Greymouth Petroleum Ltd

Northern sites

Monitoring Programme

Annual Report

2021-2022

Technical Report 2022-81

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Taranaki Regional Council

Taranaki Regional Council
Private Bag 713
Stratford

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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 2021 to June 2022 describes the monitoring programme implemented by the 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 good 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 80 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. An additional consent relating to the discharge of treated stormwater and produced water from exploration activities at the Turangi-B wellsite was also actively monitored during the period under review.

The Council's monitoring programme for the year under review included four inspections of the Turangi and Kowhai-A production stations, two inspections of the Turangi-B wellsite, and an annual inspection of wellsites associated with the production stations. Three 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 with regards to bunding and spills around the rig. 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, combustible gases, PM_{10} particulates, and nitrogen oxides were all below levels of concern at the time of sampling. No offensive or objectionable odours were detected beyond the boundary during inspections.

Works were undertaken at the Turangi-B wellsite to increase the soakage area to prevent stormwater discharging directly to the Parahaki Stream. No further discharges were observed subsequent to the work being undertaken, however the abatement notice issued in the 2020-2021 year remains in place as it is considered there is still potential for the consent to be breached. Inadequate bunding was observed at the site early in 2021-2022 and works were undertaken by the Company to remedy this.

During the year, the Company demonstrated a good level of environmental performance and a high level of administrative compliance with the resource consents.

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

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

This report includes recommendations for the 2022-2023 year.

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1 Introduction

1.1 Compliance monitoring programme reports and the Resource Management Act 1991

1.1.1 Introduction

This report is for the period July 2021 to June 2022 by the Taranaki Regional Council (the Council) on the monitoring programme associated with resource consents held by 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 of 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 14th annual report to be prepared by the Council for the Turangi 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 RMA if RMA not referenced in full in section 1.1.1 then state full title in the following format here: *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/companies 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 Production Station 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 2022-2023 monitoring year.

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

1.1.3 The Resource Management Act 1991 and monitoring

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

a. the neighbourhood or the wider community around an activity, and may include cultural and social-economic effects;
b. physical effects on the locality, including landscape, amenity and visual effects;
c. ecosystems, including effects on plants, animals, or habitats, whether aquatic or terrestrial;
d. natural and physical resources having special significance (for example recreational, cultural, or aesthetic); and

e. risks to the neighbourhood or environment.

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

1.1.4 Evaluation of environmental performance

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

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

1.2 Process description

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 2013-2014 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.

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

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

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	6497-1	To discharge emissions to air during flaring from well workovers and in emergency situations and miscellaneous emissions associated with production activities at the Turangi Road wellsite	Dec 2004	-	June 2021*
	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*

Site	Consent number	Purpose	Granted	Review	Expires
	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

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

Wellsite	Consent number	Purpose	Issue date	Expiry
	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	7853-1	To discharge treated stormwater and produced water from hydrocarbon exploration and production operations at the Turangi-B wellsite onto and into land	Jun 2011	June 2027
	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
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

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, three inspections were undertaken at the Turangi-B wellsite, along with an annual inspection of the other wellsites associated with the production stations. With regard to consents for the discharge to water, the main points of interest were plant processes with potential or actual discharges to receiving watercourses, 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 northern, southern and western discharges from Turangi Production Station were scheduled to be collected on two occasions during the monitoring year. However, there was no discharge occurring from the northern and southern sampling points when the site was visited. Samples were collected from the western discharge on one occasion, along with upstream and downstream sites in the Parahaki Stream. The samples were analysed for chloride, conductivity, hydrocarbons, suspended solids, pH and turbidity.

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

A biological survey was 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 2021-2022 year four inspections were carried out at the Turangi and Kowhai-A production stations, two inspections were undertaken at the Turangi-B wellsite, and an annual inspection of wellsites associated with the production stations was also carried out. The following was found during the inspections:

7 July 2021

Turangi-B wellsite: The site was very busy with drilling operations, post drilling operations, and hydraulic fracturing operations being carried out. A delivery of sawdust had been had been blown all over the site due to high winds. The ring drains were discoloured in places from sediment being tracked, but in other areas it was noted that clean stormwater was flowing to the ring drains. The skimmer pits were full. The original skimmer pits on the northern side of the site were discoloured and the shut off valve was in the fully open position. The paddock was saturated and ponding was occurring around the end of the discharge pipe. The new skimmer pit at the southern corner of the site was also full and it was noted that the level of water in the pit was above the discharge pipe. The shut off valve was in the closed position, however water was still escaping to the discharge pipe that flows to the soakage pit. A wet lining around the skimmer pit was evident suggesting the level of the pit had been higher but was slowly draining. Both skimmer pits were turbid and brown in colour. The soakage pit was discharging to surface water. A small flow of water was observed flowing from the soakage area, over the geotextile cloth, into the well-formed rills and then down through the grass and into the stream. The flow path was clear as the grass had been forced to lay flat, and pine needles had been moved to create a clear path.

Chemicals were being stored onsite in various locations without adequate bunding being in place and this was discussed with the site manager. The dedicated bund area contained a lot of chemicals, many of these were either just on the front edge or just outside of the bund. Tarpaulins were available but were not being utilised. Some chemicals were covered but the majority were not. Staff were advised that the current practice of storing chemicals was not acceptable and that works needed to be undertaken to ensure best practice is maintained. This included ensuring that chemicals are covered with tarpaulins, especially when rain is expected, and ensuring that chemicals are stored in a bund if access to another storage area is not immediately available. Also discussed was the bund itself and the requirement that it must capture and contain stormwater to ensure that spilled chemicals cannot escape the bund and flow to the ring drain, skimmer pit and ultimately offsite. Other items discussed onsite were ensuring the area where trucks stop to receive drilling mud was scraped between loads to avoid tracking on and offsite, and ensuring that staff clean up spills and look to ensure they actively prevent discharges onto ground through the use of methods such as drip trays. The site continued to be non-compliant with regards to bunding and discharge to water.

27 and 29 July 2021

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; 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.

Turangi Production Station: No issues were noted at the Turangi Production Station. A pilot flare was operating with no smoke or odours noted.

19 November 2021

Turangi Production Station: There was no flaring at the time of the inspection. Recent works had been undertaken to improve the quality of the flare.

Kowhai-A Production Station: No flaring was occurring at the time of inspection. Recent works had been undertaken to improve the quality of the flare.

2 December 2021

Kowhai-A Production Station: The site was compliant with resource consent conditions at the time of the inspection.

Turangi-B wellsite: Drilling and drill testing was occurring. The site was reasonably tidy. A new bund had been purchased for the storage of bulk chemicals. The new bund consists of an HDP Liner with a 10cm high lip, it is considered that this would be very effective at containing any spills that may occur during storage. The valve from the second skimmer pit to the soakage pit was open, with the practice of controlled discharged being discontinued since the new soakage pit was constructed. There was no water in the soakage pit and no obvious overflow from the pit was noted.

19 April 2022

Turangi Production Station: A rig was positioned on site at Turangi Production Station and drilling was occurring at the time of inspection. The site was dry at the time with no discharges occurring and no effects were noted downstream in the receiving waters. The area around the D tank was tidy with no spillage or tracking of drilling mud evident. The main bunded area for the storage of dry chemicals was dry and the sides of the bunds were down in places. It was noted that staff were working on this area at the time of the inspection with product being put into the bunds, and the sides being erected. Some spillage of product had occurred and this was being cleaned up. The area where dry product is placed into the hopper and the adjacent area around the mud pump was untidy with product noted on the ground and on equipment. It was unclear at the time of inspection whether the untidy state was the result of a one-off incident, or continual spills and leaks in the process. Staff were asked to consider each process and determine if changes could be made to improve systems, or whether bunding or other measures are needed to contain product to avoid contact with the site. A pilot flare was being maintained, this was clean burning with no smoke or odour detected.

Kowhai-A Production Station: The site was neat and tidy with no issues noted.

21 June 2022

Turangi Production Station: Heavy rain and strong winds had preceded the inspection and it was noted that the stormwater system was coping well, with all stormwater collected and directed for treatment prior to discharge. A lot of activity was occurring and the site was full of machinery and equipment. It was considered that general housekeeping around the rig could be improved, as many minor spills were noted. Two 44 gallon drums and an IBC were observed without bunding. The area around the Rig D tank was in need of cleaning/scraping, particularly as works had finished in this area. It was noted that some of the equipment around the rig were sitting on liners to protect the ground from spills, however it did not appear that these liners were acting to contain the spills that had occurred as a bund would as there was no lip to

contain the spills. The skimmer pits were turbid and free of hydrocarbon sheens, and no effects were noted below the discharge point. Visually the stream below the Turangi Production Station looked the same downstream as it did upstream of the discharge point. A pilot flare was in operation at the time of inspection and the flame was clean burning with no smoke or odour noted.

Kowhai-A Production Station: The stormwater system was working well. The site was tidy and processes appear well managed as no spills or stains were evident on the ground. No smoke or odour were noted from the pilot flare.

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 scheduled to be undertaken twice during the 2021-2022 period. However, despite the site being visited several times during rain, sampling was only undertaken on one occasion due to the lack of discharge. 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 levels for all parameters well within the consent limits.

Table 3 Results of discharge monitoring from the Turangi Production Station

Parameter	Units	20 May 2022			Consent limits (10703-1)
		Northern discharge IND002035	Southern discharge IND002052	Western discharge STW002101	
Chloride	g/m³	-	-	17.6	230
Conductivity	mS/m @25°C	-	-	13.7	-
Hydrocarbons	g/m³	-	-	< 0.7	15
Suspended solids	g/m³	-	-	68	100
Temperature	Deg. C	-	-	14.6	-
pH		-	-	7.4	6.0 – 9.0
Turbidity	FNU	-	-	77	-

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. Receiving environment monitoring in relation to the northern (IND002035) and southern (IND002052) discharges was not undertaken during the 2021-2022 monitoring period as neither of these were discharging when the site was visited.

The results of receiving environment monitoring in relation to the western (STW0002101) discharge are presented in Table 4 below. 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 4 Results of receiving environment monitoring in relation to the western discharge

Parameter	Units	Consent limits 10703-1	20 May 2022	
			Upstream PRH000026	Downstream PRH000027
Chloride	g/m³	50	22	22
Conductivity	mS/m@25°C	-	16.6	16.5
Hydrocarbons	g/m³	-	< 0.7	< 0.7
pH		-	7.0	7.0
Suspended solids	g/m³	-	11	7
Temperature	Deg. C	<2°C increase	14.6	14.5
Turbidity	FNU	-	5.9	5.5

2.1.3.2 Biomonitoring

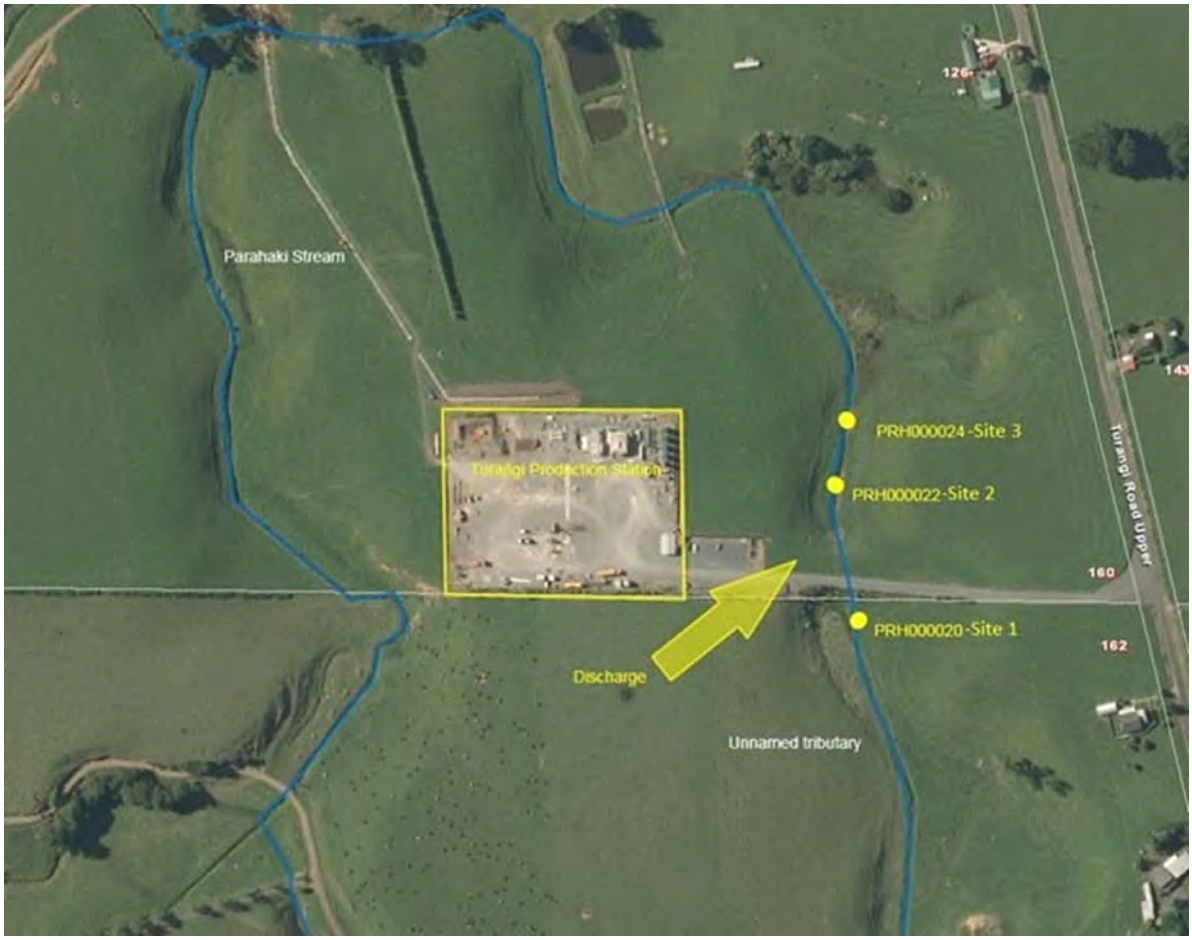

Figure 2 Biomonitoring sites in relation to the Turangi Production Station

Table 5 Biomonitoring sites in relation to the Turangi Production Station

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

The Council's 'vegetation sweep' and 'kick-sampling' techniques were used at three sites (Figure 2, Table 5) to collect macroinvertebrates from an unnamed tributary of the Parahaki Stream on 8 November 2021 and 25 February 2022. 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.

Spring survey - November 2021

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). Taxa

richness was moderate at the three sites surveyed in the unnamed tributary of the Parahaki Stream (17, 21 and 17 taxa at sites 1, 2 and 3 respectively). Taxa richness was higher than site medians at all three sites, and higher than that recorded in the previous survey. The macroinvertebrate communities at the three sites had higher proportions of 'tolerant' than 'sensitive' taxa (76%, 62% and 76% at sites 1, 2 and 3 respectively), which was typical for these sites. There was no evidence of any acute toxic discharges, which could dramatically lower taxa richness.

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. MCI scores categorised all three as having 'poor' macroinvertebrate community health. The MCI scores recorded at sites 1 and 3 were similar, while the score recorded at site 2 was significantly higher than both sites 1 and 3, by 11 and 13 units respectively. MCI scores were higher than the previous survey scores at all three sites, with sites 1 and 2 recording significantly higher scores. Additionally, site 2 recorded an MCI score equal to the highest score recorded for the site to date. MCI scores were also higher than site medians at all sites, although not significantly. Overall, these results suggest that discharges of stormwater and treated production water had not had any recent detrimental effects on macroinvertebrate communities.

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. SQMCI scores were 1.5, 3.3 and 2.8 units at sites 1-3 respectively. SQMCI scores indicated 'very poor' macroinvertebrate health at sites 1 and 3, and 'poor' health at site 2. The SQMCI scores recorded at sites 2 and 3 were not significantly different to one another, while the SQMCI score recorded at site 1 was significantly lower than the two downstream sites. This shift is likely due to subtle habitat differences between the sites, and is not atypical compared to previous surveys. SQMCI scores at sites 2 and 3 were both significantly higher than those recorded previously and to respective site medians. In contrast, site 1 recorded a score similar to the site's median, but significantly lower than the previous survey score.

Overall, when considered in the context of all three metrics, the results of the survey indicated that the discharges from the Turangi Production Station had not caused any recent detrimental impacts on the macroinvertebrate communities of the unnamed tributary of the Parahaki Stream.

Summer survey – February 2022

Taxa richness was moderately low at the three sites surveyed in the unnamed tributary of the Parahaki Stream. Macroinvertebrate communities had higher proportions of 'tolerant' than 'sensitive' taxa, which was typical for these sites. There was no evidence of any acute toxic discharges, which could dramatically lower taxa richness.

MCI scores categorised sites 1 and 2 as having 'very poor' macroinvertebrate community health and site 3 as having 'poor' health. The MCI scores recorded at sites 1 and 2 were similar, while the score recorded at site 3 was higher than those at sites 1 and 3, although not significantly. MCI scores were lower than the previous survey scores at all three sites, with sites 1 and 2 recording significantly lower scores. MCI scores were also lower than site medians at all sites, significantly at sites 1 and 2. These results may indicate that discharges upstream and unrelated to the Turangi Production Station may have impacted the macroinvertebrate communities, particularly at sites 1 and 2.

SQMCI scores indicated 'very poor' macroinvertebrate health at all three sites. The SQMCI scores recorded at sites 2 and 3 were not significantly different to one another, while the SQMCI score recorded at site 1 was significantly higher than the two downstream sites. This shift is likely due to subtle habitat differences

between the sites, including changes to the quantity and distribution of macrophytes at each site, substrate and to the 'patchiness' of macroinvertebrates on the streambed.

Overall, when considered in the context of all three metrics, the results of the survey indicated that the discharges from the Turangi Production Station had not caused any recent significant detrimental impacts on the macroinvertebrate communities of the unnamed tributary of the Parahaki Stream.

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

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 abstraction and discharge monitoring

2.2.2.1 Carbon monoxide and combustible gases

During the monitoring year, a multi-gas meter was deployed on one occasion in the vicinity of the plant. The deployment lasted approximately 48 hours, with the instrument placed in a down-wind position at the start of the deployment. Monitoring consisted of continuous measurements of gas concentrations for the gases of interest (carbon monoxide and combustible gases). The monitoring sites used in the year under review are shown in Figure 3.

Because of the nature of the activities on the site, it was considered that the primary information of interest in respect of gases potentially emitted from the site was the average downwind concentration, rather than any instantaneous peak value. That is, the long-term exposure levels, rather than short-term maxima, are of most interest. The gas meter was therefore set up to create a data set based on recording the average concentration measured during each minute as raw data. The details of the sample run are summarised in Table 6 and the data from the sample run are presented graphically in Figure 4.

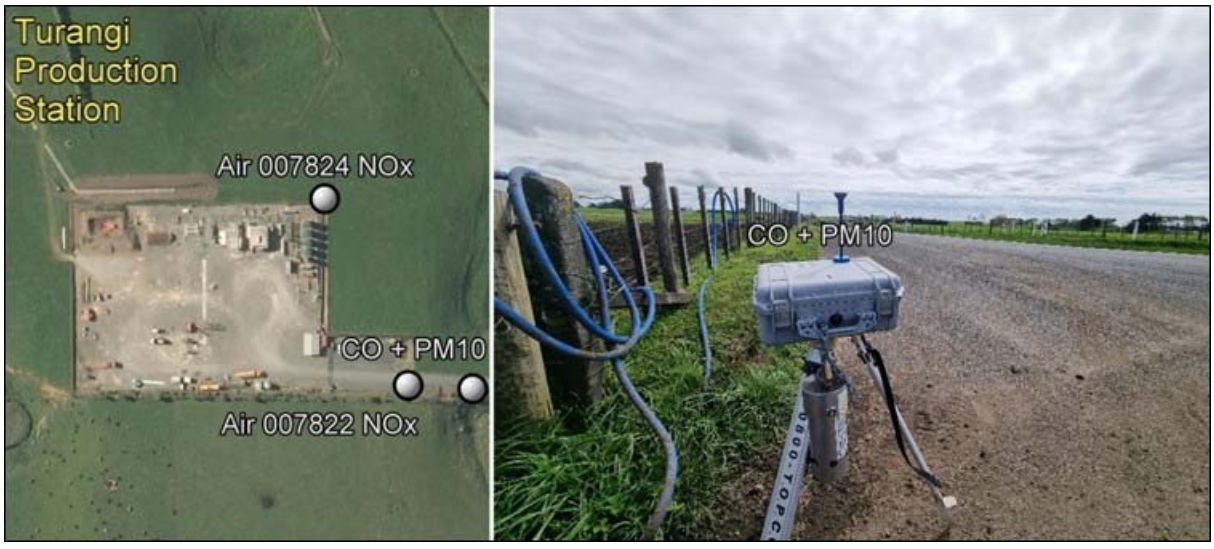

Figure 3 Air monitoring sites at Turangi Production Station for 2021-2022

The consent covering air discharges from the Turangi Production Station has specific limits related to particular gases. Special condition 18 of consent 6497-1 sets a limit on the carbon monoxide concentration at or beyond the production station's boundary. The limit is expressed as 10 mg/m^3 for an eight hour average or 30 mg/m^3 for a one hour average exposure. The maximum concentration of carbon monoxide

found during the monitoring run was 1.72 mg/m^3 while the average concentration for the entire dataset was 0.01 mg/m^3 which comply with consent conditions. This is consistent with the pattern found in previous years.

Lower Explosive Limit (LEL) gives the percentage of the lower explosive limit, expressed as methane that is detected in the air sampled. The sensor on the instrument reacts to gases and vapours such as acetone, benzene, butane, methane, propane, carbon monoxide, ethanol, and higher alkanes and alkenes, with varying degrees of sensitivity. The Council's Regional Air Quality Plan has a typical requirement that no discharge shall result in dangerous levels of airborne contaminants, including any risk of explosion. At no time did the level of explosive gases downwind of the Turangi Production Station reach any more than a trivial level.

Table 6 Results of carbon monoxide and LEL monitoring at Turangi Production Station

Period (from-to)		22 to 24 Oct 2021 (48 hours)
Max	CO(ppm)	1.50(1)
	LEL(%)	0.10
Mean	CO(ppm)	0.01(1)
	LEL(%)	0.00
Min	CO(ppm)	0.00
	LEL(%)	0.00

Notes: (1) the instrument records in units of ppm. At 25°C and 1 atm, 1ppm CO = 1.145 mg/m^3

(2) because the LEL of methane is equivalent to a mixture of approximately 5% methane in air, then the actual concentration of methane in air can be obtained by dividing the percentage LEL by 20.

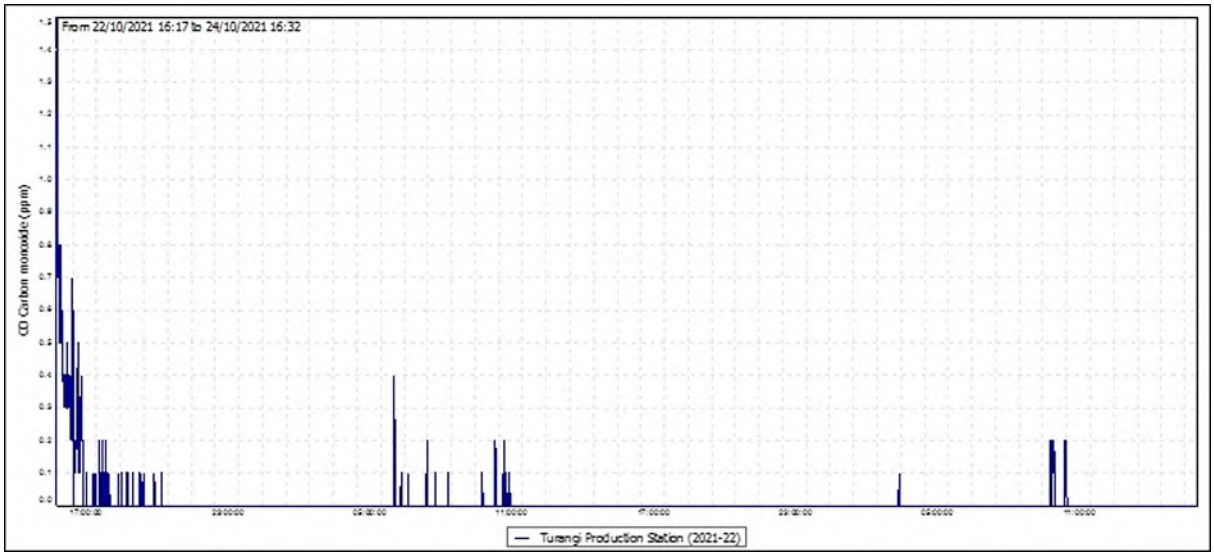

Figure 4 Ambient CO levels in the vicinity of Turangi Production Station

2.2.2.2 PM_{10} particulates

In September 2004 the Ministry for the Environment enacted National Environmental Standards (NESs) relating to certain air pollutants. The NES for PM_{10} particulates is 50 µg/m^3 (24 hour average).

Particulates can be derived from many sources, including motor vehicles (particularly diesel), solid and oil-burning processes for industry and power generation, incineration and waste burning, photochemical processes, and natural sources such as pollen, abrasion, and sea spray.

PM_{10} particles are linked to adverse health effects that arise primarily from the ability of particles of this size to penetrate the defences of the human body and enter deep into the lungs, significantly reducing the exchange of gases across the lung walls. Health effects from inhaling PM_{10} include increased mortality and the aggravation of existing respiratory and cardiovascular conditions such as asthma and chronic pulmonary diseases.

During the reporting period, a DustTrak PM_{10} monitor was deployed on one occasion in the vicinity of Turangi Production Station. The deployment lasted approximately 48 hours, with the instrument placed in a down-wind position at the start of the deployment. Monitoring consisted of continual measurements of PM10 concentrations. The location of the DustTrak monitor during the sampling run is shown in Figure 2. The results of the sample run are presented in Figure 5 and Table 7.

Table 7 Daily averages of PM_{10} results from monitoring at Turangi Production Station

	22 to 24 October 2020 (48 hours)	
24 hr. set	Day 1	Day 2
Daily average	17.0 µg/m³	6.1 µg/m³
NES	50µg/m³	

During the 48 hour run, from 22 to 24 October 2021, the average recorded PM_{10} concentration was 17.0 µg/m³ for the first 24 hour period, and 6.1 µg/m³ for the second. These daily averages equate to 34% and 12%, respectively, of the 50 µg/m³ value that is set by the NES. Background levels of PM_{10} in the region have been found to be typically around 11 µg/m³.

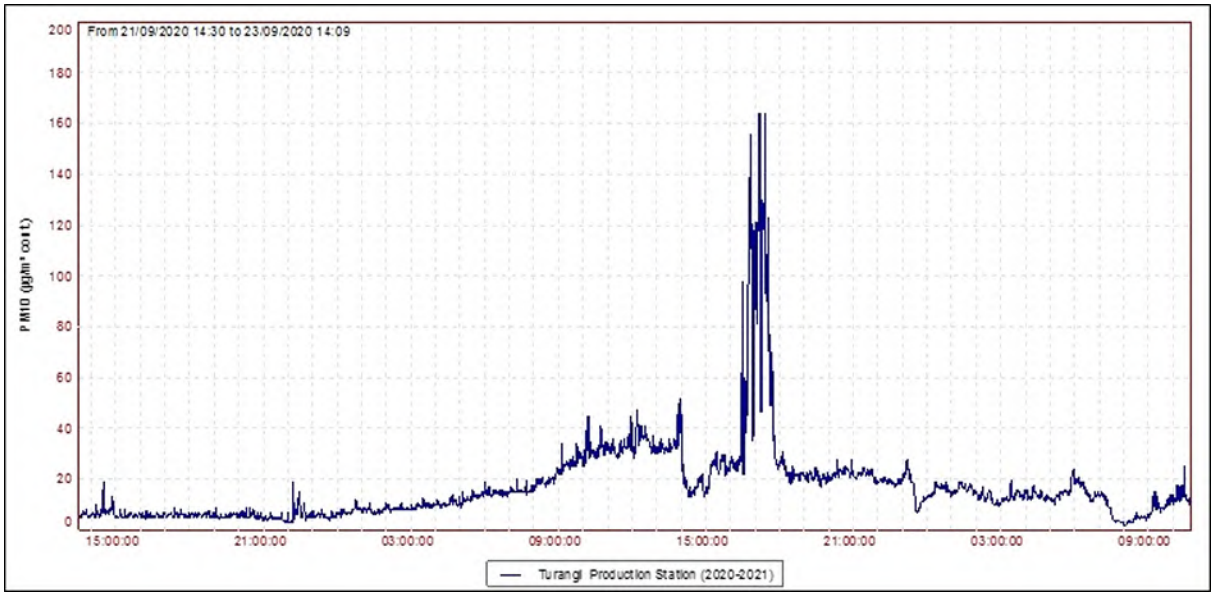

Figure 5 PM_{10} concentrations (µg/m³) at Turangi Production Station

2.2.2.3 Nitrogen oxides

From 2014 onwards, the Council implemented a coordinated region-wide compliance monitoring programme to measure nitrogen oxides (NOx). The programme involves deploying measuring devices at 24 NOx monitoring sites (including two sites in the vicinity of Turangi Production Station) on the same day,

with retrieval three weeks later. This approach assists the Council in further evaluating the effects of local and regional emission sources and ambient air quality in the region.

The consent covering air discharges from the Turangi Production Station has specific limits related to particular gases. Special condition 19 of consent 6497-1 sets a limit on the nitrogen dioxide concentration at or beyond the production station's boundary. The limit is expressed as 200 µg/m³ for a one hour average or 100 µg/m³ for a 24 hour average exposure.

NOx passive adsorption discs were placed at two locations in the vicinity of the Turangi Production Station on one occasion during the year under review. The discs were left in place for a period of 21 days. The calculated one hour and 24 hour theoretical maximum NOx concentrations found at Turangi Production Station during the year under review equate to 3.3 µg/m³ and 1.8 µg/m³, respectively. The results show that the ambient ground level concentration of NOx is well below the limits set out by consent 6497-1.

Copies of the full air reports are available from the Council upon request.

2.2.3 Summary of flaring volumes reported by the Company

At Turangi Production Station flaring occurred during most months (Figure 6), 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 235,800m³, a significant reduction compared to the volume flared during the 2020-2021 year of 299,797 m³.

The Turangi-B wellsite is connected to Turangi Production Station however flaring was undertaken at the wellsite in relation to well testing. There was no flaring at any of the other wellsites associated with the Turangi Production Station as these were either connected to the production station or not producing during the monitoring period.

The total volume of gas flared at the Kowhai-A Production Station during the period was approximately 32,750 m³. Flaring occurred intermittently during the monitoring period, with the higher amount flared in March 2022 during planned compressor servicing (Figure 7). 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 and no additional flaring occurred at any of these sites during the year.

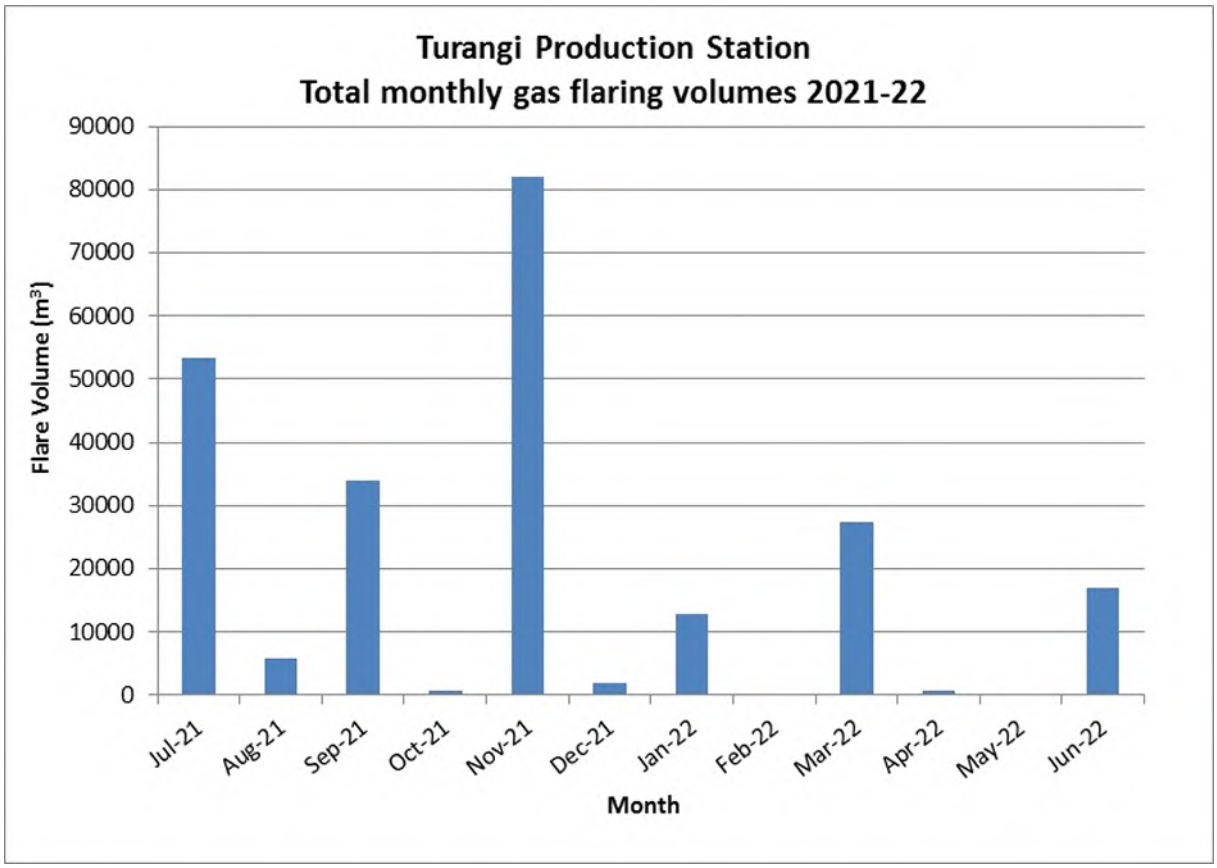

Figure 6 Summary of monthly gas flaring volumes at Turangi Production Station

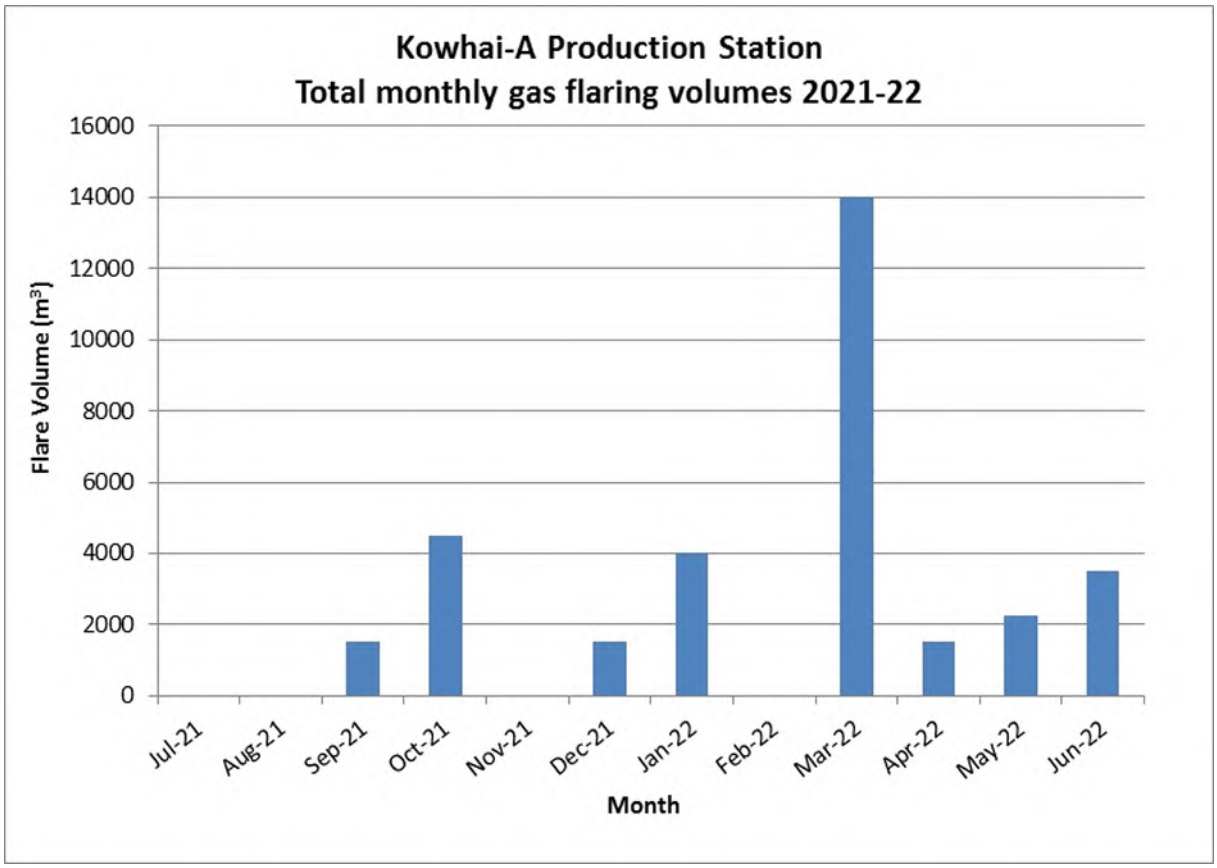

Figure 7 Summary of monthly gas flaring volumes at Kowhai-A Production Station

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).

Table 8 below sets out details of any incidents recorded, additional investigations, or interventions required by the Council in relation to the Company's activities during the 2021-2022 period. This table presents details of all events that required further investigation or intervention regardless of whether these were found to be compliant or not.

Table 8 Incidents, investigations, and interventions summary table

Date	Details	Compliant (Y/N)	Enforcement Action Taken?	Outcome
7 July 2021	Discharge of stormwater to water from Turangi-B wellsite. Also best practice not being followed with regards to bunding on site	N	Letter of explanation Subject of previous abatement notice	Adequate bunding has been installed at the site. The soakage has been increased and monitoring by both the Council and the Company have not no found any instances of discharge to water since. The abatement notice remains in place.

3 Discussion

3.1 Discussion of site performance

Turangi and Kowhai-A production stations

Monitoring of the Turangi and Kowhai-A production stations during the 2021-2022 year found that the sites were generally well managed. Some issues were noted at the Turangi Production Station with regards to bunding and spills around the rig.

Turangi-B wellsite

During the annual wellsite inspection on 12 March 2021, evidence was found that stormwater had been discharging directly to the stream from the Turangi-B wellsite. The purpose of consent 7853-1 allows for discharge to land only, and as such conditions have not been added that cover discharge to water. Initially the Company sent in an application to vary the consent to include '*may enter surface water',* however, due to various reasons, it was decided that increasing the soakage bed so that the discharge continued to go directly to land instead was preferable.

An abatement notice was issued near the end of the 2020-2021 monitoring period requiring works to be undertaken to ensure compliance with consent 7853-1. Works were undertaken to increase the volume of the soakage bed and so far monitoring by both the Company and Council have not found any instances of discharge to water since this was undertaken. It is considered that any effects of a discharge to water would be minor (i.e. any potential discharge would occur during heavy rain events when the stream would be in flood flow). The abatement notice remains in place while the situation continues to be monitored.

There were also issues with bunding at the site during the early part of 2021-2022, however work was undertaken by the Company to address this and further monitoring found adequate bunding had been installed.

3.2 Environmental effects of exercise of consents

Turangi Production Station

Site inspections found that the stormwater systems were constructed and maintained in accordance with consent conditions. 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, combustible gases, PM_{10} particulates, and nitrogen oxides were all 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 9-13.

Table 9 Summary of performance for consent 6497-1

Purpose: *To discharge emissions to air during flaring from well workovers and in emergency situations and miscellaneous emissions associated with production activities at the Turangi Road wellsite*		
Condition requirement	**Means of monitoring during period under review**	**Compliance achieved?**
1. Flare pit to be lined	Inspection	Yes
2. Flaring shall occur at the designated location	Inspection	Yes
3. Temporary flare pit to be removed upon completion of the new flare pit	Inspection	Yes
4. Notification to Council one month prior to production operations	Production operations commenced early 2006	N/A
5. Notification to neighbours 24 hrs prior to flaring & record of complaints	Inspection and liaison with consent holder	Yes
6. Notification to Council 24 hrs prior to flaring	Notifications received	Yes
7. No alterations without approval	Inspection and liaison with consent holder	Yes
8. Take into account wind speed & direction when flaring	Inspection and Company records	Yes
9. Effective separation to minimise smoke	Inspection and Company records	Yes
10. Notification to Council of ineffective separation	No incidents during year under review	N/A
11. No liquid or solid hydrocarbons flared	Inspection and liaison with consent holder	Yes
12. Only substances from well stream to be flared	Inspection and Company records	Yes
13. Adoption of the best practicable option	Inspection and liaison with consent holder	Yes
14. No hazardous/toxic/noxious contaminants beyond boundary	Inspection and air monitoring	Yes
15. No offensive odour or smoke beyond boundary	Inspection	Yes
16. Hydrocarbon storage vessels to have vapour recovery systems	Inspection	Yes
17. Specified opacity for smoke emissions	Not assessed	N/A
18. Control of carbon monoxide emissions	Air monitoring	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 Turangi Road wellsite*		
Condition requirement	**Means of monitoring during period under review**	**Compliance achieved?**
19. Control of nitrogen oxide emissions	Air monitoring	Yes
20. Control of emissions to achieve specified contaminant concentrations	Air monitoring	Yes
21. Keep & maintain record of smoke emitting incidents	Inspection and annual flaring report	Yes
22. Keep & maintain flaring log	Inspection and annual flaring report	Yes
23. Monthly flaring information supplied	Information received	Yes
24. Provision of annual flaring & air emissions report during May	Received	Yes
25. Analysis of typical gas and crude oil stream	Analysis not requested	N/A
26. Lapse provision	Consent exercised	N/A
27. Optional review provision	Consent expired in June 2021	N/A
Overall assessment of consent compliance and environmental performance in respect of this consent Overall assessment of administrative performance in respect of this consent		**High** **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 24 hrs prior to flaring & record of complaints	Inspection and liaison with consent holder	Yes
3. Notification to Council 24 hrs 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

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?**
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 Company records	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
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	N/A
Overall assessment of consent compliance and environmental performance in respect of this consent Overall assessment of administrative performance in respect of this consent		**High** **High**

N/A = not applicable

Table 11 Summary of performance for consent 7853-1

Purpose: *To discharge treated stormwater from hydrocarbon exploration and production operations at the Turangi-B wellsite onto and into land*		
Condition requirement	**Means of monitoring during period under review**	**Compliance achieved?**
1. Adoption of the best practicable option	Inspection and liaison with consent holder	**No**
2. Limit on stormwater catchment area	Inspection and liaison with consent holder	Yes
3. Notification to Council 24 hrs prior to site works and well operations	Notifications received	Yes
4. Maintain and regularly update a Contingency Plan for the site	Plan provided	Yes
5. Design, management and maintenance of stormwater system in accordance with application	Inspection and liaison with consent holder	**Not determined**
6. Discharge not to cause significant ponding or run off to water	Inspection	Yes
7. All discharges to flow to a perimeter drain and skimmer pit	Inspection	Yes
8. Skimmer pit capacity specifications	Inspection and liaison with consent holder	Yes
9. Skimmer pit to be lined with impervious material	Inspection and liaison with consent holder	Yes
10. Perimeter drains and skimmer pits to comply with consent conditions to be installed prior to commencement of site works	Inspection and liaison with consent holder	Yes
11. As-built plans to be provided prior to commencement of site works	Plans provided	Yes
12. Standards to be met in discharge	Not assessed	N/A
13. Notification of site works	Notification received	Yes
14. Review of consent	No further option for review prior to expiry	N/A
Overall assessment of consent compliance and environmental performance in respect of this consent Overall assessment of administrative performance in respect of this consent		**Improvement required** **High**

Table 12 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	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
14. 48 hrs 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		**High**
Overall assessment of administrative performance in respect of this consent		**High**

N/A = not applicable

Table 13 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	Yes
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	No site works or well drilling during the monitoring period	Yes
4. Approved contingency plan	Plan up-to-date	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 Overall assessment of administrative performance in respect of this consent		**High** **High**

N/A = not applicable

Table 14 Evaluation of environmental performance over time

Year	Consent no	High	Good	Improvement req	Poor
2009-10	6497-1	1		-	-
	6498-1	-	1	-	-
2010-11	6497-1, 6498-1	2	-	-	-
2011-12	6497-1	1	-	-	-
	6498-1	-	1	-	-
2012-14	6497-1	1	-	-	-
	6498-1	-	1	-	-
2014-15	6497-1	1	-	-	-
	6498-1, 9674-1	-	2	-	-
2015-16	6497-1, 6498-1, 9674-1	3	-	-	-
2016-17	6497-1, 6498-1, 9674-1	3	-	-	-
2017-18	6497-1, 6498-1, 9674-1	3	-	-	-
2018-19	6497-1, 6498-1, 6719-1, 9674-1, 10169-1, 10703-1	6	-	-	-
2019-20	6497-1, 6719-1, 10169-1, 10703-1	4	-	-	-
2021-22	6497-1, 6719-1, 10169-1, 10703-1	4	-	-	-
	7853-1	-	-	1	-
Totals		29	5	1	-

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

3.4 Recommendations from the 2020-2021 Annual Report

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

1. THAT in the first instance, monitoring of consented activities at the Turangi and Kowhai-A production stations and associated wellsites in the 2021-2022 year continue at the same level as in 2020-2021.
2. THAT should there be issues with environmental or administrative performance in 2021-2022, monitoring may be adjusted to reflect any additional investigation or intervention as found necessary.

These recommendations were implemented.

3.5 Alterations to monitoring programmes for 2022-2023

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

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

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

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

4 Recommendations

1. That in the first instance, monitoring of consented activities at Turangi and Kowhai-A production stations and associated wellsites in the 2022-2023 year continue at the same level as in 2021-2022.
2. That should there be issues with environmental or administrative performance in 2022-2023, monitoring may be adjusted to reflect any additional investigation or intervention as found necessary.

Glossary of common terms and abbreviations

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

Biomonitoring	Assessing the health of the environment using aquatic organisms.
Bund	A wall around a tank to contain its contents in the case of a leak.
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.
UI	Unauthorised Incident.

For further information on analytical methods, contact an Environmental Quality Manager.

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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:	Petrochem Limited P O Box 1394 Shortland Street 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 1/30th 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:	Greymouth Petroleum Limited P O Box 3394 NEW PLYMOUTH 4341
Decision Date (Change):	10 September 2013
Commencement Date (Change):	10 September 2013 (Granted: 7 December 2004)

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 Turangi Road wellsite
Expiry Date:	1 June 2021
Review Date(s):	June 2015
Site Location:	Turangi Production Station, Turangi Road, Motunui (Property owner: BA & JM McKenzie)
Legal Description:	Sec 21 Blk VI Waitara SD (Discharge source & site)
Grid Reference (NZTM)	1713792E-5681411N (temporary flare pit) 1713756E-5681440N

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. Flaring shall only occur over a pit, or similar containment area, lined with impermeable material that prevents any liquid from leaking through its base or sidewalls and discharging to land.

2. Flaring shall only occur within 20 metres of the location defined by NZTM:

- 1713792E-5681411N (temporary flare pit); and
- 1713756E-5681440N.

3. The temporary flare pit shall be removed and site reinstated following the completion of the permanent flare pit.

4. 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 Turangi Road wellsite.

5. 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.

6. 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.

7. 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

8. 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.

9. 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.

10. 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.

11. Subject to special conditions 9 and 10, no liquid or solid hydrocarbons shall be combusted through the gas flare system other than in an emergency.

12. Only substances originating from the well stream and treated as outlined by conditions 9, 10, 11 & 13 are to be combusted within the flare pit.

13. 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 Turangi Road 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.

14. 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.

15. 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.

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

17. 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.

18. 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.

19. 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 micrograms per cubic metre (24-hour average exposure), or 200 micrograms per cubic metre (1-hour average exposure) at or beyond the boundary of the wellsite, or beyond 100 metres from the flare, whichever distance is greater.

20. 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 1/30th 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

21. 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.

22. 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.

23. The consent holder shall supply to the Taranaki Regional Council each month a copy of flaring information comprising: the type and amount of material flared (including any gas used to maintain a pilot flame), the date this was flared, the reason why flaring was undertaken, and an indication of whether smoke was produced from such flaring events.

24. 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 21;
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.

25. 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

26. This consent shall lapse on the expiry of 16 years after the date of first 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.

27. 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.

Signed at Stratford on 10 September 2013

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 P O Box 1394 Shortland Street 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 1/30th 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

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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 Limited PO Box 3394 New Plymouth 4341	
Decision Date (Change):	8 September 2020	
Commencement Date (Change):	8 September 2020	(Granted Date: 16 June 2011)

Conditions of Consent

Consent Granted:	To discharge treated stormwater from hydrocarbon exploration and production operations at the Turangi-B wellsite onto and into land
Expiry Date:	1 June 2027
Review Date(s):	June 2021
Site Location:	Turangi-B wellsite, 42 Turangi Road Upper, Motunui (Property owner: RJ Topless)
Grid Reference (NZTM)	1713550E-5682540N
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 from a catchment area of no more than 1.91 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, production testing, well stimulation or well workover that may introduce contaminants to the site);
   b) commencement of any well operation; and
   c) recommencement of any site works or well 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 served by completing and submitting the 'Notification of Work' form on the Council website (http://bit.ly/TRCWorkNotificationForm).

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 and variation for this consent.

6. The discharge shall be applied at such a rate and over such an area of land that it infiltrates the soil and does not cause significant or prolonged ponding, or run off to water.

7. 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 and maintained, including by having a positive grade and low permeability, to ensure that runoff flows directly to a skimmer pit without ponding.

8. The skimmer pit system shall have a combined capacity of no less than 685 m^3, with dead storage (below the pond outlet) of 378 m^3, live storage (above the pond outlet) of 307 m^3, and be designed to retain any hydrocarbons that enter the system.

9. 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.

10. Perimeter drains and skimmer pits necessary to comply with the conditions of this consent shall be installed prior to the commencement of any of the new site works approved under this consent.

11. As-built plans signed by an appropriately qualified and experienced engineer shall be provided to the Chief Executive, Taranaki Regional Council, as confirmation that the skimmer pit system has been constructed in accordance with conditions 8 and 9, before the commencement of any site works.

    For the purpose of conditions 10 and 11, site works includes the introduction of a drilling rig, drilling equipment or any other associated equipment for the purpose of drilling, production testing, well stimulation or well workover that may introduce contaminants to the site.

12. The constituents in the discharge shall meet the standards shown in the following table.

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

    This condition shall apply before the entry of the treated stormwater into the receiving environment at a designated sampling point approved by the Chief Executive, Taranaki Regional Council.

13. No less than 2 and no more than 20 working days before commencing work the consent holder shall notify the Chief Executive, Taranaki Regional Council ('the Chief Executive'). Notification shall include the consent number, a brief description of the work, and the intended commencement date. Unless the Chief Executive advises that an alternative electronic 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).

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, 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 8 September 2020

For and on behalf of
Taranaki Regional Council

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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 PO Box 3394 Fitzroy 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 1713982E-5681378N 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

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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 PO Box 3394 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

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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.