from hydrocarbon exploration and production operations at the Main-1 wellsite onto and into land | Jul 2015 | June 2033 |
| | **7714-1** | To discharge emissions to air associated with hydrocarbon producing wells at the Main-1 wellsite | Jul 2015 | June 2033 |
| Ohanga-A | **7024-1** | To discharge treated stormwater and treated produced water from hydrocarbon exploration and production operations at the Ohanga-A wellsite onto and into land and into an unnamed tributary of the Onaero River | Nov 2006 | June 2021* |
| | **7025-1** | To discharge emissions to air from: flaring of hydrocarbons; and miscellaneous activities associated with well clean-up, well testing, and production testing, associated with up to eight wells at the Ohanga-A wellsite | Nov 2006 | June 2021* |
| Onaero | **7555-1** | To discharge treated stormwater, treated produced water and treated surplus drilling water from hydrocarbon exploration and production operations onto and into land in circumstances where the discharge may enter an unnamed tributary of the Onaero River at the Onaero wellsite | Dec 2009 | June 2027 |
| | **7558-1** | To discharge emissions to air during flaring from well workovers and in emergency situations associated with production activities at the Onaero wellsite | Dec 2009 | June 2027 |
| Turangi-B | **7854-1** | To discharge emissions to air associated with production activities at the Turangi-B wellsite, including: flaring from well workovers; flaring in emergency situations; and emissions from other miscellaneous activities | Dec 2011 | June 2027 |

| Wellsite | Consent number | Purpose | Issue date | Expiry |
|---|---|---|---|---|
| | **11085-1** | To discharge stormwater from hydrocarbon exploration and production operations at the Tūrangi-B wellsite onto and into land in circumstances where it may enter water | July 2023 | June 2039 |
| Turangi-C | **9415-1** | To discharge treated stormwater and produced water from hydrocarbon exploration and production operations at the Turangi-C wellsite onto land | Feb 2013 | June 2027 |
| | **9420-1** | To discharge emissions to air associated with hydrocarbon producing wells at the Turangi-C wellsite | Feb 2013 | June 2027 |
| Turangi Metering Station | **6807-1** | To discharge emissions into the air from flaring of petroleum products in emergency situations, commissioning, and plant shutdowns, together with miscellaneous emissions at the Turangi Metering Station | Sep 2006 | June 2021* |
| | **6808-1** | To discharge treated stormwater from the Turangi Metering Station onto and into land in the vicinity of the Waiau Stream | Mar 2006 | June 2021* |
| Urenui-1 | **7532-1** | To discharge treated stormwater, treated surplus drilling water and treated produced water from hydrocarbon exploration and production operations at the Urenui-1 wellsite, onto land where it may enter an unnamed tributary of the Onaero River | Aug 2013 | June 2027 |
| | **9631-1** | To discharge emissions to air associated with hydrocarbon producing wells at the Urenui-1 wellsite | Aug 2013 | June 2027 |

* consent renewal underway, S124 protection

## 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 Turangi and Kowhai-A production stations and associated wellsites consisted of four 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

Four inspections were carried out at the Turangi and Kowhai-A production stations, along with an annual inspection of the other wellsites associated with the production stations. With regard to consents for the

abstraction of or discharge to water, the main points of interest were plant processes with potential or actual discharges to receiving watercourses, including contaminated stormwater and process wastewaters. 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 the Company 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 Chemical sampling

Samples of the southern and western discharges from Turangi Production Station were collected once during the monitoring year. These samples were analysed for chloride, conductivity, hydrocarbons, suspended solids, pH and turbidity. In conjunction, the unnamed tributary of the Parahaki Stream was sampled upstream and downstream of the southern discharge, while the Parahaki Stream was sampled upstream and downstream of the western discharge. The samples were analysed for the same constituents.

The Council undertook sampling of the ambient air quality outside the boundary of the Turangi Production Station. A multi-gas meter was deployed on one occasion in the vicinity of the plant, with monitoring consisting of continuous measurements of gas concentrations for the gases of interest (carbon monoxide and combustible gases). A $PM_{10}$ particulate monitor was deployed concurrently with the multi-gas meter. Two nitrogen oxide measuring devices were also deployed in the vicinity of the plant on one occasion during the year under review.

### 1.4.5 Biomonitoring surveys

Biological surveys were performed on two occasions in an unnamed tributary of the Parahaki Stream to determine whether or not the discharge of treated stormwater has had a detrimental effect upon the communities of the stream.

# 2. Results

## 2.1 Water

### 2.1.1 Inspections

During the 2023/24 year four inspections each were carried out at the Turangi and Kowhai-A Production Stations, along with an annual inspection of wellsites associated with the production stations was also carried out. The following was found during the inspections:

**31 July 2023**

**Turangi Production Station:** In general the site was tidy. No well activities were occurring at the time of the inspection and it was noted that the site had recently been scraped to remove staining where well activities had taken place. A new lined flare pit had been installed in a different location to allow room to build a new compressor onsite. The old flare pit had been tested for contamination prior to it being reinstated to pasture. At the time of inspection no flare, heat haze or smoke was detected. The skimmer pits were visually satisfactory. It was noted that the discharge pipe is kept closed during rain events to allow sediment to settle out prior to discharge, with various tide marks around the pits showing that this was common practice. Hydrocarbon cloth had been placed under the coil tubing units stored onsite, the Inspecting Officer noted that it was good to see that preventative measures were being taken, rather than containment measures. The discharge point to the southern stream looked good. It was noted that staining had occurred adjacent to the stream from oil, grease and fuel discharging onto the ground from a water pump that had been situated there for some time.

**Kowhai-A Production Station:** The site was tidy and clean with no staining detected. The skimmer pits appeared to be clear and no effects were noted downstream. A discussion wad had with the site operator regarding the recent discharge of oil from the compressor. It was determined that the level of oil in the ring drain at the base of the engine unit was higher at the rear of the shed than at the front and during windy weather it laps over the drain and onto the ground. The current solution was to manage the oil level by syphoning oil out by hand on a regular basis. The Inspecting Officer observed that it was likely that further discharges would occur through human mismanagement and recommended that an engineered solution is sought to eliminate the risk completely, rather than manage it.

**Annual wellsite inspection:** an annual inspection of the well sites associated with the Turangi and Kowhai-A Production Stations was carried out. Well sites inspected were Turangi-A, B, C, H; Kowhai-A, B, C and D; Onaero; Ohanga; Epiha; and Urenui. In general, the sites were tidy and clean with minimal activity occurring. The majority of ring drains were vegetated with grasses that helped with controlling and treating sediment laden stormwater. Other sediment controls were in place and including rock weirs and silt fences within the ring drain. Hydrocarbon sheens were not observed within the skimmer pits or in puddles on any of the sites. The skimmer pits were all in good order with goose neck pipes functioning as required. The majority of the discharges were onto land before flowing to surface water. No effects were noted in the grass (such as burnt patches or dead grass) or within the streams. Flaring was not occurring at any of the sites at the time of the inspection. No visual effects were noted as a result of previous flaring on the sites.

Specific points to note and if applicable, action, were:

**Turangi-B:** A slight sheen was noted in the first northern skimmer pit. The southern skimmer pit was in the process of being emptied as a leak in the liner had been identified through maintenance checks. The land below the soakage pit was to be retired and local iwi were going to plant this area out in trees.

**Turangi-C:** It was noted that the ends of pipes had been wrapped to prevent and eliminate discharges onto the ground.

**Urenui-A:** The skimmer pits had been emptied to fix a hole in the liner. The water level was below the discharge pipe and it was unclear if a leak still existed, or whether the pits had not filled up following the repair. The Company would monitor the situation to confirm.

**Ohanga:** No activity was occurring onsite. The skimmer pit liners had deteriorated and failed and this would be relined along with a second pit due to be installed.

**Epiha:** The site was being used as a storage area for pipe.

**Kowhai-C:** Containers were being stored onsite. The water level in the skimmer pits was low and further investigation was needed to determine if the liners were leaking.

**Kowhai-D:** Works were occurring onsite to set up for well workovers. It was noted that hydrocarbon from the coil tubing unit was spilling/blowing onto site causing a sheen. The Compliance Officer noted that this unit is a known risk for discharging contaminants to ground and that steps should have been taken to prevent these discharges, given that elimination is not possible. A Standard Operating Procedure and feedback loop should be in place that captures and addresses this issue, so future re-occurrence is avoided. It was also noted that attempts had been made to prevent discharges to ground by placing a plastic liner under a unit. Unfortunately the control fell short of being useful because there were no sides that would act as a bund, therefore during a rainfall event any discharges onto the liner would become entrained in stormwater and flow onto the site. Staff needed to know how to correctly install a bund, with a process set up to ensure that this activity could be carried out correctly by anyone in the future.

### 25 October 2023

**Turangi Production Station:** The site was generally clean and tidy. One minor issue was that a pump and associated pipework had been brought onsite in a dirty state which had led to staining of the ground from rainwater overflowing the open valve of the drip tray. The machine and pipes should have been cleaned prior to entering the site and the drip tray should have been in a closed position, or a hydrocarbon absorbent material placed where it could filter the discharge.

**Kowhai-A Production Station:** No issues were noted at the site.

### 20 May 2024

**Turangi Production Station:** IBC's were appropriately bunded. Some 200L drums were not bunded at the time of inspection as they were in the process of being swapped in/out. A wireline unit was being stored in the corner of the site near the flare pit and it was noted that the area around and below the unit was stained. A discussion was had with staff around containing/capturing discharges from the unit while being stored. Good practice was observed with the placement of rags over the ends of pipes. The skimmer pits were very discoloured but shut in. The transfer process for drilling mud was discussed with staff as staining/spillage was noted on the ground that could be easily tracked around site. It was noted that new coconut matting had been installed in a swale drain near the entrance to site.

**Kowhai-A Production Station:** IBC's and 44 gallon drums were stored in bunds. Hydrocarbon cloth had been placed below the oil used to fill the header tank. The skimmer pits and the area below the pits was satisfactory. A flare was noted from the low pressure separator. Smoke was visible but dissipated over a distance of approximately 80m.

### 19 & 25 June 2024

**Turangi Production Station:** The inspection was undertaken following drilling and during stimulation. The skimmer pits were shut in and not discharging, allowing for sediment in the back pits to settle out before release. Dry products were stored in a gravel bund and covered with tarpaulins. Wet or other products were stored either on transportable bunds or within bunded shipping containers. The receiving area for the back

skimmer pit was inspected, this was visually clear. Inspection around and in between the shaker and D-tank noted that drilling mud had been discharged to the flat tarpaulin and frames/items that sit within this area. Due to there being no lip on the tarpaulin there was the ability for contaminants to entrain in the storm water system and potentially reach the receiving environment. This was subsequently cleaned up as requested.

**Kowhai-A Production Station:** The site was tidy and clean. The liner of the first skimmer pit was coming apart, staff onsite were aware of this and there were plans to repair this. No adverse effects were noted from stormwater discharge. The flare pipes had been replaced and a pilot flare was operating.

### 2.1.2 Results of discharge monitoring

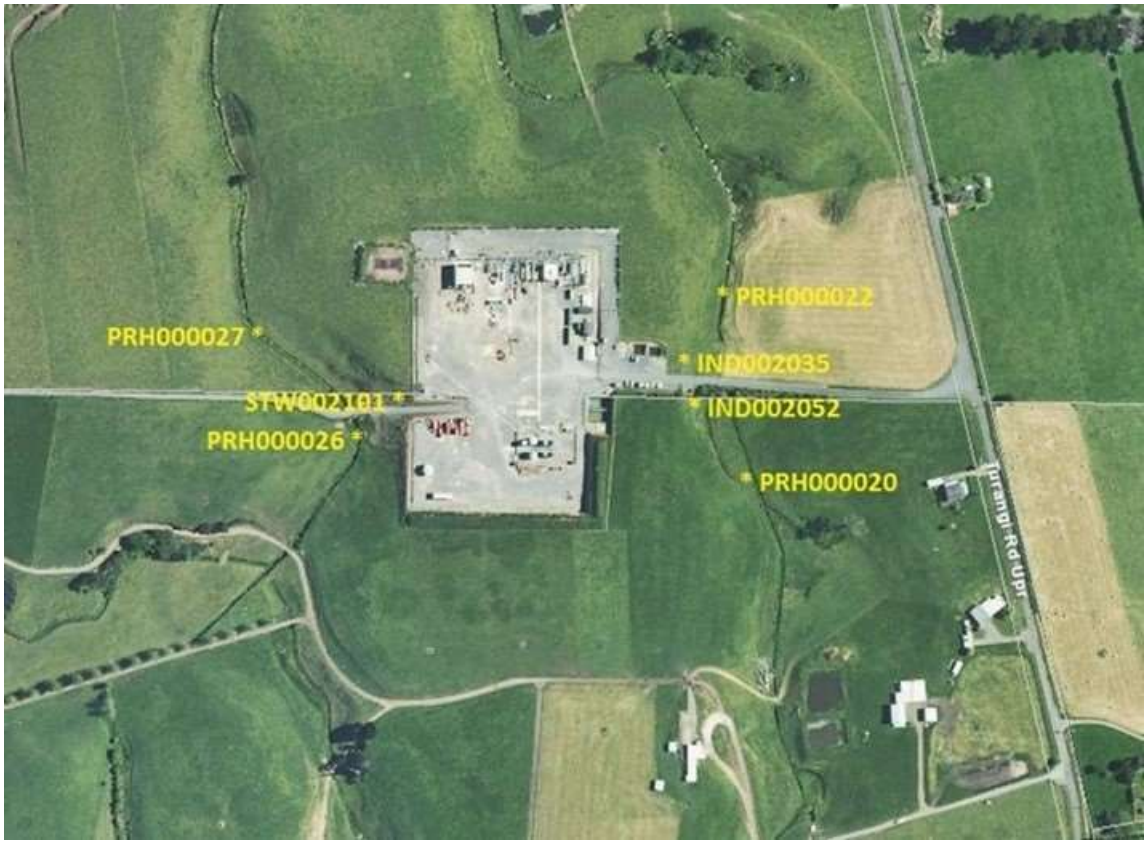


Figure 1 Turangi Production Station and associated sampling sites

Chemical water quality sampling of the discharges from the Turangi Production Station was undertaken once during the 2023/24 period, on 20 November 2023. The locations of the sampling sites are shown in Figure 1, while Table 3 presents the results.

The results are indicative of uncontaminated discharges, with the results for all parameters within the consent limits.

Table 3 Results of discharge monitoring from the Turangi Production Station

| Parameter | Units | 20 November 2023 | | | Consent limits (10703-1) |
|---|---|---|---|---|---|
| | | Northern discharge IND002035* | Southern discharge IND002052 | Western discharge STW002101 | |
| Chloride | g/m$^3$ | - | 1 | 2 | 230 |
| Conductivity | mS/m @25°C | - | 1.2 | 3.5 | - |
| Hydrocarbons | g/m$^3$ | - | <0.7 | <0.7 | 15 |

| Parameter | Units | 20 November 2023 | | | Consent limits (10703-1) |
|---|---|---|---|---|---|
| | | Northern discharge IND002035* | Southern discharge IND002052 | Western discharge STW002101 | |
| Suspended solids | g/m$^3$ | - | 14 | 80 | 100 |
| Temperature | Deg. C | - | 14.5 | 15.0 | - |
| pH | | - | 6.8 | 7.1 | 6.0 – 9.0 |
| Turbidity | FNU | - | 15 | 56 | - |

* no discharge at the time of sampling

## 2.1.3 Results of receiving environment monitoring

### 2.1.3.1 Chemical

Chemical water quality sampling of the receiving environment was undertaken in conjunction with discharge monitoring.

Table 4 Results of receiving environment monitoring in relation to the northern and southern discharges

| Parameter | Units | Consent limits 10703-1 | 20 November 2023 | |
|---|---|---|---|---|
| | | | Upstream PRH000020 | Downstream PRH000022 |
| Chloride | g/m$^3$ | 50 | 6 | 6 |
| Conductivity | mS/m@25°C | - | 7.8 | 8.0 |
| Hydrocarbons | g/m$^3$ | - | <0.7 | <0.7 |
| pH | | - | 6.8 | 6.7 |
| Suspended solids | g/m$^3$ | - | 64 | 92 |
| Temperature | Deg. C | <2°C increase | 14.7 | 14.7 |
| Turbidity | FNU | - | 46 | 43 |

The results of receiving environment monitoring in relation to the northern (IND002035), southern (IND002052) and western (STW0002101) discharges are presented in Table 4 above. The results complied with consent conditions and indicate that the discharge was having minimal effect on the water quality of the Parahaki Stream at the time of sampling.

Table 5 Results of receiving environment monitoring in relation to the western discharge

| Parameter | Units | Consent limits 10703-1 | 20 November 2023 | |
|---|---|---|---|---|
| | | | Upstream PRH000026 | Downstream PRH000027 |
| Chloride | g/m$^3$ | 50 | 9 | 8 |
| Conductivity | mS/m@25°C | - | 8.3 | 8.2 |
| Hydrocarbons | g/m$^3$ | - | <0.7 | <0.7 |
| pH | | - | 6.8 | 6.8 |
| Suspended solids | g/m$^3$ | - | 30 | 27 |
| Temperature | Deg. C | <2°C increase | 14.6 | 14.9 |
| Turbidity | FNU | - | 20 | 20 |

The results of receiving environment monitoring in relation to the western (STW0002101) discharge are presented in Table 5 above. The results complied with consent conditions and indicate that the discharge was having minimal effect on the water quality of the Parahaki Stream at the times of sampling.

#### 2.1.3.2 Biomonitoring

The Council's 'vegetation sweep' and 'kick-sampling' techniques were used at three sites (Table 6, Figure 2) to collect macroinvertebrates from an unnamed tributary of the Parahaki Stream on 3 November 2023 and 21 February 2024. This provided data to assess whether discharges to nearby land had had any effect on the macroinvertebrate communities of the unnamed tributary. Samples were processed to provide number of taxa (richness), Macroinvertebrate Community Index (MCI), and a semi-quantitative MCI (SQMCI) scores for each site.

Table 6 Biomonitoring sites in relation to the Turangi Production Station

| Site number | Site code | Location |
|---|---|---|
| 1 | PRH000020 | Upstream of Turangi Production Station discharge |
| 2 | PRH000022 | 25m downstream of Turangi Production Station discharge |
| 3 | PRH000024 | 100m downstream of Turangi Production Station discharge |

Taxa richness is the most robust index when determining whether a macroinvertebrate community has been exposed to toxic discharges. When exposed to toxic discharges, macroinvertebrates may die and be swept downstream or may deliberately drift downstream as an avoidance mechanism (catastrophic drift). 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 takes into account taxa abundances as well as sensitivity to pollution. It may indicate subtle changes in communities, and therefore be the more relevant index if non-organic impacts are occurring. However, it is also influenced by the 'patchiness' of macroinvertebrates on the streambed, and as such must be considered in the context of all three metrics. Significant differences in either the MCI or the SQMCI scores between sites may indicate the degree of adverse effects (if any) of the discharge being monitored.

**Spring survey - November 2023**

Taxa richness declined in a downstream direction, with sites 1, 2 and 3 recording 23, 20, 7 taxa, respectively. The number of EPT taxa also declined in a downstream direction, with sites 1, 2 and 3 having four, three and two taxa, respectively. The percentage of EPT taxa at sites 1, 2 and 3 was 17%, 15% and 29%, respectively.

MCI scores decreased in a downstream direction and were 79, 75 and 63 units at sites 1, 2 and 3, respectively. These scores categorized all sites as having 'poor' macroinvertebrate community health. The most downstream site 3 recorded an MCI score significantly less than sites 1 and 2.

SQMCI scores were 2.3, 3.1 and 1.3 units at sites 1, 2 and 3, respectively, with site 3 scoring a significantly lower SQMCI score than sites 1 and 2. These scores were reflective of a 'poor' macroinvertebrate community health at site 2 and 'very poor' health at sites 1 and 3.

Overall, compared to previous and historic survey results, the macroinvertebrate metrics of sites 1 and 2 indicated better macroinvertebrate community health, while results at site 3 were similar to previous and historic survey results. It appears the discharges to land from the Turangi Production station have had no significant detrimental effect on macroinvertebrate communities in an unnamed tributary of the Parahaki Stream, with the overall poor health likely due to poor habitat conditions.

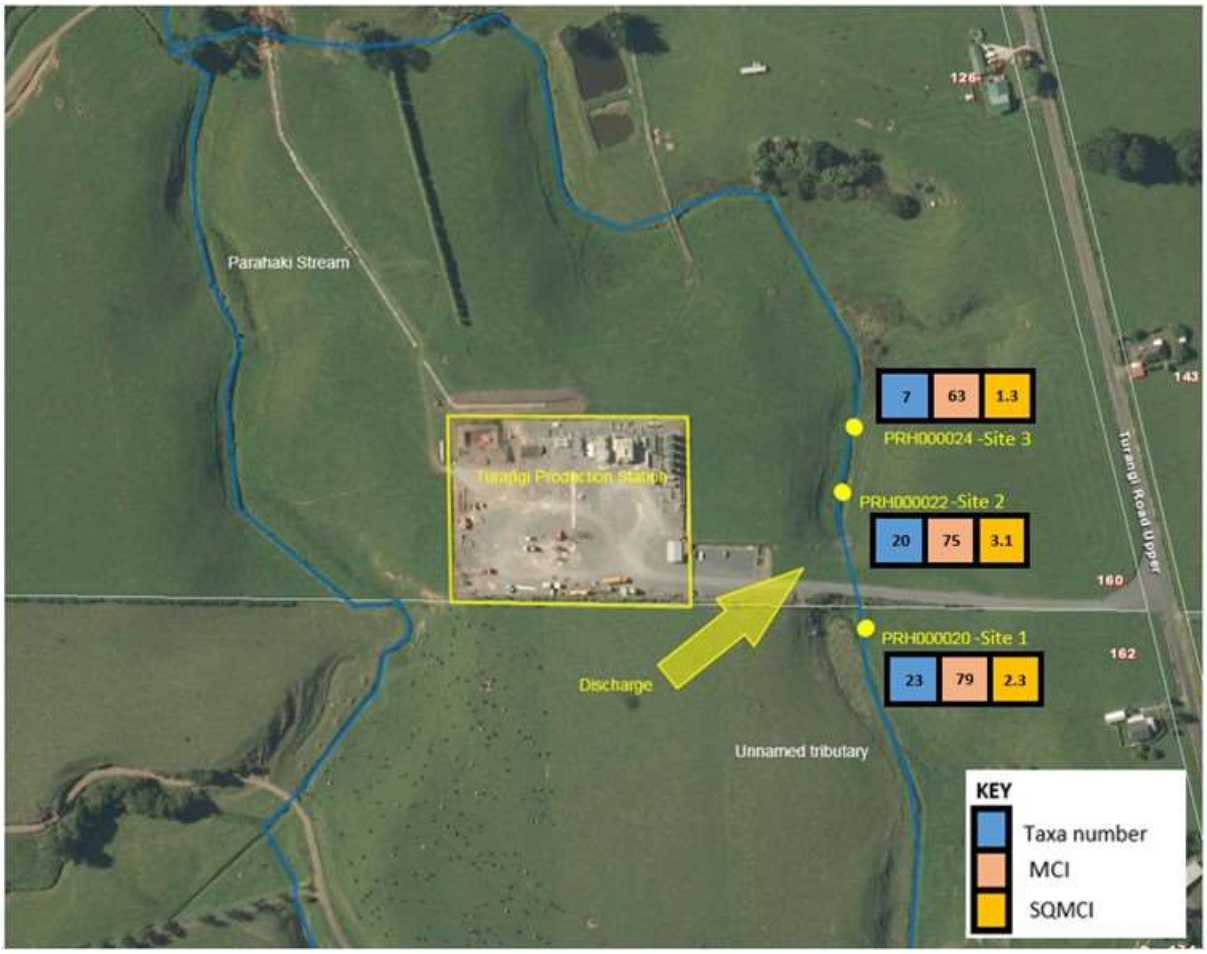


Figure 2 Biomonitoring sites in an unnamed tributary of the Parahaki Stream with results for each site, spring 2023

### Summer survey – February 2024

Taxa richness was moderate with 16, 14 and 15 taxa present at sites 1, 2 and 3, respectively, while the number of EPT taxa declined in a downstream direction, with sites 1, 2 and 3 having two, one and one taxa, respectively and a percentage of EPT taxa of 13%, 7% and 7%, respectively.

MCI scores were 76, 66 and 67 units at sites 1, 2 and 3, respectively. These scores categorized all sites as having 'poor' macroinvertebrate community health. There was a decline in MCI scores in a downstream direction however, there were no significant differences between sites.

SQMCI scores were 3.6, 2.2 and 1.7 at sites 1, 2 and 3, respectively. These scores were reflective of 'poor' macroinvertebrate community health at site 1 and 'very poor' health at sites 2 and 3, with site 1 scoring a significantly greater SQMCI score compared to sites 2 and 3. Notably, site 1 recorded the highest SQMCI for that site to date.

Overall, MCI and SQMCI results were reflective of 'poor' to 'very poor' macroinvertebrate community health, which are likely attributed to unsuitable habitat characteristics for sensitive taxa. Therefore, it appears the discharges to land from the Turangi Production station have had no significant detrimental effect on macroinvertebrate communities in an unnamed tributary of the Parahaki Stream.

Copies of biomonitoring reports for this site are available from the Council upon request**.**

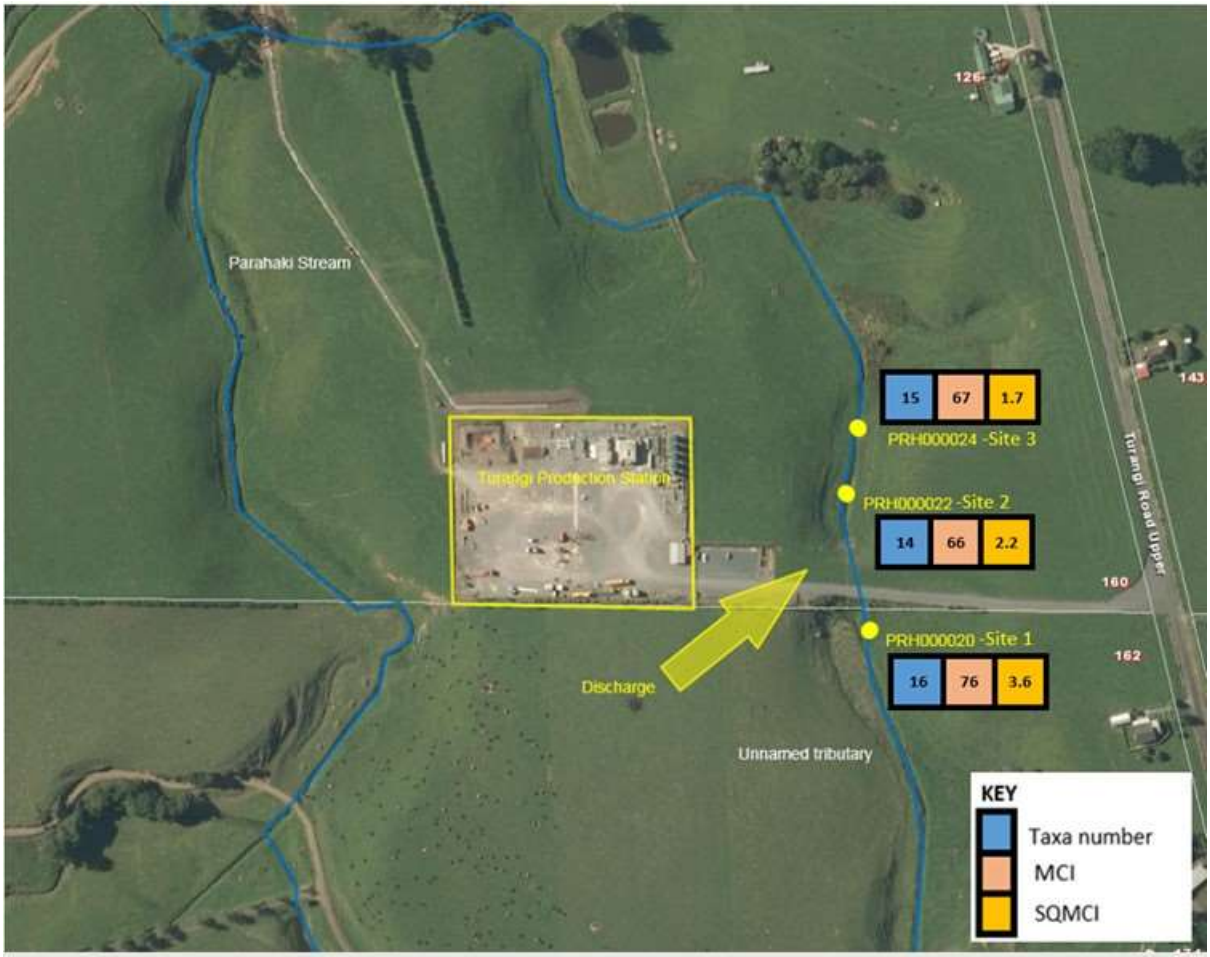


Figure 3 Biomonitoring sites in an unnamed tributary of the Parahaki Stream with results for each site, summer 2024

## 2.2 Air

### 2.2.1 Inspections

Air inspections were carried out in conjunction with site inspections as discussed in Section 2.1.1 above. No issues regarding air quality were noted during the monitoring year.

### 2.2.2 Results of discharge monitoring

Council undertakes annual air quality monitoring at the region's hydrocarbon production stations to measure concentrations of hazardous air pollutants (HAPs) in ambient air at the boundary. During the 2023/24 survey instrumental monitoring was undertaken for nitrogen oxides ($NO_x$), fine particulate ($PM_{10}$ and $PM_{2.5}$), carbon monoxide (CO) and the lower explosive limit (LEL) for gases.

Monitoring of CO and LEL is undertaken using a Rae Systems MultiRae gas monitor which continuously measures gas levels in ambient air. The monitor was located at the south east of the site near the site entrance (Figure 1) and recorded maximum, mean, and minimum CO levels, and the percentage of the LEL. The instrument was deployed on 15 March 2024 and recovered on 16 March 2024 and recorded data for 18 hours.

The concentration of $PM_{10}$ and $PM_{2.5}$ in ambient air was measured using a TSI DustTrak aerosol monitor which can simultaneously measures particle mass and size fraction. It was co-located with the MultiRae during the deployment and recorded data for 16 hours.

Passive sampling devices were deployed at both monitoring locations from 19 January to 9 February 2024 to measure NOx. The samplers absorb NOx over the duration of the deployment and are sent for laboratory analysis. The laboratory results are used to calculate 1-hour and 24-hour time weighted averages (TWA).

The results of the monitoring are presented below and compared against the following human health-based assessment criteria;

- Ambient Air Quality Standards (AAQS, Ministry of the Environment (MfE, 2004)
- The Ambient Air Quality Guidelines (AAQG, MfE, 2002)

Air discharge consent 6497-1 includes ambient air limits which are largely based on these criteria.


Figure 4 Air monitoring sites at Turangi Production Station

#### 2.2.2.1 Carbon monoxide and lower explosive limit

Exposure to low levels of CO can cause nausea, dizziness, and disorientation. Higher levels of CO can cause coma, collapse and loss of consciousness. The AAQS for exposure to CO is 10mg/m$^3$ averaged over an 8 hour period.

The CO and LEL data retrieved from the instrument did not exceed zero at any time during the deployment. The instrument reported a maximum concentration of volatile organic compounds of 2.0ppm and a range of 0.1 to 2.0ppm. The absence of CO and LEL data may be due to sensor malfunction or a low-level of discharges from the site during the deployment. Given the rural location of the site there are not likely to be other notable sources of these contaminants.

Due to the uncertainty of the data for this monitoring year, a qualitative approach to assess compliance with the consent was adopted using historical data to infer potential effects. Since monitoring began in 2015 the concentration of CO measured at the monitoring locations has never exceeded or even approached the AAQS limit. In the 2021/22 monitoring period the maximum CO concentration was 1.7 mg/m$^3$, significantly lower than the AAQS limit of 10 mg/m$^3$.

LEL is the concentration of flammable gas, vapour, or mist in ambient air, below which an explosive gas atmosphere will not be formed. In past years methane has been used as a proxy for LEL and is measured using the MultiRae. During the most recent monitoring (2021/22) the instrument recorded methane at 0.1% of the LEL. This low result is to be expected given that methane will readily disperse over the distance between the source and the instrument.

Given that there have not been any significant changes to activities on-site or to the scale of production it is unlikely that the concentration of CO and percentage LEL at the monitoring site during this monitoring year would have been significantly different than the 2021/22 year.

#### 2.2.2.2 Fine particulate matter

Fine particulate less than 10µm in diameter ($PM_{10}$) and less than 2.5µm ($PM_{2.5}$) can enter deep into the lungs significantly reducing the exchange of gases across the lung walls. At high concentrations these can cause health impacts ranging from increased susceptibility to asthma and respiratory illness through to increased risk of premature death. $PM_{10}$ and $PM_{2.5}$ come from multiple natural and anthropogenic sources including sea spray, crustal matter, and in particular, the combustion of fossil fuels. Emissions from the Tūrangi Production Station are primarily from the combustion of hydrocarbons in the flare and from vehicle engines.

The maximum concentrations of $PM_{10}$ and $PM_{2.5}$ (5 min average) recorded during monitoring at Tūrangi Production Station were 8.0 and 7.0µg/m$^3$ respectively, while 99$^{th}$ percentile of results were also 7.0µg/m$^3$ for $PM_{10}$ and 8.0µg/m$^3$ for $PM_{2.5}$ (Table 7).

Table 7 Results of fine particulate monitoring at Tūrangi Production Station (N/A=not available)

| Pollutant | Maximum (µg/m$^3$) | 99%ile (µg/m$^3$) | Maximum 24-hour average (µg/m$^3$) |
|---|---|---|---|
| $PM_{10}$ | 8.0 | 8.0 | N/A |
| $PM_{2.5}$ | 7.0 | 7.0 | N/A |

The instrument did not operate for long enough to obtain a 24-hour average record. Based on the maximum five minute average results it is unlikely that $PM_{10}$ concentrations would have approached the relevant assessment criteria.

The Tūrangi Production Station is located in a rural area and the level of background $PM_{10}$ and $PM_{2.5}$ is likely to be a result of vehicle emissions from Tūrangi Rd Upper to the east, dust from unsealed roads, and other rural activities such as fertiliser application. On this basis the background concentration of $PM_{10}$ and $PM_{2.5}$ in the area is likely to be low and therefore discharges from the combustion of natural gas at the Tūrangi site are not likely to cause ambient concentrations to approach the AAQS limit of 50µg/m$^3$ (24-hour average).

#### 2.2.2.3 Nitrogen dioxide

Fine particulate less than 10µm in diameter ($PM_{10}$) and less than 2.5µm ($PM_{2.5}$) can enter deep into the lungs significantly reducing the exchange of gases across the lung walls. At high concentrations these can cause health impacts ranging from increased susceptibility to asthma and respiratory illness through to increased risk of premature death. $PM_{10}$ and $PM_{2.5}$ come from multiple natural and anthropogenic sources including sea spray, crustal matter, and in particular, the combustion of fossil fuels. Emissions from the Tūrangi Production Station are primarily from the combustion of hydrocarbons in the flare and from vehicle engines.

The maximum concentrations of $PM_{10}$ and $PM_{2.5}$ (5 min average) recorded during monitoring at Tūrangi PS were 8.0 and 7.0µg/m$^3$ respectively, while 99$^{th}$ percentile of results were also 7.0µg/m$^3$ for $PM_{10}$ and 8.0µg/m$^3$ for $PM_{2.5}$ (Table 8).

Table 8 Raw data and calculated TWAs

| Monitoring site | NOx result (µg) | NOx 1-hour average (µg/m$^3$) | NOx 24-hour average (µg/m$^3$) |
|---|---|---|---|
| AIR007822 | 0.3 | 1.04 | 0.55 |
| AIR007824 | 4.7 | 16.31 | 8.64 |
| **$NO_2$ Assessment criteria** | | **200 (AAQS)** | **100 (AAQG)** |

The calculated total $NO_x$ measured at monitoring site AIR007822 was reported as 0.3µg which is the laboratory minimum level of detection. The calculated 1-hour TWA based on the result is 1.04µg/m³which is substantially lower than the AAQS of 200µg/m, and within the range of results recorded since monitoring began in 2015. Monitoring location AIR007824 reported detectable levels of $NO_x$ of 4.7µg. The 1-hour average was calculated to be 16.31µg/m³, still substantially lower than the AAQS.

Similarly, the calculated 24-hour average TWA concentration at each of the monitoring sites was comparatively low with the concentration calculated to be 0.55µg/m³ at AIR007822 and 8.64µg/m³. These results are significantly lower than the $NO_2$ AAQG of 100µg/m³.

Only a portion of $NO_X$ is $NO_2$ and therefore the actual concentration of $NO_2$ at the monitoring locations will be less than reported. The 1-hour and 24-hour results are likely to be largely representative of background concentrations in rural areas.

A copy of the full air report is available from the Council upon request.

### 2.2.3 Summary of flaring volumes reported by the Company

At Turangi Production Station flaring occurred every month (Figure 5), with the quantities of gas flared at the production station relating to things like plant shutdown, gas compressor issues, and plant or well restarts. The total volume flared during the monitoring period was approximately 1,085,295m³, a significant increase compared to the volume flared during the 2022/23 year of 372,800m³. The large volume flared during March 2024 was related to testing of a new well.

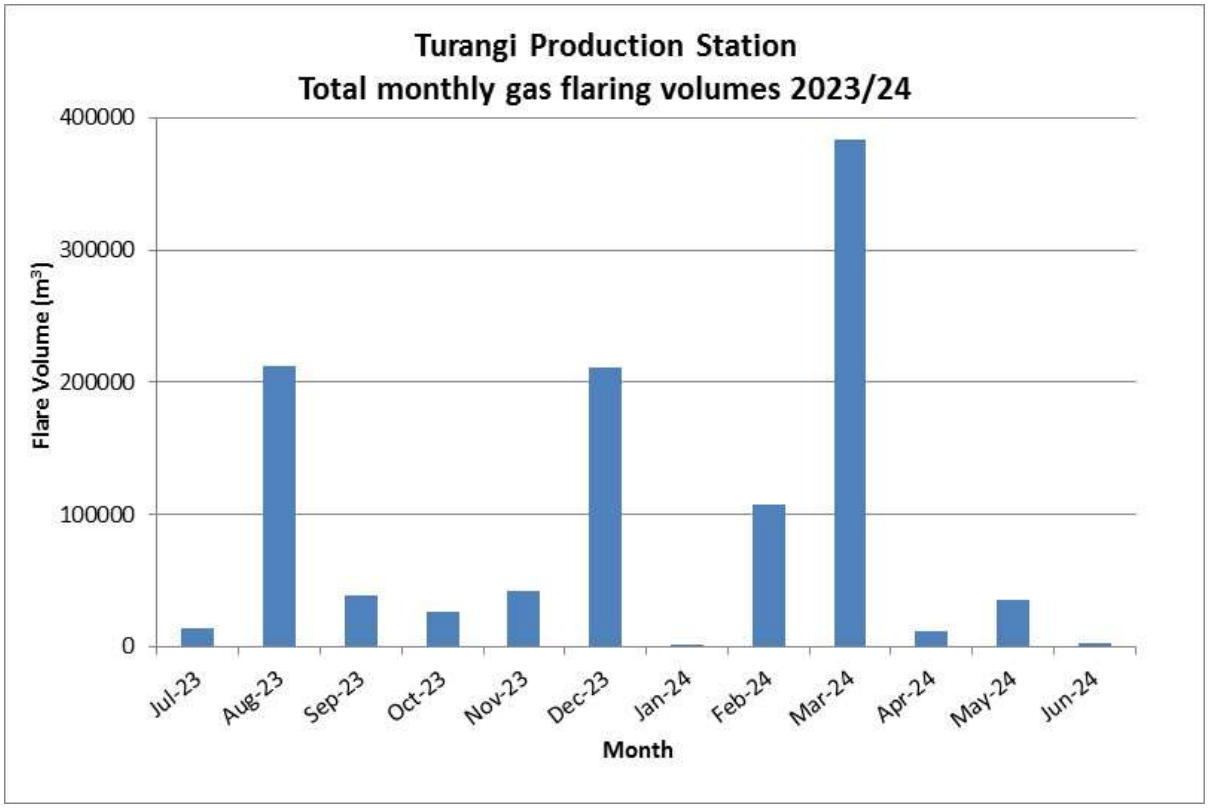


Figure 5 Summary of monthly gas flaring volumes at Turangi Production Station

The Turangi-B wellsite is connected to Turangi Production Station however, flaring was undertaken at the wellsite in relation to well testing under consent 7855-1. There was no flaring at any of the other wellsites associated with the Turangi Production Station as these are all connected to the production station.

Flaring occurred at Kowhai-A Production Station during every month of the 2023/24 monitoring period (Figure 6). The total volume of gas flared at the Kowhai-A Production Station during the period was

approximately 411,240m$^3$, a significant increase compared with the volume of 153,628m$^3$ flared during the 2022/23 year. No complaints were received from the public in relation to flaring at this site. Kowhai-B, C and D wellsites are all connected to Kowhai-A Production Station however, there was some additional flaring from Kowhai-D under consent 10292-1.1 during the year.

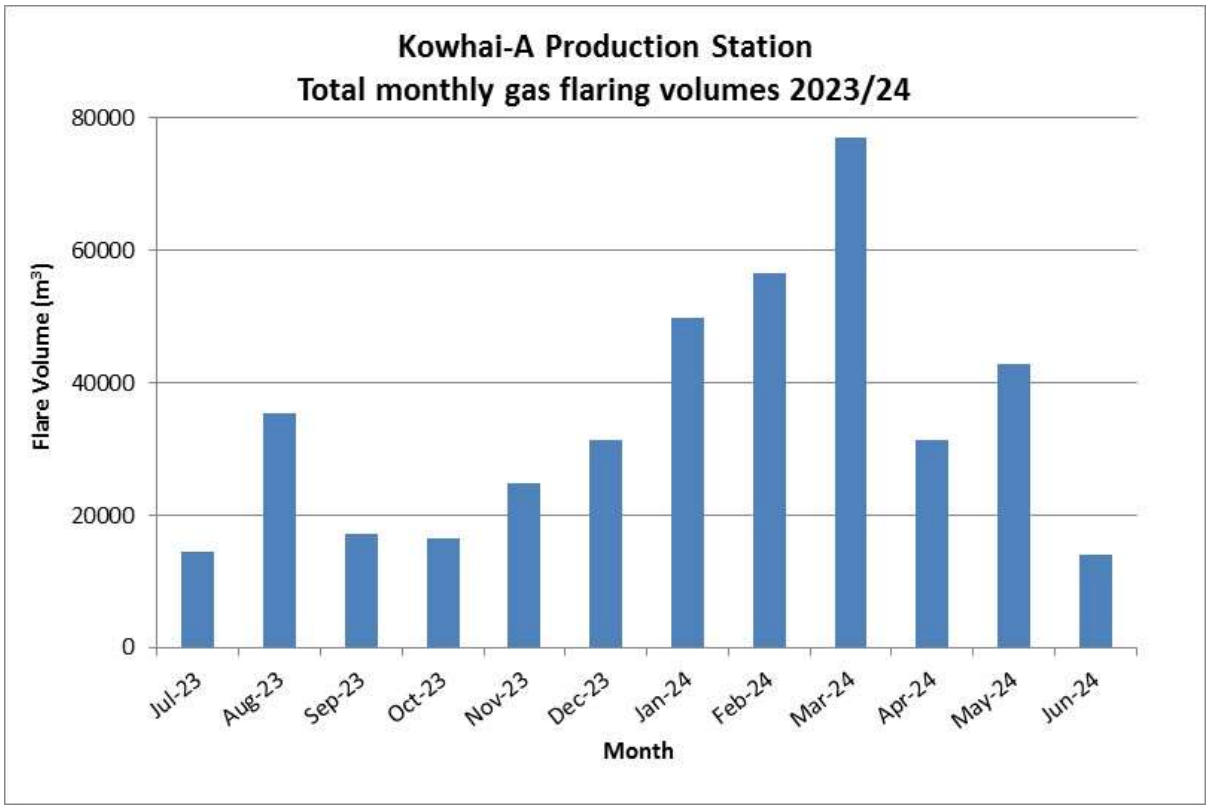


Figure 6 Summary of monthly gas flaring volumes at Kowhai-A Production Station

## 2.3 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 Company. 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 the Company's conditions in resource consents or provisions in Regional Plans.

# 3. Discussion

## 3.1 Discussion of site performance

### Turangi Production Station

Minor issues were noted in regards to the Turangi Production Station during the 2023/24 monitoring period. These were resolved as requested and the site remained compliant with consent conditions.

### Kowhai-A Production Station

Inspections found the site was generally tidy and well managed.

## 3.2 Environmental effects of exercise of consents

### Turangi Production Station

Sampling of discharges and receiving waters did not find any significant adverse effects at the time of sampling. Biomonitoring in the receiving waters did not show any effect from discharges on the communities in the stream.

There were no adverse effects on the environment resulting from the exercise of the air discharge consent. The ambient air quality monitoring at the site showed that levels of carbon monoxide, particulate matter and nitrogen oxides were below levels of concern at the time of sampling. No offensive or objectionable odours were detected beyond the boundary during inspections and there were no complaints in relation to air emissions from the site.

### Kowhai-A Production Station

Site inspections found that the stormwater systems were constructed and maintained in accordance with consent conditions. No issues were noted in relation to air discharges from the site.

## 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 9-12.

Table 9 Table Summary of performance for Consent 6497-2

| **Purpose: To discharge emissions to air during flaring from well workovers and in emergency situations, and to discharge miscellaneous emissions associated with wellsite production activities at the Tūrangi-A Production Station** | | |
|---|---|---|
| **Condition requirement** | **Means of monitoring during period under review** | **Compliance achieved?** |
| 1. Definitions of flaring, incineration and combustion | | N/A |
| 2. Incineration to occur in device with appropriate chimney height | Inspection | Yes |
| 3. Flaring to occur in appropriate flare pit | Inspection | Yes |
| 4. Specific location of flaring | Inspection | Yes |
| 5. Notification to Council prior to flaring | Notifications received | Yes |
| 6. Notification to neighbours prior to flaring | Liaison with consent holder | Yes |
| 7. Material from well stream only to be flared or incinerated | Inspection and liaison with consent holder | Yes |

| Purpose: To discharge emissions to air during flaring from well workovers and in emergency situations, and to discharge miscellaneous emissions associated with wellsite production activities at the Tūrangi-A Production Station | | |
|---|---|---|
| **Condition requirement** | **Means of monitoring during period under review** | **Compliance achieved?** |
| 8. Material flared to be treated by liquid and solid removal by separation | Inspection | Yes |
| 9. Adoption of best practicable option to prevent or minimise environmental effects | Inspection and liaison with consent holder | Yes |
| 10. No offensive odour or smoke beyond boundary | Inspection | Yes |
| 11. Control of carbon monoxide, nitrogen dioxide, $PM_{10}$ and sulphur dioxide emissions | Air quality monitoring | Yes |
| 12. No hazardous/toxic/noxious contaminants 100m beyond emission source | Inspection | Yes |
| 13. Analysis of typical gas and condensate stream | Analysis not requested | N/A |
| 14. Provision of a combustion log | Report received | Yes |
| 15. Lapse provision | Consent exercised | N/A |
| 16. Optional review provision | Option for review in June 2027 | N/A |
| Overall assessment of consent compliance and environmental performance in respect of this consent<br>Overall assessment of administrative performance in respect of this consent | | **High**<br>**High** |

N/A = not applicable

Table 10 Summary of performance for Consent 6719-1

| Purpose: To discharge emissions to air during flaring from well workovers and in emergency situations and miscellaneous emissions associated with production activities at the Kowhai-A wellsite | | |
|---|---|---|
| **Condition requirement** | **Means of monitoring during period under review** | **Compliance achieved?** |
| 1. Notification to Council one month prior to production operations | Production operations commenced early 2006 | N/A |
| 2. Notification to neighbours 24hrs prior to flaring & record of complaints | Liaison with consent holder | Yes |
| 3. Notification to Council 24hrs prior to flaring | Notifications received | Yes |
| 4. No alterations without approval | Inspection and liaison with consent holder | Yes |
| 5. Take into account wind speed & direction when flaring | Inspection and Company records | Yes |
| 6. Effective separation to minimise smoke | Inspection and Company records | Yes |
| 7. Notification to Council of ineffective separation | No incidents during year under review | N/A |
| 8. No liquid or solid hydrocarbons flared | Inspection and liaison with consent holder | Yes |
| 9. Only substances from well stream to be flared | Inspection and liaison with consent holder | Yes |
| 10. Adoption of the best practicable option | Inspection and liaison with consent holder | Yes |
| 11. No hazardous/toxic/noxious contaminants beyond boundary | Inspection | Yes |
| 12. No offensive odour or smoke beyond boundary | Inspection | Yes |
| 13. Hydrocarbon storage vessels to have vapour recovery systems | Inspection | Yes |

| Purpose: To discharge emissions to air during flaring from well workovers and in emergency situations and miscellaneous emissions associated with production activities at the Kowhai-A wellsite | | |
|---|---|---|
| **Condition requirement** | **Means of monitoring during period under review** | **Compliance achieved?** |
| 14. Specified opacity for smoke emissions | Not assessed | N/A |
| 15. Control of carbon monoxide emissions | Not assessed | N/A |
| 16. Control of nitrogen oxide emissions | Not assessed | N/A |
| 17. Control of emissions to achieve specified contaminant concentrations | Not assessed | N/A |
| 18. Keep & maintain record of smoke emitting incidents | Inspection and annual flaring report | Yes |
| 19. Keep & maintain flaring log | Inspection and annual flaring report | Yes |
| 20. Provision of annual flaring & air emissions report during May | Received | Yes |
| 21. Analysis of typical gas and crude oil stream | Analysis not requested | N/A |
| 22. Lapse provision | Consent exercised | N/A |
| 23. Optional review provision | Consent expired June 2021, renewal underway | N/A |
| Overall assessment of consent compliance and environmental performance in respect of this consent<br>Overall assessment of administrative performance in respect of this consent | | **High**<br>**High** |

N/A = not applicable

Table 11 Summary of performance for Consent 10169-1

| Purpose: To discharge treated stormwater from hydrocarbon exploration and production operations at the Kowhai-A wellsite onto land and into an unnamed tributary of the Waiau Stream | | |
|---|---|---|
| **Condition requirement** | **Means of monitoring during period under review** | **Compliance achieved?** |
| 1. Adoption of the best practicable option | Inspection and liaison with consent holder | Yes |
| 2. Maximum stormwater catchment area | Inspection and company records | Yes |
| 3. Notification to Council five days prior to site works and well drilling | No site works or well drilling during the monitoring period | Yes |
| 4. Approved contingency plan | Plan up-to-date as of February 2023 | Yes |
| 5. Design, management and maintenance of stormwater system in accordance with application | Inspection | Yes |
| 6. All stormwater discharged through treatment system without ponding | Inspection | Yes |
| 7. Minimum skimmer pit capacity and ability to retain hydrocarbons | Inspection and company records | Yes |
| 8. Stormwater retention areas to be lined with a shut off valve | Inspection and company records | Yes |
| 9. Stormwater system to be installed prior to commencing any site works | System installed | Yes |
| 10. Concentrations not to be exceeded in the discharge | Not assessed in year under review | N/A |
| 11. Discharge not to cause an increase of more than 0.5 pH units beyond the mixing zone | Not assessed in year under review | N/A |
| 12. Limitation on effects beyond the mixing zone | Not assessed in year under review | N/A |
| 13. Effects not to be caused in receiving waters | Inspections | Yes |

| Purpose: To discharge treated stormwater from hydrocarbon exploration and production operations at the Kowhai-A wellsite onto land and into an unnamed tributary of the Waiau Stream | | |
|---|---|---|
| **Condition requirement** | **Means of monitoring during period under review** | **Compliance achieved?** |
| 14. 48hrs notice prior to reinstatement | Site still active | N/A |
| 15. Lapse provision | Consent exercised | N/A |
| 16. Optional review provision | Next option for review in 2027 | N/A |
| Overall assessment of consent compliance and environmental performance in respect of this consent<br>Overall assessment of administrative performance in respect of this consent | | **High**<br>**High** |

N/A = not applicable

Table 12 Summary of performance for Consent 10703-1

| Purpose: To discharge treated stormwater from hydrocarbon exploration and production operations at the Turangi-A Production Station, onto land and into an unnamed tributary of the Parahaki Stream and into the Parahaki Stream | | |
|---|---|---|
| **Condition requirement** | **Means of monitoring during period under review** | **Compliance achieved?** |
| 1. Adoption of the best practicable option | Inspection and liaison with consent holder | Mostly |
| 2. Stormwater to be collected and discharged through skimmer pits | Inspection | Yes |
| 3. Notification to Council 5 days prior to site works and well drilling | Liaison with consent holder | Yes |
| 4. Approved contingency plan | Plan up-to-date as of February 2023 | Yes |
| 5. Design, management and maintenance of stormwater system in accordance with application documentation | Inspection and liaison with consent holder | Yes |
| 6. All discharges to flow to perimeter drain and skimmer pit | Inspection | Yes |
| 7. Skimmer pits to be lined and have a shut off valve | Inspection | Yes |
| 8. Concentrations not to be exceeded in the discharge | Water sampling | Yes |
| 9. Limits on pH of receiving waters if pH is increased in skimmer pits due to photosynthetic activity | Water sampling | Yes |
| 10. Concentrations not to be exceeded in the receiving waters | Water sampling | Yes |
| 11. No effects upon surface water bodies | Inspection and biomonitoring | Yes |
| 12. 48 hrs notice prior to reinstatement | Site still active | N/A |
| 13. Lapse provision | Consent exercised | N/A |
| 14. Optional review provision | Next option for review in June 2027 | N/A |
| Overall assessment of consent compliance and environmental performance in respect of this consent<br>Overall assessment of administrative performance in respect of this consent | | **High**<br>**High** |

N/A = not applicable

Table 13 Evaluation of environmental performance over time

| Year | Consent numbers | High | Good | Improvement req | Poor |
|---|---|---|---|---|---|
| 2019/20 | 6497-1, 6719-1, 10169-1, 10703-1 | 4 | - | - | - |
| 2020/21 | 6497-1, 6719-1, 10169-1, 10703-1 | 4 | - | - | - |
| 2021/22 | 6497-1, 6719-1, 7853-1, 10169-1, 10703-1 | 4 | - | 1 | - |

| Year | Consent numbers | High | Good | Improvement req | Poor |
|---|---|---|---|---|---|
| 2022/23 | 6497-1, 6719-1, 10169-1, 10703-1 | 3 | 1 | - | - |
| 2023/24 | 6497-1, 6719-1, 10169-1, 10703-1 | 4 | - | - | - |

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

## 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 Turangi and Kowhai-A production stations and associated wellsites 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 it was not considered necessary to undertake additional investigation or monitoring as per recommendation two.

## 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.

# 4. Recommendations

1. THAT in the first instance, monitoring of consented activities at Turangi and Kowhai-A production stations and associated wellsites 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.

# Glossary of common terms and abbreviations

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

| | |
|---|---|
| AAQG | Ambient Air Quality Guidelines (MfE, 2002). |
| AAQS | Ambient Air Quality Standards (MfE, 2004). |
| 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. |
| CO | Carbon monoxide. |
| Conductivity | Conductivity, an indication of the level of dissolved salts in a sample, usually measured at 25°C and expressed in mS/m. |
| $g/m^2/day$ | grams/metre$^2$/day. |
| $g/m^3$ | 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. |
| LEL | Lower Explosive Limit (LEL) gives the percentage of the lower explosive limit, expressed as methane that is detected in the air sampled. |
| $m^2$ | 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. |
| MfE | Ministry for the Environment. |
| 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. |
| mS/m | Millisiemens per metre. |
| NES | National Environmental Standard |
| NOx | Nitrogen oxides |
| NTU | Nephelometric Turbidity Unit, a measure of the turbidity of water. |
| O&G | Oil and grease, defined as anything that will dissolve into a particular organic solvent (e.g. hexane). May include both animal material (fats) and mineral matter (hydrocarbons). |
| 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. |
| $PM_{10}$ | Relatively fine airborne particles (less than 10 micrometre diameter, respectively). |
| 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. |
| SS | Suspended solids. |
| SQMCI | Semi quantitative macroinvertebrate community index. |
| Temp | Temperature, measured in °C (degrees Celsius). |
| Turb | Turbidity, expressed in NTU. |
| TWA | Time weighted average. |
| UI | Unauthorised Incident. |

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

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# Appendix I

# Resource consents held by Greymouth Petroleum Ltd and Petrochem Ltd

(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: | Greymouth Petroleum Turangi Limited |
| Decision Date: | 31 March 2023 |
| Commencement Date: | 31 March 2023 |

## Conditions of Consent

| | |
|---|---|
| Consent Granted: | To discharge emissions to air during flaring from well workovers and in emergency situations, and to discharge miscellaneous emissions associated with wellsite production activities at the Turangi-A Production Station |
| Expiry Date: | 1 June 2039 |
| Review Date(s): | June 2027, June 2033 |
| Site Location: | Turangi-A Production Station, 126 Turangi Road Upper, Motunui |
| Grid Reference (NZTM) | 1713734E-5681486N |

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



47 Cloten Road · Private Bag 713 · Stratford 4352 · New Zealand
T: 06 765 7127 · F: 06 765 5097 · E: info@trc.govt.nz · www.trc.govt.nz
www.facebook.com/TaranakiRegionalCouncil twitter.com/TaranakiRC
*Please quote our document number in your reply*

**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**

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. For the purposes of this consent:

   (a) 'flaring' means the uncontrolled or partially controlled open air burning of hydrocarbons derived from or entrained in the well stream. 'Flare', as a verb, has the corresponding meaning and, as noun, means the flame produced by flaring.

   (b) 'incineration' means the controlled, enclosed burning of formation hydrocarbons within a device designed for the purpose. 'Incinerate' has the corresponding meaning.

   (c) 'Combustion' means burning generally and includes both flaring and incineration as well as other burning such as fuel in machinery.

2. Incineration shall only occur in a device with a minimum chimney height determined by the method detailed in Appendix VIII of the *Regional Air Quality Plan for Taranaki.*

3. Flaring shall only occur within a flare pit consisting of impermeable material that prevents any liquid from leaking through its base or sidewalls and discharging to land.

4. Flaring and incineration shall only occur within 20 metres of the location defined by:

   - 1713756E-5681440N (the existing flare pit, to be used until the new flare pit is ready); and
   - 1713734E-5681486N (the new permanent flare pit)

5. Other than in emergencies, the consent holder shall notify the Chief Executive, Taranaki Regional Council, whenever the continuous flaring or incineration of hydrocarbons (other than purge gas) is expected to occur for more than five minutes in duration. Unless the Chief Executive advises that an alternative method is required this notice shall be served by completing and submitting the 'Notification of work' form on the Council's website (http://bit.ly/TRCWorkNotificationForm).

6. At least 24 hours before any flaring, other than in emergencies, the consent holder shall provide notification of the commencement of flaring to the occupants of all dwellings and landowners within 1000 metres of the point of flaring. The consent holder shall include in the notification a 24-hour contact telephone number for a representative of the consent holder, and shall keep and make available to the Chief Executive, Taranaki Regional Council, a record of all queries and complaints received in respect of any combustion activity.

7. No material shall be flared or incinerated, other than those derived from or entrained in the well stream.

8. To the greatest extent practicable, any material flared is to comprise only hydrocarbons that are first treated by effective liquid and solid removal by separation.

9. The consent holder shall adopt the best practicable option, as defined in section 2 of the Resource Management Act 1991, to prevent or minimise any actual or potential effect on the environment arising from any emission to air, including, but not limited to having regard to the prevailing and predicted wind speed and direction at the time of initiation, and throughout, any episode of combustion so as to minimise offsite effects (other than for the maintenance of a pilot flame).

10. The discharge shall not cause any objectionable or offensive odour, smoke or dust at or beyond the boundary of the property where the wellsite is located. For the purposes of this condition, 'objectionable or offensive smoke' is defined as smoke of 40% or more obscuration, occurring on more than an occasional or infrequent basis.

11. The consent holder shall control all emissions of carbon monoxide, nitrogen dioxide, fine particles ($PM_{10}$) and sulphur dioxide to the atmosphere from the site, in order that the maximum ground level concentration of any of these contaminants arising from the exercise of this consent measured under ambient conditions does not exceed the relevant ambient air quality standard as set out in the Resource Management (National Environmental Standards for Air Quality Regulations, 2004) at or beyond the boundary of the property on which the wellsite is located.

12. The consent holder shall control all emissions of contaminants to the atmosphere from the site, other than those expressly provided for under special condition 11, in order that they do not individually or in combination with other contaminants cause a hazardous, noxious, dangerous, offensive or objectionable effect at a distance greater than 100 metres from the emission source.

13. The consent holder shall make available to the Chief Executive, Taranaki Regional Council, upon request, an analysis of a typical gas and condensate stream from the field, covering sulphur compound content and the content of carbon compounds of structure C6 or higher number of compounds.

14. The consent holder shall record and make available to the Chief Executive, Taranaki Regional Council, a 'combustion log' that includes:

    (a) the date, time and duration of all flaring or incineration episodes;

    (b) the volume of substances flared or incinerated;

    (c) whether there was smoke at any time during the combustion episode and if there was, the time, duration and cause of each 'smoke event'.

15. This consent lapses 5 years after its date of commencement, unless the consent is given effect to before the end of that period or the Taranaki Regional Council fixes a longer period pursuant to section 125(1)(b) of the Resource Management Act 1991.

16. 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 2027 and/or June 2033, for any of the following purposes:

    (a) dealing with any significant adverse effect on the environment arising from the exercise of the consent which was not foreseen at the time the application was considered or which it was not appropriate to deal with at the time; and/or

    (b) requiring the consent holder to adopt specific practices in order to achieve the best practicable option to remove or reduce any adverse effect on the environment caused by the discharge; and/or

    (c) to alter, add or delete limits on mass discharge quantities or discharge or ambient concentrations of any contaminant.

Signed at Stratford on 31 March 2023

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: | Petrochem Limited<br>P O Box 1394<br>Shortland Street<br>AUCKLAND |
| Consent Granted Date: | 1 November 2005 |

## Conditions of Consent

| | |
|---|---|
| Consent Granted: | To discharge emissions to air during flaring from well workovers and in emergency situations and miscellaneous emissions associated with production activities at the Kowhai-A wellsite at or about (NZTM) 1710907E-5676255N |
| Expiry Date: | 1 June 2021 |
| Review Date(s): | June 2009, June 2021 |
| Site Location: | Kowhai-A wellsite, Ngatimaru Road, Tikorangi, Waitara [Property owner: BJ & RN Jupp] |
| Legal Description: | Pt Sec 44 Tikorangi Dist Blks IX & X Waitara SD |

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

### General conditions

a) On receipt of a requirement from the Chief Executive, Taranaki Regional Council the consent holder shall, within the time specified in the requirement, supply the information required relating to the exercise of this consent.

b) Unless it is otherwise specified in the conditions of this consent, compliance with any monitoring requirement imposed by this consent must be at the consent holder's own expense.

c) The consent holder shall pay to the Council all required administrative charges fixed by the Council pursuant to section 36 in relation to:

i) the administration, monitoring and supervision of this consent; and
ii) charges authorised by regulations.

### Special conditions

### Information and notification

1. The consent holder shall notify the Chief Executive, Taranaki Regional Council, in writing at least one month prior to the establishment of production operations at the Kowhai-A wellsite.

2. At least 24 hours prior to any flaring, other than in emergencies, the consent holder shall undertake all practicable measures to notify residents within 1000 metres of the site of the commencement of flaring. The consent holder shall include in the notification a 24-hour contact telephone number for a representative of the consent holder, and shall keep and make available to the Chief Executive, Taranaki Regional Council, a record of all queries and/or complaints received.

3. The consent holder shall, whenever practicable, notify the Chief Executive, Taranaki Regional Council, whenever the continuous flaring of hydrocarbons [other than purge gas] is expected to occur for more than five minutes in duration. Notification shall, as far as practicable, be no less than 24 hours prior to such flaring being commenced.

4. No alteration shall be made to plant equipment or processes which may substantially alter the nature or quantity of flare emissions or other site emissions, including but not limited to the recovery of produced gas, other than as notified in this consent application, without prior consultation with the Chief Executive, Taranaki Regional Council, and the consent holder shall obtain any necessary approvals under the Resource Management Act 1991.

**Emissions from the site**

5. Other than for the maintenance of a pilot flare flame, the consent holder shall have regard to the prevailing and predicted wind speed and direction at the time of initiation of any episode of flaring or other combustion of hydrocarbons.

6. All gas being flared, at any time must first be treated by effective liquid and solid separation and recovery, as far as is practicable, to ensure that smoke emission during flaring is minimised.

7. If separation cannot be implemented and/or maintained at any time while there is a flow from the well, whether natural or induced, then the consent holder shall notify the Chief Executive, Taranaki Regional Council, and shall in any case re-establish liquid and solid separation and recovery within three hours.

8. Subject to special conditions 6 and 7, no liquid or solid hydrocarbons shall be combusted through the gas flare system other than in an emergency.

9. Only substances originating from the well stream and treated as outlined by conditions 6, 7, 8, and 10 shall be combusted within the flare pit.

10. The consent holder shall adopt the best practicable option, as defined in section 2 of the Resource Management Act 1991, to prevent or minimise any actual or potential effect on the environment arising from any emission to air from the flare or any other emissions to air from the Kowhai-A wellsite. Any adoption of the best practicable option as outlined in this special condition shall be to the satisfaction of the Chief Executive, Taranaki Regional Council.

11. The consent holder shall not discharge any contaminant to air authorised by this consent at a rate or a quantity such that the contaminant, whether alone or in combination with other contaminants, is or is liable to be hazardous or toxic or noxious at or beyond the boundary of the wellsite, or beyond 100 metres of the flare, whichever distance is greater.

12. There shall not be any offensive odour or smoke, as determined by an enforcement officer of the Taranaki Regional Council, beyond the boundary of the wellsite or beyond 100 metres of the flare, whichever distance is greater, arising from the exercise of this consent.

13. All hydrocarbon storage vessels shall be fitted with vapour recovery systems.

14. The opacity of any smoke emissions shall not exceed a level of 1 as measured on the Ringelmann Scale for more than four minutes cumulative duration in any 60-minute period.

15. The consent holder shall control all emissions of carbon monoxide to the atmosphere from the flare, whether alone or in conjunction with any other emissions from the wellsite, in order that the maximum ground level concentration of carbon monoxide arising from the exercise of this consent measured under ambient conditions does not exceed 10 mg/$m^3$ [eight-hour average exposure], or 30 mg/$m^3$ one-hour average exposure] at or beyond the boundary of the wellsite or beyond 100 metres from the flare, whichever distance is greater.

16. The consent holder shall control all emissions of nitrogen oxides to the atmosphere from the flare, whether alone or in conjunction with any other emissions from the wellsite, in order that the maximum ground level concentration of nitrogen dioxide arising from the exercise of this consent measured under ambient conditions does not exceed 100 mg/$m^3$ [24-hour average exposure], or 200 mg/$m^3$ [1-hour average exposure] at or beyond the boundary of the wellsite, or beyond 100 metres from the flare, whichever distance is greater.

17. The consent holder shall control emissions to the atmosphere from the wellsite and flare of contaminants other than carbon dioxide, carbon monoxide, and nitrogen oxides, whether alone or in conjunction with any emissions from the flare, in order that the maximum ground level concentration for any particular contaminant arising from the exercise of this consent measured at or beyond the boundary of the wellsite or beyond 100 metres from the flare, whichever distance is greater, is not increased above background levels:

    a) by more than 1/30$^{th}$ of the relevant Occupational Threshold Value-Time Weighted Average, or by more than the Short Term Exposure Limit at any time [all terms as defined in Workplace Exposure Standards, 2002, Department of Labour]; or
    b) if no Short Term Exposure Limit is set, by more than three times the Time Weighted Average at any time [all terms as defined in Workplace Exposure Standards, 2002, Department of Labour].

**Recording and reporting information**

18. The consent holder shall keep and make available to the Chief Executive, Taranaki Regional Council, upon request, a record of all smoke-emitting incidents noting time, duration and cause.

19. The consent holder shall keep and maintain a log of all continuous flaring incidents longer than five minutes, and any intermittent flaring lasting for an aggregate of ten minutes or longer in any 120-minute period. Such a log shall contain the date, the start and finish times, the quantity and type of material flared, and the reason for flaring. This log shall be made available to the Chief Executive, Taranaki Regional Council, upon request, and summarised annually in the report required under condition 20.

20. The consent holder shall provide to the Taranaki Regional Council during May of each year, for the duration of this consent, a report:

    i. detailing any energy efficiency measures implemented on the site;
    ii. detailing smoke emissions as required under condition 18;
    iii. detailing any measures to reduce smoke emissions;
    iv. detailing any measures to reduce flaring;
    v. addressing any other issue relevant to the minimisation or mitigation of emissions from the flare;
    vi. detailing any complaints received and any measures undertaken to address complaints; and

vii. reviewing all options and technological advances relevant to the reduction or mitigation of any discharge to air from the site, how these might be applicable and/or implemented at the site, and the benefits and costs of these advances.

21. The consent holder shall make available to the Chief Executive, Taranaki Regional Council, upon request, an analysis of a typical gas and crude oil stream from the field, covering sulphur compound content and the content of carbon compounds of structure $C_6$ or higher number of compounds.

### Lapse and Review

22. This consent shall lapse on the expiry of 16 years after the date of issue of this consent, unless the consent is given effect to before the end of that period or the Taranaki Regional Council fixes a longer period pursuant to section 125(1)(b) of the Resource Management Act 1991.

23. 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 2009 and/or June 2015, 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.

Transferred at Stratford on 22 July 2008

For and on behalf of
Taranaki Regional Council

_____

**Director-Resource Management**

# Discharge Permit

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

| | |
|---|---|
| Name of Consent Holder: | Petrochem Limited<br>PO Box 3394<br>New Plymouth 4341 |
| Decision Date: | 15 January 2016 |
| Commencement Date: | 15 January 2016 |

## Conditions of Consent

| | |
|---|---|
| Consent Granted: | To discharge treated stormwater from hydrocarbon exploration and production operations at the Kowhai-A wellsite onto land and into an unnamed tributary of the Waiau Stream |
| Expiry Date: | 1 June 2033 |
| Review Date(s): | June 2021, June 2027 |
| Site Location: | Kowhai-A wellsite, Ngatimaru Road, Tikorangi (Property owner: RN & BJ Jupp) |
| Legal Description: | Pt Sec 44 Tikorangi Dist Blks IX & X Waitara SD (Dsicharge source & site) |
| Grid Reference (NZTM) | 1710907E-5676255N |
| Catchment: | Waiau |

*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 actual or likely adverse effect on the environment associated with the discharge of contaminants from the site.

2. Stormwater discharged shall be collected from a catchment area of no more than 1.2 Ha.

3. At least 5 working days prior, the consent holder shall advise the Chief Executive, Taranaki Regional Council of the date of each of the following events:

   a) commencement of any site works (site works includes the introduction of a drilling rig, drilling equipment or any other associated equipment for the purpose of drilling, testing, well stimulation or well workover that may introduce contaminants to the site);
   b) commencement of any well drilling operation; and
   c) recommencement of any site works or drilling operations following a period of inactivity exceeding 30 days.

   If any of these events is rescheduled or delayed, the consent holder shall immediately provide further notice advising of the new date.

   Any advice given in accordance with this condition shall include the consent number and the wellsite name and be emailed to worknotification@trc.govt.nz.

4. The consent holder shall maintain and regularly update a contingency plan that details measures and procedures to be undertaken to prevent spillage or accidental discharge of contaminants not authorised by this consent and measures to avoid, remedy or mitigate the environmental effects of such a spillage or discharge. The plan shall be approved by the Chief Executive, Taranaki Regional Council, acting in a certification capacity prior to any discharge from the site.

5. Subject to the other conditions of this consent the design, management and maintenance of the stormwater system shall be undertaken in accordance with the information submitted in support of the application for this consent, in particular the Stormwater Management Plan.

6. All discharges from the site, including from any containment pit or hydrocarbon combustion facility (e.g. flare pit, thermal oxidiser), shall flow to a perimeter drain and skimmer pit. Perimeter drains shall be designed, including by having a positive grade and low permeability, to ensure that runoff flows directly to a skimmer pit without ponding.

7. The skimmer pit system shall have a combined capacity of no less than 280 $m^3$ including a 'freeboard' of no less than 147 $m^3$, and be designed to retain any hydrocarbons that enter it.

8. All skimmer pits and any other stormwater retention areas shall be lined with an impervious material to prevent seepage through the bed and sidewalls, and all skimmer pits shall have a valve that can be shut off to prevent any discharge from the site.

9. Perimeter drains and skimmer pits necessary to comply with the conditions of this consent shall be installed before any site works commences. Site works includes the introduction of a drilling rig, drilling equipment or any other associated equipment or facilities to the site for any purpose other than for the construction of the site.

10. Subject to condition 11 the constituents in the discharge shall meet the standards shown in the following table before discharging to land.

| Constituent | Standard |
|---|---|
| pH | Within the range 6.0 to 9.0 |
| suspended solids | Concentration not greater than 100 $gm^{-3}$ |
| total recoverable hydrocarbons | Concentration not greater than 15 $gm^{-3}$ (as determined by infrared spectroscopic technique) |
| chloride | Concentration not greater than 230 $gm^{-3}$ |

11. The pH may exceed 9.0 if the exceedance is a result photosynthetic activity within the skimmer pits, but in any case the discharge shall not result in the pH of the receiving water increasing by more than 0.5 pH units after allowing for a mixing zone of 20 metres from the confluence of the receiving water with the tributary of the Waiau Stream.

12. After allowing for a mixing zone of 20 metres from the confluence of the receiving water with the tributary of the Waiau Stream, the discharge shall not cause any of the following effects in the receiving water:

    a) an increase in the temperature of more than 2 degrees Celsius;

    b) the filtered carbonaceous biochemical oxygen demand to exceed 2 $gm^{-3}$; or

    c) the chloride concentration to exceed 50 $gm^{-3}$.

13. After allowing for a mixing zone of 20 metres from the confluence of the receiving water with the tributary of the Waiau Stream, the discharge shall not give rise to any of the following effects in the receiving water:

    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.

14. The consent holder shall advise the Chief Executive, Taranaki Regional Council, in writing at least 48 hours prior to the reinstatement of the site and the reinstatement shall be carried out so as to minimise adverse effects on stormwater quality. Notification shall include the consent number and a brief description of the activity consented and be emailed to worknotification@trc.govt.nz.

15. This consent shall lapse on 31 March 2021, unless the consent is given effect to before the end of that period or the Taranaki Regional Council fixes a longer period pursuant to section 125(1)(b) of the Resource Management Act 1991.

16. 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 2021 and/or June 2027, 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 15 January 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: | Greymouth Petroleum Turangi Limited<br>PO Box 3394<br>Fitzroy<br>New Plymouth 4341 |
| Decision Date | 9 January 2019 |
| Commencement Date | 9 January 2019 |

## Conditions of Consent

| | |
|---|---|
| Consent Granted: | To discharge treated stormwater from hydrocarbon exploration and production operations at the Turangi-A Production Station, onto land and into an unnamed tributary of the Parahaki Stream and into the Parahaki Stream |
| Expiry Date: | 1 June 2033 |
| Review Date(s): | June 2021, June 2027 |
| Site Location: | Turangi-A Production Station, 126 Turangi Road, Motunui (Property owner: BA & JM McKenzie & Ducal Products Limited) |
| Grid Reference (NZTM) | 1713970E-5681327N<br>1713982E-5681378N<br>1713728E-5681343N |
| Catchment: | Parahaki |

*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 actual or likely adverse effect on the environment associated with the discharge of contaminants from the site.

2. Stormwater discharged shall be collected and discharged through skimmer pits as detailed below:

| Skimmer pit location co-ordinates | Skimmer pit reference | Catchment area | Approximate total volume | Discharge co-ordinates | Stream discharging into |
|---|---|---|---|---|---|
| 1713945E-5681379N | Original dual skimmer pits installed in 2004 | 9665 m² | 370 m³ | 1713970E-5681327N | Unnamed tributary of the Parahaki Stream |
| 1713907E-5681337N | Skimmer Pits installed in 2014 as part of the site expansion | 10970 m² | 170 m³ | 1713982E-5681378N | Unnamed tributary of the Parahaki Stream |
| 1713779E-5681357N | Proposed new skimmer pits | 8745 m² | 96 m³ | 1713728E-5681343N | Parahaki Stream |

3. At least 5 working days prior, the consent holder shall advise the Chief Executive, Taranaki Regional Council of the date of each of the following events:

   a) commencement of any site works (site works includes the introduction of a drilling rig, drilling equipment or any other associated equipment or facilities to the site for any purpose other than for the construction of the site);
   b) commencement of any well drilling operation; and
   c) recommencement of any site works or drilling operations following a period of inactivity exceeding 30 days.

   If any of these events is rescheduled or delayed, the consent holder shall immediately provide further notice advising of the new date.

   Any advice given in accordance with this condition shall include the consent number and the wellsite name and be emailed to worknotification@trc.govt.nz.

4. The consent holder shall maintain and regularly update a 'Contingency Plan' that details measures and procedures that will be undertaken to prevent, and 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.

5. Subject to the other conditions of this consent the design, management and maintenance of the stormwater system shall be undertaken in accordance with the information submitted in support of the application for this consent, in particular the:

   a) Stormwater Design Report, Revision 2 and dated December 2013;
   b) Drawing 12364-02, Sheet 1, Revision 2 and dated December 2013;
   c) Drawing 12364-02, Sheet 2, Revision 3 and dated December 2013;
   d) Drawing 12364-02, Sheet 3, Revision 2 and dated December 2013;
   e) Drawing 12364-02, Sheet 4, Revision 3 and dated December 2013;
   f) Drawing 12364-02, Sheet 5, Revision 3 and dated December 2013;
   g) Drawing 12364-02, Sheet 6, Revision 3 and dated December 2013;
   h) Stormwater Design Report, Revision B and dated May 2018;
   i) Drawing 180768, Sheet 1, Revision A and dated September 2018 ;
   j) Drawing 180768, Sheet 2, Revision A and dated September 2018; and
   k) Drawing 180768, Sheet 3, Revision A and dated September 2018.

6. All discharges from the site, including from any containment pit or hydrocarbon combustion facility (e.g. flare pit, thermal oxidiser), shall flow to a perimeter drain and skimmer pit. Perimeter drains shall be designed, including by having a positive grade and low permeability, to ensure that runoff flows directly to a skimmer pit without ponding.

7. All skimmer pits and any other stormwater retention areas shall be lined with an impervious material to prevent seepage through the bed and sidewalls, and all skimmer pits shall have a valve that can be shut off to prevent any discharge from the site.

8. Constituents in the discharge shall meet the standards shown in the following table.

| Constituent | Standard |
|---|---|
| pH | Within the range 6.0 to 9.0 |
| suspended solids | Concentration not greater than 100 gm-3 |
| total recoverable hydrocarbons | Concentration not greater than 15 gm-3 [as determined by infrared spectroscopic technique] |
| chloride | Concentration not greater than 230 $gm^{-3}$ |

9. The pH may exceed 9.0 if the exceedance is a result of photosynthetic activity within the skimmer pits, but in any case, the discharge shall not result in the pH of the receiving water increasing by more than 0.5 pH units after allowing for a mixing zone of 20 metres from the confluence of the receiving waters with the unnamed tributary and Parahaki Stream.

10. After allowing for a mixing zone of 20 metres from the confluence of the receiving water with the unnamed tributary and the Parahaki Stream, the discharge shall not cause any of the following effects in the receiving water:

    a) an increase in the temperature of more than 2 degrees Celsius;
    b) the filtered carbonaceous biochemical oxygen demand to exceed 2 $gm^{-3}$; or
    c) the chloride concentration to exceed 50 $gm^{-3}$.

11. After allowing for a mixing zone of 20 metres, the discharge shall not give rise to any of the following effects in the receiving water:

    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.

12. The consent holder shall advise the Chief Executive, Taranaki Regional Council, in writing at least 48 hours prior to the reinstatement of the site and the reinstatement shall be carried out so as to minimise adverse effects on stormwater quality. Notification shall include the consent number and a brief description of the activity consented and be emailed to worknotification@trc.govt.nz.

13. This consent shall lapse on 31 March 2024, unless the consent is given effect to before the end of that period or the Taranaki Regional Council fixes a longer period pursuant to section 125(1)(b) of the Resource Management Act 1991.

14. 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 2021 and/or June 2027, 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 9 January 2019

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.