

Todd Energy Ltd  
McKee Mangahewa Production Station  
Monitoring Programme  
Annual Report  
2019-2020

Technical Report 2020-78

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## Executive summary

Todd Energy Ltd (Todd Energy) operates a petroleum production station located on Otaraoa Road near Tikorangi, bridging the Waitara and Onaero catchments. The McKee and Mangahewa Production Station processes condensate and natural gas from Todd Energy's McKee and Mangahewa groups of wellsites and includes electricity cogeneration and LPG production facilities. This report for the period July 2019 to June 2020 describes the monitoring programme implemented by the Taranaki Regional Council (the Council) to assess Todd Energy'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 Todd Energy's activities.

Todd Energy holds ten resource consents, which include a total of 104 conditions setting out the requirements that Todd Energy must satisfy. Todd Energy holds one consent to allow for the take and use of water, three consents to discharge stormwater and wastewater, three consents to discharge emissions into the air, one consent to allow the diversion of unnamed tributaries of the Mangahewa Stream, and two consents regarding the installation and use of structures.

### **During the monitoring period, Todd Energy Ltd demonstrated an overall high level of environmental performance.**

The Council's monitoring programme for the year under review included five inspections of the production station and one inspection of associated wellsites, six stream sediment samples collected for physicochemical analysis, two biomonitoring surveys of receiving waters, and two ambient air quality surveys. Todd Energy provided results of impounded stormwater samples and information on flaring and various water abstractions through the year.

Stormwater system inspections showed that discharges from the sites complied with consent conditions at the time.

The results of biomonitoring carried out in the Mangahewa Stream, together with the pattern of low taxa richness at site 2 observed for nine consecutive surveys indicate that the macroinvertebrate communities are likely experiencing detrimental impacts downstream of the McKee Production Station, which are primarily expressed through reduced macroinvertebrate diversity. Residual hydrocarbon contamination of sediments was proposed as a potential cause for this and Todd Energy commissioned an investigation into the contamination. Initial conclusions are that the residual contamination is a result of a prior event (rather than current activities at the site) and that periodic stream bank erosion is releasing hydrocarbons. Todd Energy have undertaken to fence and plant approximately 100 m of bank upstream of the site with the goal of stopping erosion and in turn minimising the release of contaminants.

There were no adverse effects on the environment resulting from the exercise of the air discharge consents. The ambient air quality monitoring at the production station showed that levels of carbon monoxide, combustible gases, PM<sub>10</sub> 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.

During the year, Todd Energy demonstrated an overall high level of both environmental performance and administrative compliance with the resource consents. There was one unauthorised incident recorded by the Council in relation to Todd Energy's activities, with no significant adverse effects observed.

For reference, in the 2019-2020 year, consent holders were found to achieve a high level of environmental performance and compliance for 81% of the consents monitored through the Taranaki tailored monitoring programmes, while for another 17% of the consents, a good level of environmental performance and compliance was achieved.

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

This report includes recommendations for the 2020-2021 year, including a recommendation relating to an optional review of consents 7435-1, 4006-2, 4050-3, 7290-1, and 7436-1.

## Table of contents

		Page
1	Introduction	1
1.1	Compliance monitoring programme reports and the Resource Management Act 1991	1
1.1.1	Introduction	1
1.1.2	Structure of this report	1
1.1.3	The Resource Management Act 1991 and monitoring	1
1.1.4	Evaluation of environmental and administrative performance	2
1.2	Process description	3
1.3	Resource consents	4
1.3.1	MMPS	4
1.3.2	Wellsite consents	5
1.4	Monitoring programme	10
1.4.1	Introduction	10
1.4.2	Programme liaison and management	10
1.4.3	Site inspections	10
1.4.4	Chemical sampling	10
1.4.5	Biomonitoring surveys	11
2	Results	12
2.1	Water	12
2.1.1	Inspections	12
2.1.2	Results of a discharge monitoring	12
2.1.2.1	Discharge to the Mangahewa Stream from MMPS	13
2.1.2.2	Discharge to the Waitara River	13
2.1.3	Results of receiving environment monitoring	14
2.1.3.1	Chemical	14
2.1.3.2	Biomonitoring	16
2.1.4	Summary of water abstractions reported by Todd Energy	16
2.2	Air	19
2.2.1	Inspections	19
2.2.2	Results of receiving environment monitoring	19
2.2.2.1	Carbon monoxide and combustible gases	19
2.2.2.2	PM <sub>10</sub>	21
2.2.2.3	Nitrogen oxides	22

2.2.3	Summary of flaring and fuel use reported by Todd Energy	22
2.3	Incidents, investigations, and interventions	23
3	Discussion	25
3.1	Discussion of site performance	25
3.2	Environmental effects of exercise of consents	25
3.3	Evaluation of performance	25
3.4	Recommendations from the 2018-2019 Annual Report	35
3.5	Alterations to monitoring programmes for 2020-2021	35
3.6	Exercise of optional review of consent	35
4	Recommendations	36
	Glossary of common terms and abbreviations	37
	Bibliography and references	39
	Appendix I Resource consents held by Todd Energy Ltd	

## List of tables

Table 1	Resource consents held by Todd Energy in relation to MMPS	4
Table 2	Consents for production activities at wellsites associated with MMPS	5
Table 3	Monitoring results for MMPS stormwater discharge to Mangahewa Stream (site STW001119)	13
Table 4	Monitoring results for stormwater discharge to the Waitara River (site STW002007)	13
Table 5	Todd Energy self-monitoring results (grab samples) for stormwater discharge to the Waitara River	14
Table 6	Receiving environment results for Mangahewa Stream in relation to MMPS	14
Table 7	Soft sediment sampling of the Mangahewa Stream for hydrocarbons 2011-2020	15
Table 8	Results of carbon monoxide and LEL monitoring at MMPS	20
Table 9	Daily mean of PM <sub>10</sub> results during two days' monitoring at MMPS	21
Table 10	Incidents, investigations, and interventions summary table	24
Table 11	Summary of performance for consent 1157-1	26
Table 12	Summary of performance for consent 1158-1	26
Table 13	Summary of performance for consent 1159-1	27
Table 14	Summary of performance for consent 1226-1	28
Table 15	Summary of performance for consent 1227-1	29
Table 16	Summary of performance for consent 4006-2	29
Table 17	Summary of performance for consent 4050-3	30

Table 18	Summary of performance for consent 7290-1	31
Table 19	Summary of performance for consent 7435-1	32
Table 20	Summary of performance for consent 7436-1	33
Table 21	Evaluation of environmental performance over time	34

## List of figures

Figure 1	Location of MMPS	4
Figure 2	Sampling sites relating to MMPS	12
Figure 3	Daily water abstraction volumes for MMPS under consent 1226-1	17
Figure 4	Daily groundwater abstraction volumes for Mangahewa-C under consent 9594-1	17
Figure 5	Daily groundwater abstraction volumes for Mangahewa-D under consent 9903-1	18
Figure 6	Daily water abstraction volumes for Mangahewa-G Wyatt Dam under consent 10564-1	18
Figure 7	Air monitoring sites at MMPS	19
Figure 8	Ambient CO levels in the vicinity of MMPS	20
Figure 9	PM <sub>10</sub> concentrations ( $\mu\text{g}/\text{m}^3$ ) at MMPS	21
Figure 10	Monthly natural gas flaring and fuel use for MMPS under consent 4050-3	22
Figure 11	Monthly flaring volumes for McKee LPG Plant under consent 7436-1	23

## List of photos

Photo 1	MMPS	9
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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 2019 to June 2020 by the Taranaki Regional Council (the Council) on the monitoring programme associated with resource consents held by Todd Energy Limited (Todd Energy). Todd Energy operates the McKee and Mangahewa Production Station (MMPS) on Otaraoa Road at Tikorangi, bridging the Waitara and Onaero catchments.

The report includes the results and findings of the monitoring programme implemented by the Council in respect of the consents held by Todd Energy that relate to abstractions and discharges of water within the Waitara and Onaero catchments, and the air discharge permits to cover emissions to air from the site.

One of the intents of the *Resource Management Act 1991* (RMA) is that environmental management should be integrated across all media, so that a consent holder's use of water, air, and land should be considered from a single comprehensive environmental perspective. Accordingly, the Council generally implements integrated environmental monitoring programmes and reports the results of the programmes jointly. This report discusses the environmental effects of Todd Energy's use of water, land and air, and is the 30<sup>th</sup> combined annual report by the Council for the MMPS.

### 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 and the Council's obligations;
- the Council's approach to monitoring sites through annual programmes;
- the resource consents held by Todd Energy in the Waitara and Onaero 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 MMPS.

**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 2020-2021 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' inasmuch 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 and administrative performance

Besides discussing the various details of the performance and extent of compliance by the Company, this report also assigns them a rating for their environmental and administrative performance during the period under review.

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.

For reference, in the 2019-2020 year, consent holders were found to achieve a high level of environmental performance and compliance for 81% of the consents monitored through the Taranaki tailored monitoring programmes, while for another 17% of the consents, a good level of environmental performance and compliance was achieved.<sup>1</sup>

## 1.2 Process description

The MMPS is situated on Otaraoa Road, near Tikorangi and was commissioned in November 1984. It receives and processes condensate and gas from a number of wellsites within the area. Production facilities for the Mangahewa group of wellsites came on-stream in September 2001. The surrounding land is predominantly used for dry stock farming.

Raw product from the wellsites is separated into natural gas and condensate. Pipelines are used to transport the condensate to the Omata tank farm in New Plymouth, and natural gas to the national grid or local users. Produced water is a by-product of the process and this is deep well injected. All uncontaminated stormwater from MMPS passes through an interceptor system and discharges to the Mangahewa Stream. Treated impounded stormwater is discharged to the Waitara River.

A natural gas powered electricity generation plant (EGP), comprised of three generation units, capable of producing a total of up to 9.1 MW of electricity, was commissioned early in 2009. During the 2012-2014

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<sup>1</sup> The Council has used these compliance grading criteria for 15 years. They align closely with the 4 compliance grades in the MfE Best Practice Guidelines for Compliance, Monitoring and Enforcement, 2018

monitoring period, an adjoining LPG plant was completed and commissioned in the southern corner of the site.

The location of MMPS is shown in Figure 1.

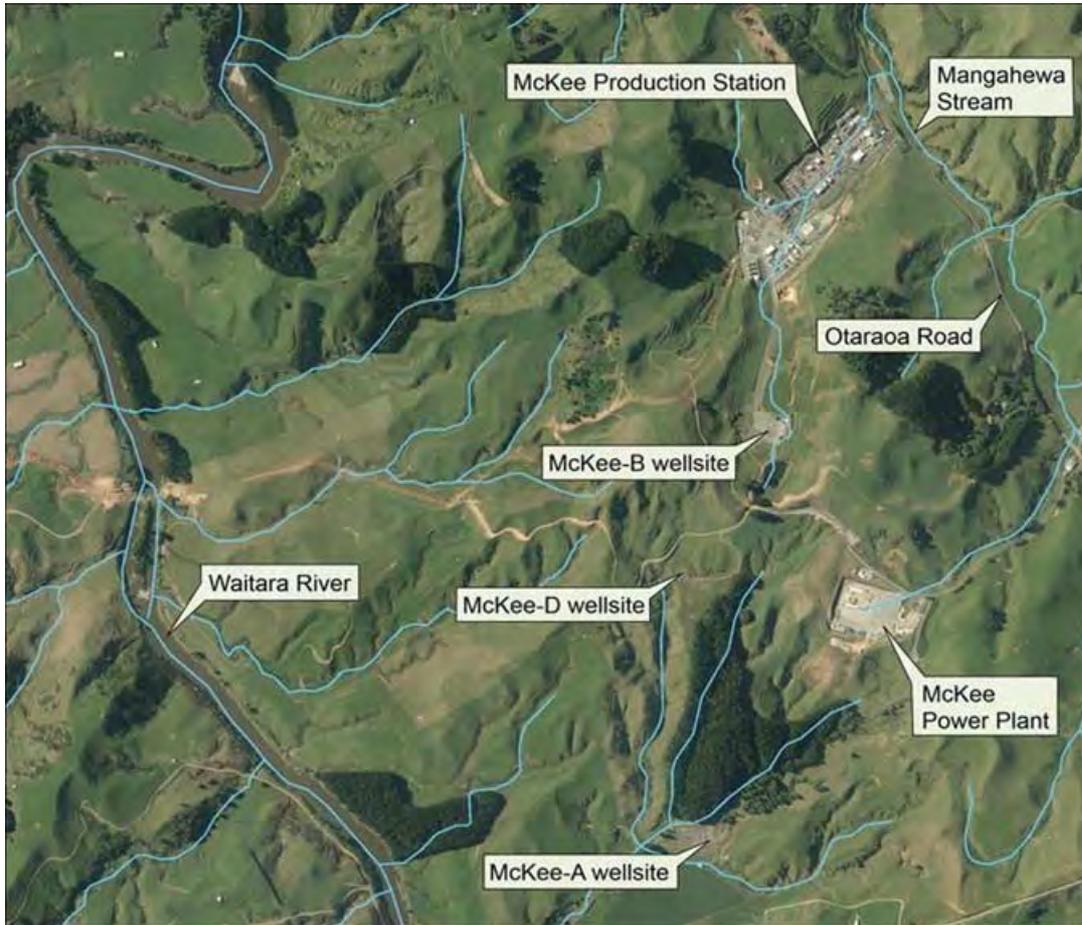


Figure 1 Location of MMPS

## 1.3 Resource consents

### 1.3.1 MMPS

Todd Energy holds ten resource consents in relation to activities at the MMPS, the details of which are summarised in Table 1 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 Todd Energy during the period under review.

Table 1 Resource consents held by Todd Energy in relation to MMPS

Consent number	Purpose	Granted	Review	Expires
<i>Water abstraction permit</i>				
1226-1	To take water from the Mangahewa Stream for process, fire-fighting and domestic purposes associated with operation of the MMPS	March 1984	-	June 2023

Consent number	Purpose	Granted	Review	Expires
<i>Water discharge permits</i>				
1157-1	To discharge uncontaminated stormwater from the site of the MMPS into an unnamed tributary of the Mangahewa Stream	Sept 1983	-	June 2023
1158-1	To discharge treated impounded stormwater from the site of the MMPS into the Waitara River	Sept 1983	-	June 2023
1159-1	To divert unnamed tributaries of the Mangahewa Stream in the vicinity of the MMPS, and to discharge surface water run-off from adjacent land into the Mangahewa Stream, to permit construction and operation of the said facility	Sept 1983	-	June 2023
7435-1	To discharge stormwater into an unnamed tributary of the Mangahewa Stream in the Onaero catchment from a LPG Plant	July 2009	June 2021	June 2039
<i>Land use permits</i>				
1227-1	To construct a weir control for the MMPS water intake on the Mangahewa Stream in the Onaero catchment	March 1984	-	June 2023
4006-2	To erect, place and maintain a bridge over the Waitara River for oil field access purposes	July 1999	June 2021	June 2023
<i>Air discharge permits</i>				
4050-3	To discharge emissions into the air arising from the flaring of hydrocarbons associated with production activities at the McKee-C wellsite and from hydrocarbon processing operations and miscellaneous emissions at the MMPS	Sept 2009	June 2021	June 2027
7290-1	To discharge emissions into the air from natural gas combustion and other related activities associated with the operation of an electricity generation plant at the MMPS	June 2008	June 2021	June 2027
7436-1	To discharge emissions to air from the flaring of natural gas in emergency situations and miscellaneous emissions associated with the treatment of gas at the McKee LPG Plant and the Mangahewa Extraction Train 2 (MET2)	July 2009	June 2021	June 2039

### 1.3.2 Wellsite consents

Todd Energy also holds consents for production activities at wellsites associated with MMPS. A summary of these consents is provided in Table 2.

Table 2 Consents for production activities at wellsites associated with MMPS

Wellsite	Consent number	Purpose	Issue date	Expiry
Makara-B	4883-2	To discharge treated stormwater and treated produced water from the Makara-B wellsite into an unnamed tributary of the Manganone Stream in the Waitara catchment	May 2009	June 2027
	4884-2	To discharge emissions into the air from hydrocarbon exploration and production testing operations and miscellaneous emissions associated with eight wells at the Makara-B wellsite	April 2005	June 2021

Wellsite	Consent number	Purpose	Issue date	Expiry
Mangahewa-A	4919-2	To discharge treated stormwater from hydrocarbon exploration and production operations at the Mangahewa-A wellsite onto and into land and into an unnamed tributary of the Waitara River	Oct 2000	June 2021
	4920-3	To discharge emissions to air during flaring from well workovers and in emergency situations and miscellaneous emissions associated with production activities at the Mangahewa-A wellsite	August 2008	June 2021
Mangahewa-C	6967-1	To discharge treated stormwater and treated produced water from hydrocarbon exploration and production operations at the Mangahewa-3 wellsite onto and into land in the vicinity of an unnamed tributary of the Waiau Stream	Oct 2006	June 2021
Mangahewa-C	6974-1	To discharge emissions to air during flaring from well workovers and in emergency situations and miscellaneous emissions associated with production activities at the Mangahewa-3 wellsite	Oct 2006	June 2021
	7180-1	To discharge water containing contaminants from the hydrotesting of pipelines onto and into land at the Mangahewa-3 wellsite	Dec 2007	June 2021
	9594-1	To take and use groundwater for water supply purposes associated with hydrocarbon exploration and production activities	June 2013	June 2027
Mangahewa-D	7404-1	To take water from the Manganui River for wellsite and well drilling activities during hydrocarbon exploration and production operations at the Mangahewa-D wellsite	Nov 2008	June 2021
	7405-1	To discharge emissions to air during flaring from well workovers and in emergency situations, and to discharge miscellaneous emissions associated with production activities at the Mangahewa-D wellsite	February 2009	June 2027
	7407-1	To discharge treated stormwater, treated produced water and surplus drill water from hydrocarbon exploration and production operations at the Mangahewa-D wellsite onto and into land in the vicinity of an unnamed tributary of the Manganui River in the Waitara catchment	Nov 2008	June 2027
	9903-1	To take and use groundwater from a bore for general water supply purposes at the Mangahewa-D wellsite	May 2014	June 2033
Mangahewa-E	9453-1	To discharge treated stormwater and produced water from hydrocarbon exploration and production operations at the Mangahewa-E wellsite, onto land and into an unnamed tributary of the Waiau Stream	February 2013	June 2027
	9455-1	To discharge emissions to air associated with hydrocarbon producing wells at the Mangahewa-E wellsite	January 2013	June 2027

Wellsite	Consent number	Purpose	Issue date	Expiry
Mangahewa-G	10021-1	To discharge emissions to air associated with hydrocarbon producing wells at the Mangahewa-G wellsite	Dec 2014	June 2033
	10022-1	To discharge treated stormwater from hydrocarbon exploration and production operations at the Mangahewa-G wellsite, into an unnamed tributary of the Mangahewa Stream	January 2015	June 2033
	10026-1	To take and use water from a spring fed pond on an unnamed tributary of the Mangahewa Stream for hydrocarbon exploration activities at the Mangahewa-G wellsite	Nov 2014	June 2020
	10564-1	To take and use water from a dam on an unnamed tributary of the Mangahewa Stream for hydrocarbon exploration activities at the Mangahewa-G wellsite	April 2018	June 2033
McKee-A	3666-2	To discharge treated stormwater, uncontaminated treated site water and uncontaminated treated production water from hydrocarbon exploration and production operations at the McKee-A wellsite onto and into land and into an unnamed tributary in the Waitara catchment	April 2003	June 2033
McKee-B	3667-2	To discharge treated stormwater, uncontaminated treated site water and uncontaminated treated production water from hydrocarbon exploration and production activities at the McKee-B wellsite onto and into land and into an unnamed tributary of the Mangahewa Stream in the Onaero catchment	April 2003	June 2033
	7462-1	To discharge emissions into the air during flaring from well workovers and in emergency situations and miscellaneous emissions associated with production activities at the McKee-B wellsite	April 2009	June 2027
McKee-C	3668-2	To discharge treated stormwater, uncontaminated treated site water and uncontaminated treated production water from hydrocarbon exploration and production operations and electricity generation operations and associated activities at the McKee-C wellsite onto and into land and into an unnamed tributary of the Mangahewa Stream in the Onaero catchment	April 2003	June 2033
McKee-D	3669-2	To discharge treated stormwater, uncontaminated treated site water and uncontaminated treated production water from hydrocarbon exploration and production operations at the McKee-D wellsite onto and into land and into an unnamed tributary in the Waitara catchment	April 2003	June 2033
McKee-E	4626-2	To discharge treated stormwater and treated produced water from the McKee-E wellsite into the Mangahewa Stream in the Onaero catchment	May 2009	June 2027

Wellsite	Consent number	Purpose	Issue date	Expiry
Mystone-A	4388-2	To discharge treated stormwater and treated produced water from hydrocarbon exploration and production operations at the Mystone-A wellsite onto and into land within the vicinity of an unnamed tributary of the Mangaone Stream in the Waitara catchment	May 2009	June 2027
	7455-1	To take water from the Manganui River for wellsite and well drilling activities during hydrocarbon exploration and production operations at the Mystone-A wellsite	March 2009	June 2021
	7459-1	To discharge emissions to air during flaring from well workovers and in emergency situations and miscellaneous emissions associated with production activities at the Mystone-A wellsite	March 2009	June 2027
Pouri-A	3671-2	To discharge treated stormwater, uncontaminated treated site water and uncontaminated treated production water from hydrocarbon exploration and production operations at the Pouri-A wellsite onto and into land and into an unnamed tributary of the Mangahewa Stream in the Onaero catchment	Sept 2003	June 2033
Pukemai-A	3670-2	To discharge treated stormwater, uncontaminated treated site water and uncontaminated treated production water from hydrocarbon exploration and production activities at the Pukemai-A wellsite onto and into land and into the Pukemai Stream in the Onaero catchment	April 2003	June 2033
Toetoe-A	3676-2	To discharge treated stormwater, uncontaminated treated site water and uncontaminated treated production water from hydrocarbon exploration and production operations at the Toetoe-A wellsite onto and into land and into the Mangaone Stream in the Waitara catchment	April 2003	June 2033
Toetoe-B	3677-2	To discharge treated stormwater, uncontaminated treated site water and uncontaminated treated production water from hydrocarbon exploration and production activities at the Toetoe-B wellsite onto and into land and into an unnamed tributary of the Mangaone Stream in the Waitara catchment	April 2003	June 2033
Tuhua-A	3672-2	To discharge treated stormwater, uncontaminated treated site water and uncontaminated treated production water from hydrocarbon exploration and production activities at the Tuhua-A wellsite onto and into land and into the Pouri Stream in the Onaero catchment	April 2003	June 2033
Tuhua-B	3673-2	To discharge treated stormwater, uncontaminated treated site water and uncontaminated treated production water from hydrocarbon exploration and production activities at the Tuhua-B wellsite onto and into land and into the Pouri and Pukemai Streams in the Onaero catchment	April 2003	June 2033

Wellsite	Consent number	Purpose	Issue date	Expiry
Tuhua-C	3674-2	To discharge treated stormwater, uncontaminated treated site water and uncontaminated treated production water from hydrocarbon exploration and production activities at the Tuhua-C wellsite onto and into land and into an unnamed tributary of the Pouri Stream in the Onaero catchment	April 2003	June 2033
Tuhua-D	3675-2	To discharge treated stormwater, uncontaminated treated site water and uncontaminated treated production water from hydrocarbon exploration and production operations at the Tuhua-D wellsite onto and into land and into the Pouri and Pukemai Streams in the Onaero catchment	April 2003	June 2033
Tuhua-E	4440-2	To discharge emissions into the air from the flaring of hydrocarbons and miscellaneous emissions associated with (a) hydrocarbon exploration and production testing operations and (b) emissions from production at the Tuhua-E wellsite	April 2003	June 2021



Photo 1 MMPS

## 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 MMPS site 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

Five inspections of the MMPS and one inspection of associated wellsites were carried out during the monitoring period. With regard to consents for the abstraction of or discharge to water, the main points of interest were plant processes with potential or actual discharges to receiving watercourses, including contaminated stormwater and process wastewaters. Air inspections focused on plant processes with associated actual and potential emission sources and characteristics, including potential odour, dust, noxious or offensive emissions. Sources of data being collected by Todd Energy 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

The Council undertook sampling of the discharges from the MMPS and the water quality of the receiving waters of the Mangahewa Stream.

The MMPS discharge to the Mangahewa Stream was sampled four times, and the samples analysed for chlorides, conductivity, hydrocarbons, pH and suspended solids.

The Mangahewa Stream sites were sampled concurrently, and the samples analysed for chlorides, conductivity, hydrocarbons, pH, suspended solids and turbidity.

The impounded stormwater which is discharged to the Waitara River was sampled twice, and the samples analysed for chlorides, conductivity, hydrocarbons, pH and suspended solids.

The Council undertook sampling of the ambient air quality outside the boundary of the site. 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<sub>10</sub> particulate monitor was deployed concurrently with the multi-gas meter. Two nitrogen oxide

measuring devices were also deployed in the vicinity of the plant on one occasion during the year under review.

#### 1.4.5 Biomonitoring surveys

Biological surveys were performed on two occasions in the Mangahewa Stream to determine whether or not the discharge of stormwater from the MMPS has had a detrimental effect upon the communities of the stream. Soft sediment samples were taken concurrently from three sites and analysed for hydrocarbons.

## 2 Results

### 2.1 Water

#### 2.1.1 Inspections

Five inspections of the MMPS and one inspection of associated wellsites were undertaken during the period under review.

The MMPS site was found to be clean and tidy, with no significant issues noted during the inspections on 19 August 2019 and 18 September 2019, and 20 May and 24 June 2020.

An annual inspection of the well sites associated with McKee Production Station was carried out on 25 October 2019. Well sites inspected were Pouri-A, Mystone-A, Mangahewa-A, B, C, D, and E, McKee-A, B, C, D, and E, Tuhua-A, B, C, and D, Pukemai, Toetoe-A, and B and Te Kiri North. Makara-B was not inspected, nor was Mangahewa-G (this site had been monitored heavily over the preceding 12 months). In general, the sites were tidy and clean with minimal activity occurring. At Mangahewa-C it was noted that stormwater was escaping the system at the western corner of the original site and the consent holder was advised that works would be required to ensure all stormwater was directed to the skimmer pits. At McKee-A it was observed that the site needed to be raised at the entrance area to ensure that stormwater and any spills from tankers would be directed to the skimmer pits. At Mangahewa-D stormwater running off the land around the flare pit was observed to be flowing offsite and not to the skimmer pits.

During the inspection undertaken at the MMPS on 5 May 2020 a sheen was noted around machinery next to the waste oil retention pond/stormwater separator. Further investigation found oil was sitting in a stormwater sump and was also discharging to an onsite drain which flowed to the Mangahewa Stream. An inspection of the Mangahewa Stream found that a light hydrocarbon sheen was entering from the 'Sampling Point 2' discharge pipe. An immediate clean up and spill response operation was initiated by Todd staff, with hydrocarbon removed from the sump and spill equipment deployed. This is discussed further in section 2.3 below.

#### 2.1.2 Results of a discharge monitoring



Figure 2 Sampling sites relating to MMPS

General stormwater from the MMPS is discharged to the Mangahewa Stream via two pipes (sampled at STW001119). Impounded stormwater, from within banded areas, filters through a treatment system prior to discharge to the Waitara River (sampled at STW002007). Discharges and related stream sampling sites are shown in Figure 2.

### 2.1.2.1 Discharge to the Mangahewa Stream from MMPS

Water quality sampling of the discharge to the Mangahewa Stream was undertaken four times during the 2018-2019 period. Table 3 presents the results of this sampling.

Table 3 Monitoring results for MMPS stormwater discharge to Mangahewa Stream (site STW001119)

Parameter	Units	23 Aug 2019	27 Aug 2019	18 Sep 2019	25 May 2019	Consent 7435-1 limits
Chloride	g/m <sup>3</sup>	7	10	10	8.3	50
Conductivity @25°C	mS/m	9.7	15.1	17.5	11.1	-
Hydrocarbons	g/m <sup>3</sup>	< 0.7	< 0.7	< 0.7	< 0.7	15
pH		7.1	7.3	7.3	7.4	6.0 – 9.0
Suspended solids	g/m <sup>3</sup>	< 3	< 3	4	< 3	100
Temperature	Deg.C	11.3	-	14.4	15.2	-

The results are indicative of a clean stormwater discharge at the time of sampling, with parameters well below the limits imposed by consent 7435-1.

### 2.1.2.2 Discharge to the Waitara River

Water quality sampling of the impounded stormwater which is discharged to the Waitara River was undertaken twice during the 2019-2020 period. Table 4 presents the results of this sampling.

Table 4 Monitoring results for stormwater discharge to the Waitara River (site STW002007)

Parameter	Units	23 August 2019	25 May 2020	Consent 1158-1 limits
Chloride	g/m <sup>3</sup>	20	5	-
Conductivity@25°C	mS/m	13.3	4.5	-
Hydrocarbons	g/m <sup>3</sup>	0.8	< 0.7	90% <10, 10% <20
pH		7.0	7.1	6.5 - 85
Suspended solids	g/m <sup>3</sup>	6	12	30
Temperature	Deg.C	11.5	16.0	<20

The results are again indicative of clean stormwater at the time of sampling, with parameters well below the limits imposed by consent 1158-1.

Todd Energy collected regular samples of the impounded stormwater which is discharged to the Waitara River. A selection of results provided are presented in Table 5 below. The results are indicative only in relation to conditions of consent 1158 as the consent limits are given for 24 hour flow-proportioned composite samples (not grab samples). Hydrocarbons and pH showed compliance with consented limits in all samples. Suspended solids were above the consent limit of 30 g/m<sup>3</sup> in three of the samples. However, the current standard limit for grab samples is 100 g/m<sup>3</sup>, which was not exceeded. These levels would have been unlikely to have had an impact on the water quality of the Waitara River due to the massive dilution involved and the already elevated sediment levels in the receiving waters.

Table 5 Todd Energy self-monitoring results (grab samples) for stormwater discharge to the Waitara River

Date	pH	Hydrocarbons g/m <sup>3</sup>	Suspended solids g/m <sup>3</sup>
11 September 2019	6.9	< 2	26
24 October 2019	7.3	< 2	77
13 November 2019	7.4	< 2	41
24 December 2019	7.1	< 2	39
15 January 2020	7.1	< 2	20
29 January 2020	7.2		3
12 March 2020	7.3	< 2	4
8 April 2020	7.1	< 2	2
3 June 2020	7.3	< 2	5
23 June 2020	7.5	< 2	3
Consent limit*	6.5 – 8.5	<10 (90%) or <20 (10%)	30

\* Consent limit is for 24 hour flow-proportioned composite samples

## 2.1.3 Results of receiving environment monitoring

### 2.1.3.1 Chemical

#### Water quality

Water quality sampling of the Mangahewa Stream was undertaken in conjunction with stormwater discharge sampling. The results for upstream site MHW000060 and downstream site MWH000065 are presented in Table 6.

Table 6 Receiving environment results for Mangahewa Stream in relation to MMPS

Parameter	Units	23 Aug 2019		27 Aug 2019		18 Sep 2019		25 May 2020	
		u/s	d/s	u/s	d/s	u/s	d/s	u/s	d/s
Chloride	g/m <sup>3</sup>	9	9	10	10	10	10	9	9
Conductivity@25°C	mS/m	8.8	9.4	9.3	9.7	9.7	10.3	9.4	9.8
Hydrocarbons	g/m <sup>3</sup>	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7
pH		7.0	7.1	7.3	7.4	7.3	7.4	7.0	7.0
Suspended solids	g/m <sup>3</sup>	< 3	< 3	< 3	< 3	< 3	< 3	6	8
Temperature	Deg.C	10.9	11.0	-	-	10.8	11.2	14.2	14.4
Turbidity	NTU	1.5	1.7	0.52	0.75	0.50	0.87	2.8	4.5

**Key:** upstream (u/s) = MHW000060, downstream (d/s) = MWH000065

The results show minimal impact of discharges from MMPS on the water quality of the Mangahewa Stream at the time of sampling. This indicates compliance with the conditions of consents 1157-1 and 7435-1.

## Sediment sampling

Sediments within the bed of the Mangahewa Stream in the vicinity of MMPS have been found to contain residual hydrocarbons. The likely source is from historical contamination within the former McKee-E wellsite located between MMPS and the Mangahewa Stream, although hydrocarbons have been found in sediments upstream of the MMPS discharges and McKee-E. Monitoring of the levels of these hydrocarbons has been undertaken since 2011, in conjunction with biomonitoring surveys, to determine any potential impact on the health of the stream communities and whether the concentrations are decreasing over time due to degradation and/or downstream transport.

Table 7 shows the results of soft sediment sampling for the period 2011 to 2020. The sampling locations are shown in Figure 2. Due to unsafe access, samples are no longer able to be collected from the site 250 m downstream and this site has been replaced by MHW000066, which is 200 m downstream.

Levels found upstream were moderate and similar to previous results. Higher levels were found at the site 50 m downstream of the discharge. These results were significantly lower than the 611 mg/kg found in February 2018 and similar to previous results at this site.

**Table 7 Soft sediment sampling of the Mangahewa Stream for hydrocarbons 2011-2020**

Date	Hydrocarbons in sediment – mg/kg dry weight			
	100m u/s of discharge MHW000060	50m d/s of discharge MHW000065	200m d/s of discharge MHW000066	250m d/s of discharge MHW000068
3 June 2011	49	130	-	190
12 April 2013	< 10	170	-	56
6 June 2014	< 0.5	94	-	(no sample)
8 January 2015	11	34	-	87
2 April 2015	20	114	-	62
9 December 2015	< 14	39	-	40
1 April 2016	< 18	< 17	-	99
28 February 2017	93	443	-	235
28 April 2017	29	72	-	38
25 October 2017	16	155	-	48
7 February 2018	45	611	-	20
26 November 2018	< 70	< 110	-	*
18 February 2019	< 70	179	-	*
27 November 2019	< 70	< 120	< 90	*
3 March 2020	< 80	< 100	< 170	*

\* site no longer used due to unsafe access

As a result of the residual hydrocarbons in the sediment and the possibly detrimental impacts on the stream communities below the site, Todd Energy commissioned a stream sediment study. The initial findings from the investigation are:

- There was no pattern to the results,
- There are instances of contamination quite a way upstream of the MMPS,

- The hydrocarbon signature was consistent with drilling mud,
- The McKee 13 event propagated mud upstream of the incident and the MMPS,
- There are periodic stream erosion events along the stream edge.

Based on this, it is unlikely that the hydrocarbons in the sediment are due to any current operations, and instead likely that residual legacy contamination and periodic stream bank erosion are contributing to these results. Todd Energy are working on an agreement with the upstream farmer to fence approximately 100 m upstream of the car park. This new margin will then be riparian planted in autumn 2021. Samples will be collected again in spring 2021 to determine if these measures have had any effect on reducing the release of contaminants.

### 2.1.3.2 Biomonitoring

The Council's 'kick-sampling' technique was used at three sites, on 27 November 2019 and 3 March 2020, to collect benthic macroinvertebrates from the Mangahewa Stream in relation to discharges from the MMPS. This provided data to assess any potential impacts the consented discharges have had on the macroinvertebrate communities of the stream. Samples were processed to provide number of taxa (taxa richness), MCI and SQMCI scores for each site.

The MCI is a measure of the overall sensitivity of the macroinvertebrate community to the effects of nutrient pollution in streams. It is based on the presence/absence of taxa with varying degrees of sensitivity to pollution. The SQMCI takes into account taxa abundance as well as sensitivity to pollution, and may reveal more subtle changes in communities. Significant differences in either the MCI or SQMCI between sites indicate the degree of adverse effects (if any) of the discharges being monitored and enable the overall health of the macroinvertebrate communities to be determined.

Both surveys recorded MCI scores and SQMCI scores similar to their respective medians at both sites, while taxa richness was similar to median at site 1 but substantially lower at site 2. Taxa richness, MCI and SQMCI scores were similar between all three sites and similar to preceding surveys at all three sites. The March survey was the ninth consecutive survey to record low taxa richness at site 2, although the richness at this site had increased by one taxon since the November survey.

Hydrocarbon concentrations in the streambed sediment have been monitored in conjunction with the macroinvertebrate survey since 2011. High results (of up to 611 mg/kg dry weight) were recorded at site 2 in February 2017 and February 2018. Since then a change in laboratory provider has seen the detection limit increase substantially. Surveys during the 2019-2020 monitoring period did not detect hydrocarbons in the streambed sediments at any site.

The results of the surveys, together with the pattern of low taxa richness at site 2 observed for nine consecutive surveys indicate that the macroinvertebrate communities are likely experiencing detrimental impacts downstream of the MMPS, which are primarily expressed through reduced macroinvertebrate diversity. The biologist recommended that further monitoring be undertaken to try to determine whether this is related to discharges from the McKee Production Station, the well blow-out that occurred in 1995 or some other factor (see discussion 2.1.3.1 above).

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

### 2.1.4 Summary of water abstractions reported by Todd Energy

Figures 3 to 6 provide summaries of the abstraction volumes for consented water takes in relation to the McKee and Mangahewa facilities.

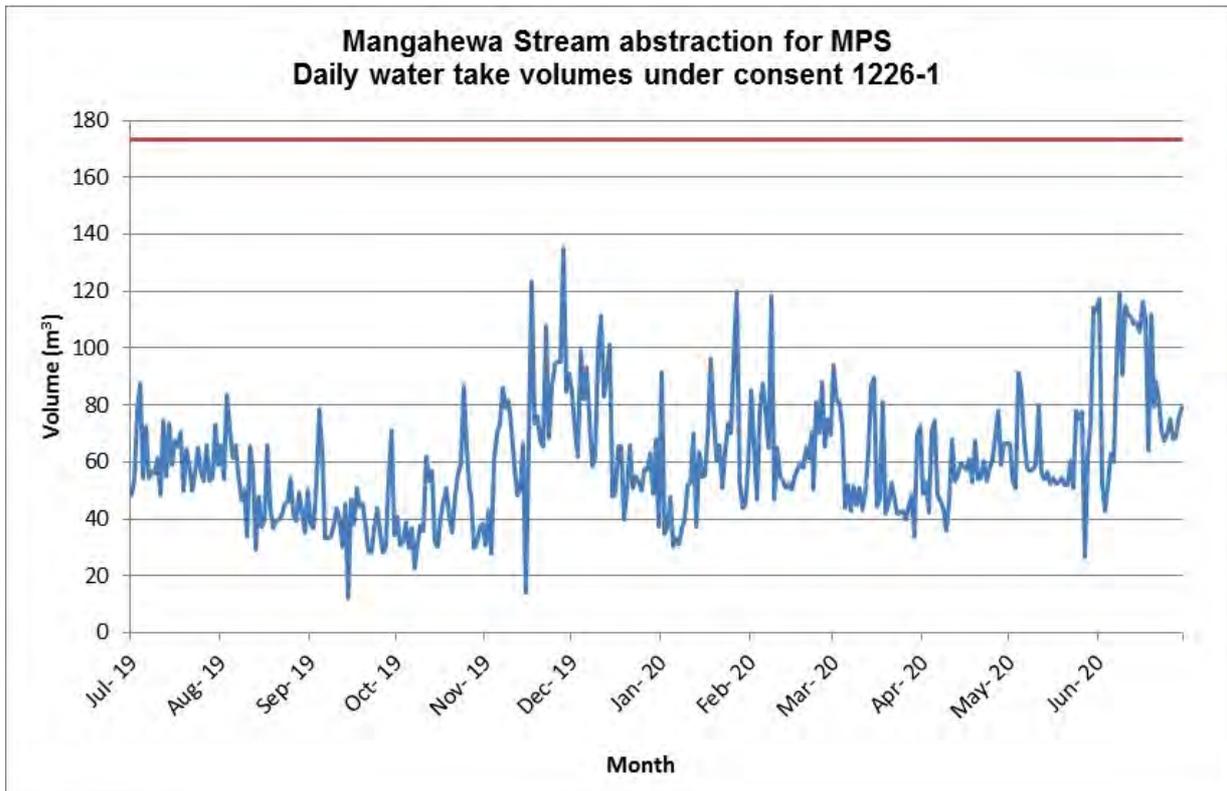


Figure 3 Daily water abstraction volumes for MMPS under consent 1226-1

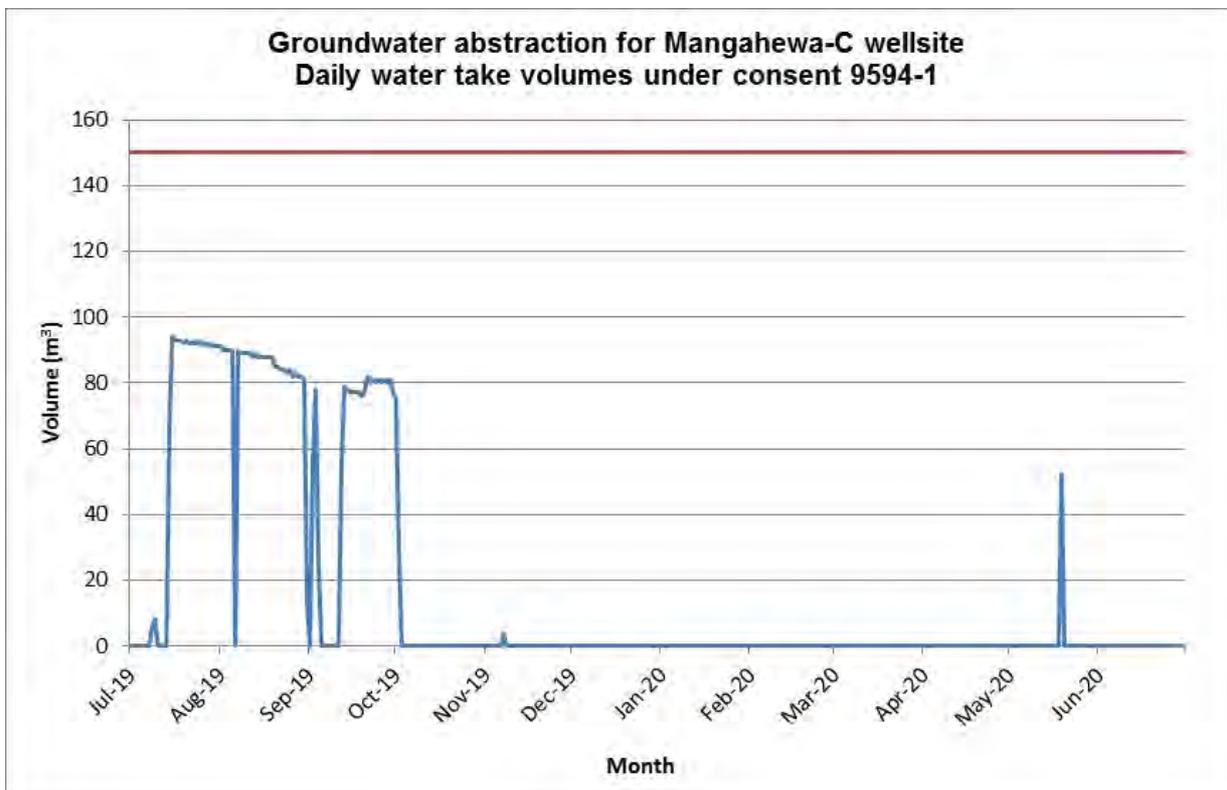


Figure 4 Daily groundwater abstraction volumes for Mangahewa-C under consent 9594-1

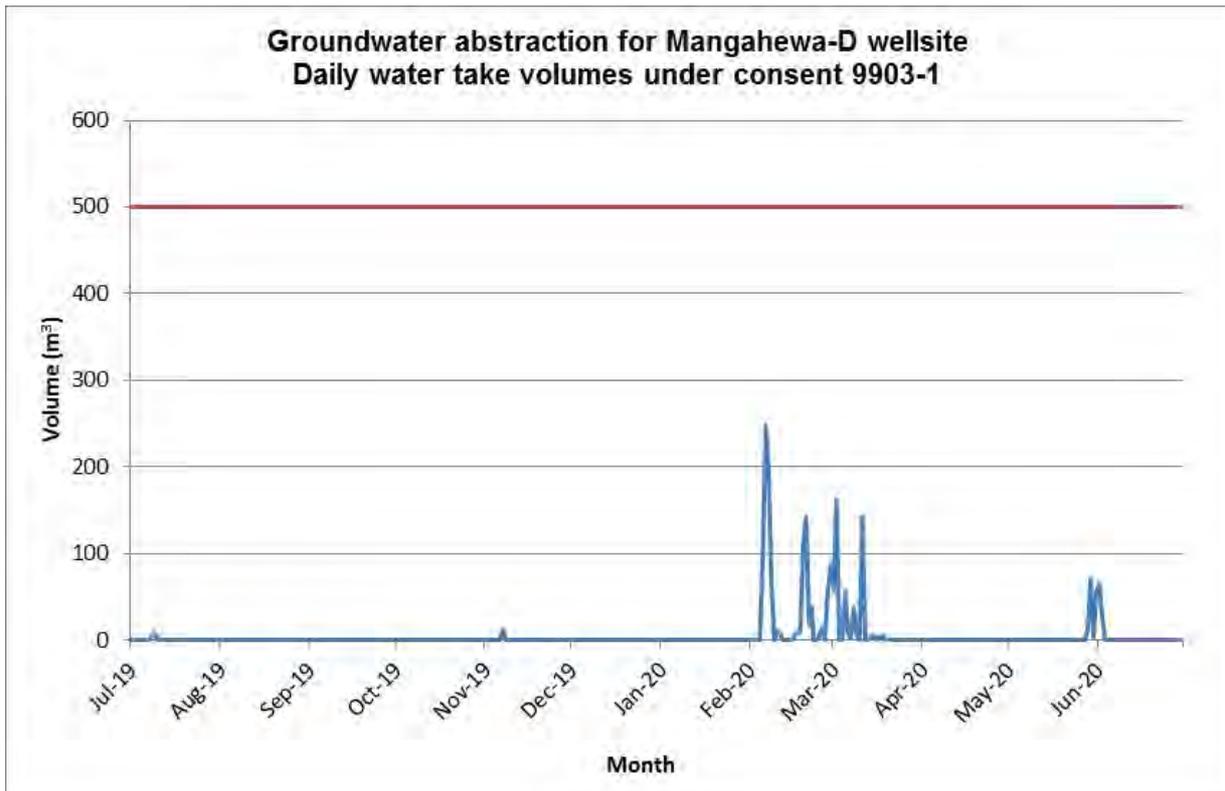


Figure 5 Daily groundwater abstraction volumes for Mangahewa-D under consent 9903-1

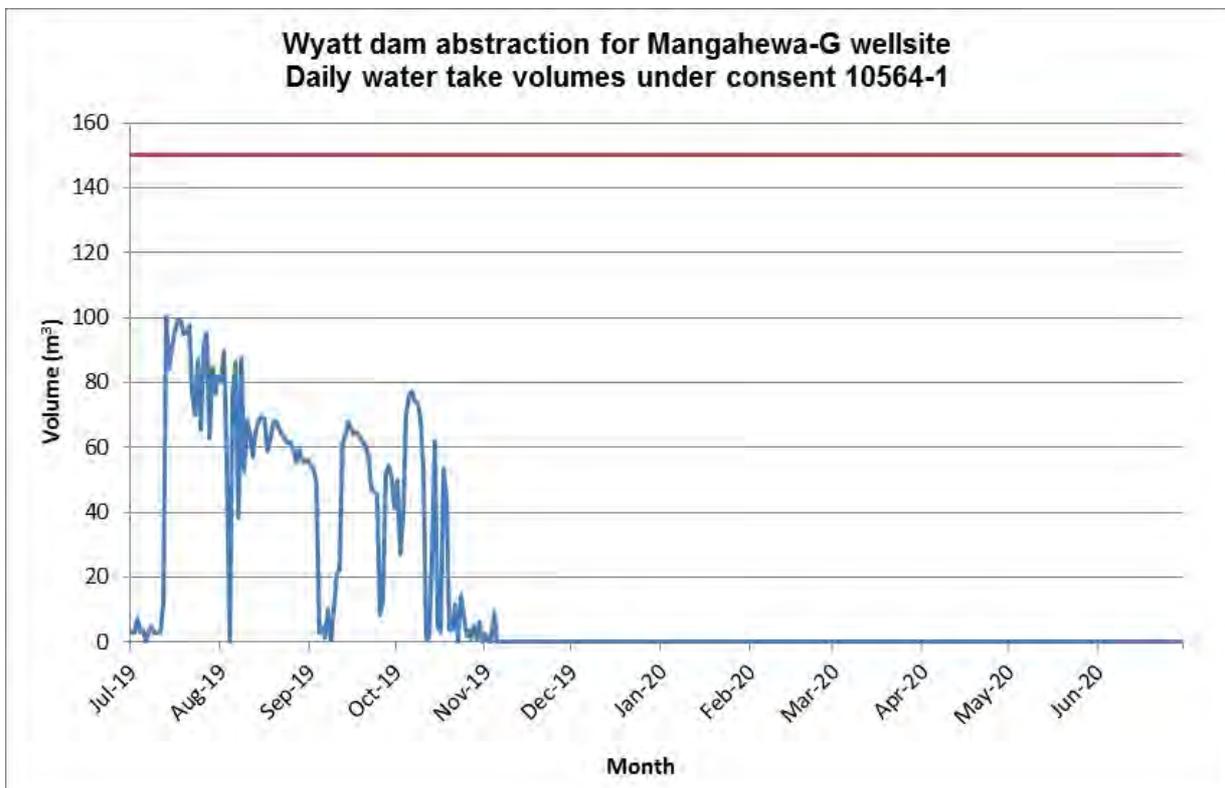


Figure 6 Daily water abstraction volumes for Mangahewa-G Wyatt Dam under consent 10564-1

No water was abstracted under the water take consents for Mangahewa-D (Manganui River, 7404-1), Mangahewa-E (9456-1), Te Kiri North-A (9877-1) or Mystone-A (7455-1) during the period under review. Daily volumes for all of the abstractions were within the limits stipulated by their respective consents.

## 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. Air discharges were all found to be satisfactory, with no offensive or objectionable odours noted during the inspections.

### 2.2.2 Results of receiving environment 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 (Figure 7). The deployment lasted approximately 46 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).

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.



Figure 7 Air monitoring sites at MMPS

The details of the sample run are summarised in Table 8 and the data from the sample run are presented graphically in Figure 8.

The consents covering air discharges from MMPS have specific limits related to particular gases. Special condition 5 of consent 4050-3 sets a limit on the carbon monoxide concentration at or beyond the production station's boundary. The limit is expressed as  $10 \text{ mg/m}^3$  for an eight hour average or  $30 \text{ mg/m}^3$  for a one hour average exposure. The maximum concentration of carbon monoxide found during the monitoring run was  $2.52 \text{ mg/m}^3$ , with an average concentration for the entire dataset of  $0.23 \text{ mg/m}^3$ , both of which comply with consent conditions. This is consistent with the pattern found in previous years.

Table 8 Results of carbon monoxide and LEL monitoring at MMPS

Period (from-to)		8 to 10 April 2020 46 hours
Max	CO(ppm)	2.20
	LEL(%)	0.10
Mean	CO(ppm)	0.20
	LEL(%)	0.00
Min	CO(ppm)	0.00
	LEL(%)	0.00

Note: (1) the instrument records in units of ppm. At 25°C, 1 atm. 1ppm CO = 1.145 mg/m<sup>3</sup>  
 (2) See text for explanation of LEL. 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.

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 MMPS reach any more than a trivial level.

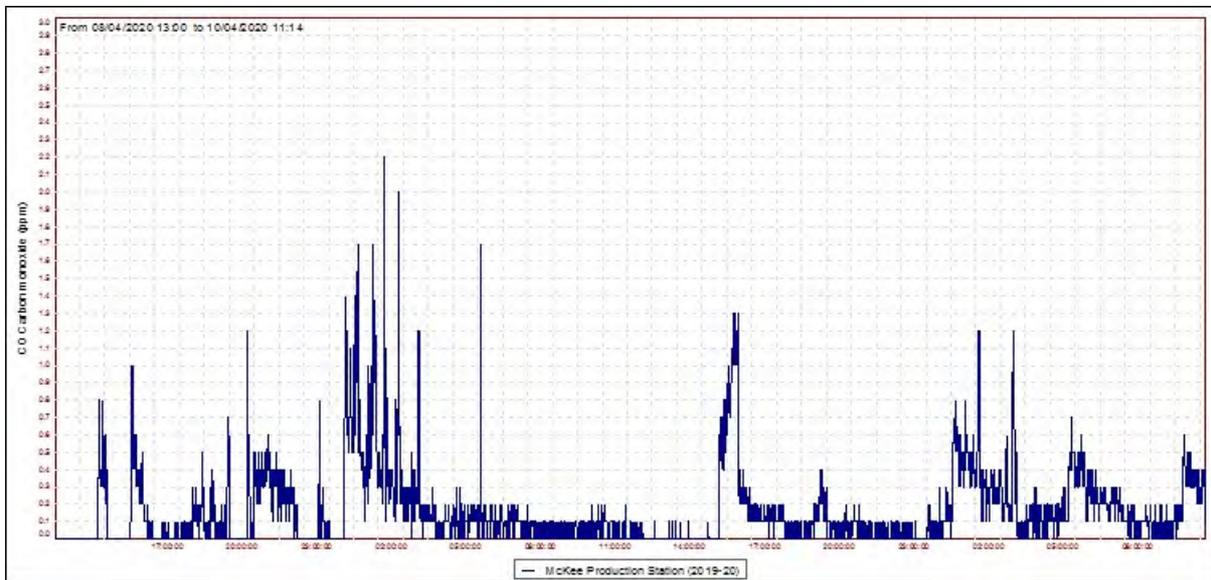


Figure 8 Ambient CO levels in the vicinity of MMPS

### 2.2.2.2 PM<sub>10</sub>

In September 2004 the Ministry for the Environment made public National Environmental Standards (NESs) relating to certain air pollutants. The NES for PM<sub>10</sub> is 50 µg/m<sup>3</sup> (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<sub>10</sub> 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<sub>10</sub> 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<sub>10</sub> monitor was deployed on one occasion in the vicinity of the MMPS. The deployment lasted approximately 47 hours, with the instrument placed in a down-wind position at the start of the deployment. Monitoring consisted of continual measurements of PM<sub>10</sub> concentrations. The location of the “DustTrak” monitor during the sampling run is shown in Figure 7.

The details of the sample run are presented in Figure 9 and Table 9.

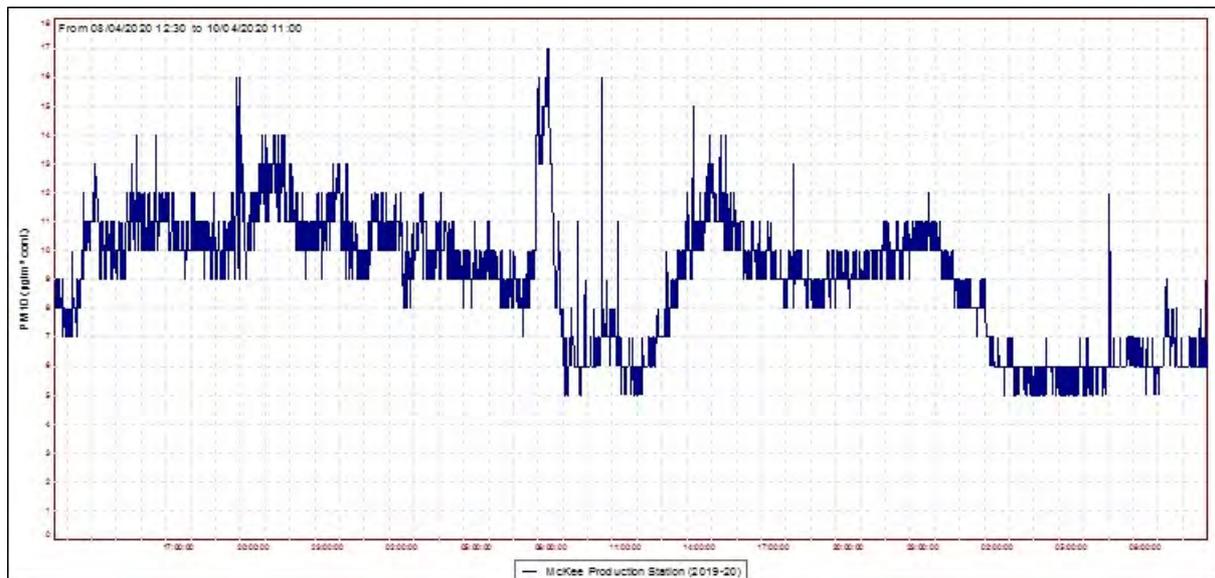


Figure 9 PM<sub>10</sub> concentrations (µg/m<sup>3</sup>) at MMPS

Table 9 Daily mean of PM<sub>10</sub> results during two days' monitoring at MMPS

	47 hours (8 to 10 April 2020)	
24 hr. set	Day 1	Day 2
Daily average	10 µg/m <sup>3</sup>	8.0 µg/m <sup>3</sup>
NES	50 µg/m <sup>3</sup>	

During the 47 hour run, from 8 to 10 April 2020, the average recorded PM<sub>10</sub> concentration for the first 24 hour period was 10 µg/m<sup>3</sup>, while the second 24 hour period was 8.0 µg/m<sup>3</sup>. These daily means equate to 20% and 16%, respectively, of the 50 µg/m<sup>3</sup> value that is set by the National Environmental Standard.

Background levels of PM<sub>10</sub> in the region have been found to be typically around 11 µg/m<sup>3</sup>.

### 2.2.2.3 Nitrogen oxides

From 2014 onwards, the Council implemented a coordinated region-wide compliance monitoring programme to measure nitrogen oxides (NO<sub>x</sub>). The programme involves deploying measuring devices at 28 NO<sub>x</sub> monitoring sites (including two sites in the vicinity of MMPS) 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 consents covering air discharges from MMPS have specific limits related to particular gases. Special condition 6 of consent 4050-3 sets a limit on the nitrogen dioxide concentration at or beyond the production station's boundary. The limit is expressed as 200 µg/m<sup>3</sup> for a one hour average or 100 µg/m<sup>3</sup> for a 24 hour average exposure.

NO<sub>x</sub> passive adsorption discs were placed at two locations in the vicinity of MMPS 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 NO<sub>x</sub> concentrations found at MMPS during the year under review equate to 13.4 µg/m<sup>3</sup> and 7.2 µg/m<sup>3</sup>, respectively. The results show that the ambient ground level concentration of NO<sub>x</sub> is well below the limits set out by consent 4050-3.

A copy of the air monitoring report for this site is available from the Council upon request.

### 2.2.3 Summary of flaring and fuel use reported by Todd Energy

Summaries of flaring and fuel use at MMPS are provided in Figures 10 and 11.

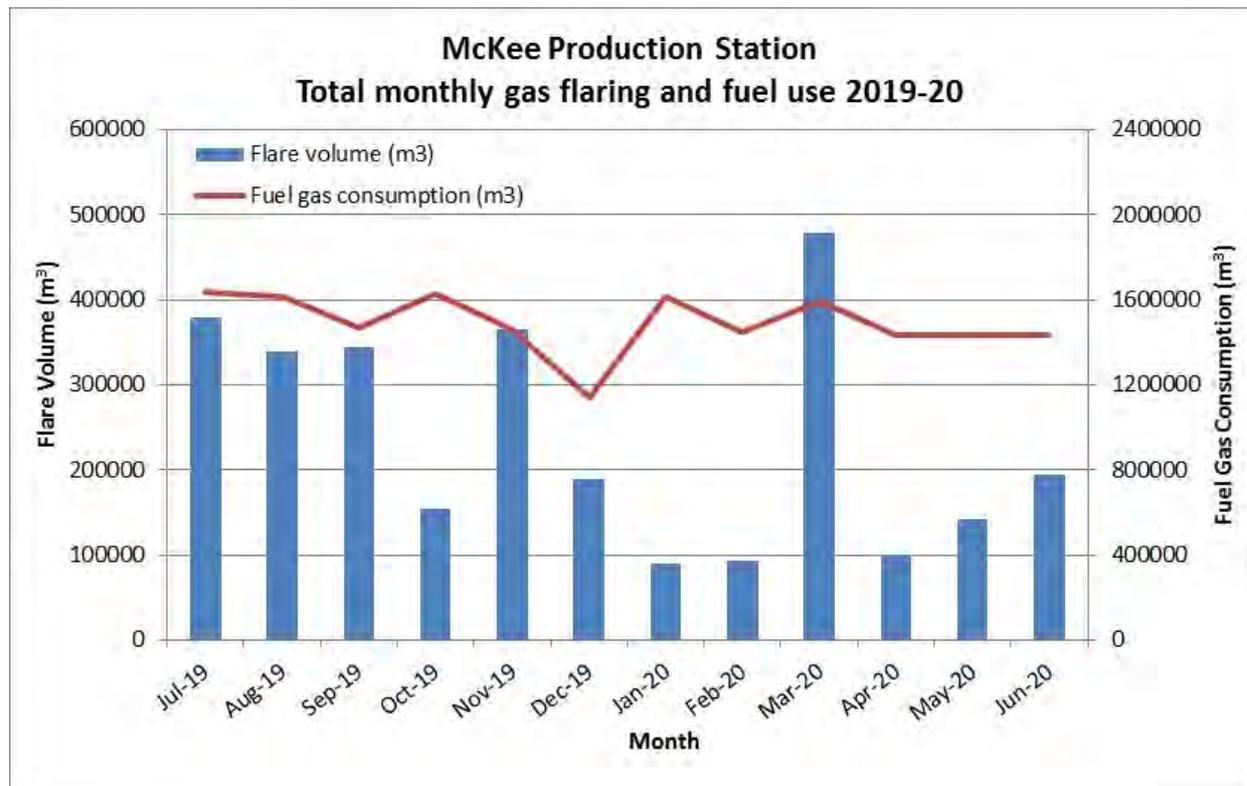


Figure 10 Monthly natural gas flaring and fuel use for MMPS under consent 4050-3

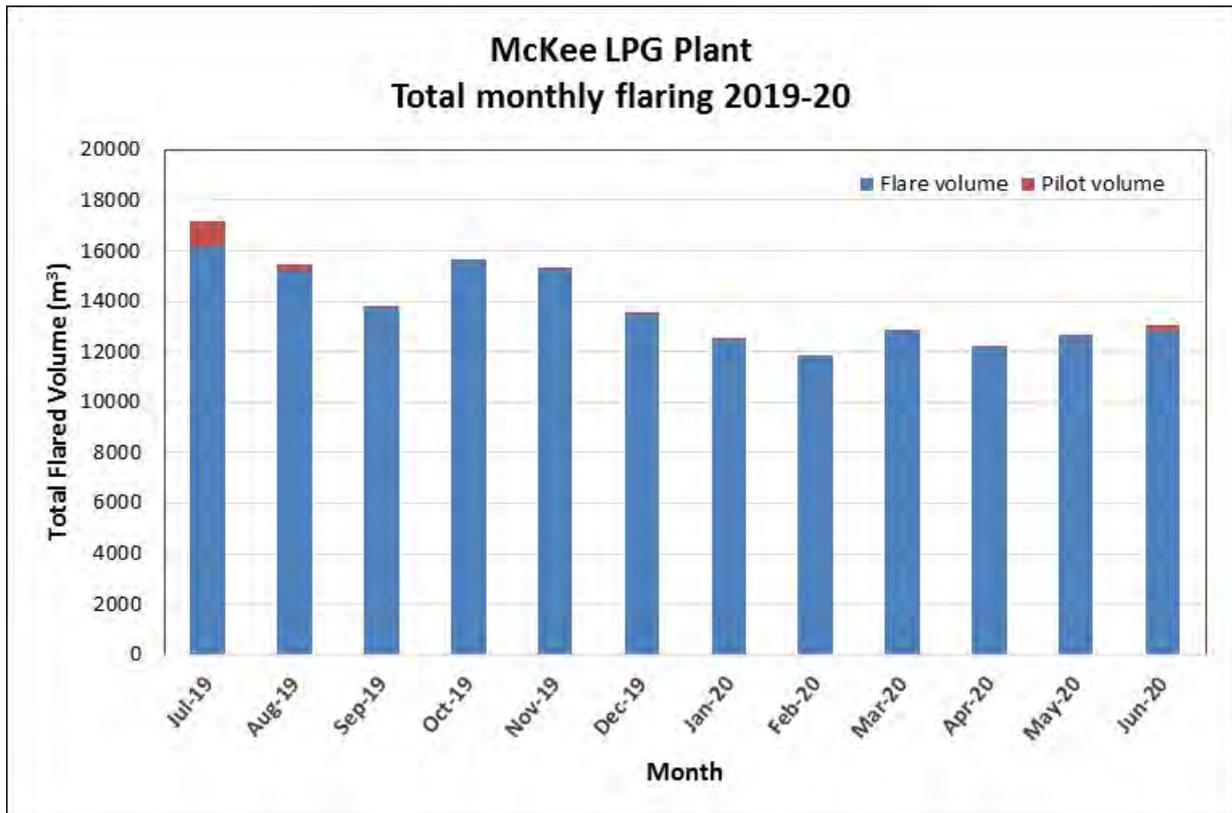


Figure 11 Monthly flaring volumes for McKee LPG Plant under consent 7436-1

During the period under review, Todd Energy kept the Council informed of all non-routine flaring at MMPS. The majority of this flaring related to power outages, compressor trips and maintenance. No visible smoke events were recorded. There was no flaring associated with the exercise of the air discharge consents for the McKee EGP (7290-1).

### 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 Todd Energy. 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 10 below sets out details of any incidents recorded, additional investigations, or interventions required by the Council in relation to Todd Energy's activities during the 2019-2020 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 10 Incidents, investigations, and interventions summary table

Date	Details	Compliant (Y/N)	Enforcement Action Taken?	Outcome
5 May 2020	Hydrocarbon discharged onto the ground from a sump during heavy rainfall and entered an onsite drain which flows to the Mangahewa Stream.	N	14 day letter	A temporary pump (not automated and without capacity of normal pump) had been installed on the sump while waiting for the new pump to arrive. Installation of this was delayed due to COVID-19 Level 4 lockdown. The site has since been remediated, the new pump installed and further improvements have been undertaken.
20 May 2020	During installation of liners in the site's main stormwater conduits to ensure their continued integrity, it was found that a crack had developed in one of the liners and was leaking a small amount of uncured styrene resin into the stormwater system.	Y	No	Actions were taken to isolate the leaking area; remove the resin from the pipe; install a dam upstream of the outlet; pump all stormwater through a filtration system prior to discharge; and undertake regular testing of the receiving waters. Repairs to the lining were completed in October 2020. No impacts on the Mangahewa Stream were found in monitoring conducted by Todd Energy or the Council.

## 3 Discussion

### 3.1 Discussion of site performance

Inspections of the MMPS during the 2019-2020 period found that the site was well managed and the stormwater system was maintained to a satisfactory standard. Emissions to air were well controlled. All water abstractions complied with the requirements of their respective consents.

There were two incidents at the MMPS site recorded by the Council during the 2019-2020 period. Hydrocarbon discharged onto the ground from a sump during heavy rainfall and entered an onsite drain which flows to the Mangahewa Stream. This was due to a combination of heavy rainfall and COVID-19 restrictions delaying installation of a new sump pump. Todd Energy acted quickly to clean up the spill and no significant adverse effects were observed in receiving waters.

During installation of liners in the site's main stormwater conduits to ensure their continued integrity, it was found that a crack had developed in one of the liners and was leaking a small amount of uncured styrene resin into the stormwater system. Actions were taken, to isolate the leaking area; remove the resin from the pipe; install a dam upstream of the outlet; pump all stormwater through a filtration system prior to discharge; and undertake regular testing of the receiving waters. Repairs to the lining were completed in October 2020. No impacts on the Mangahewa Stream were found in monitoring conducted by Todd Energy or the Council.

### 3.2 Environmental effects of exercise of consents

Stormwater discharges from the sites complied with consent conditions at the time of sampling.

The results of biomonitoring carried out in the Mangahewa Stream, together with the pattern of low taxa richness at site 2 observed for nine consecutive surveys indicate that the macroinvertebrate communities are likely experiencing detrimental impacts downstream of the MMPS, which are primarily expressed through reduced macroinvertebrate diversity. Hydrocarbon contamination of sediments was proposed as a potential cause for this and Todd Energy commissioned an investigation into the contamination. Initial conclusions are that the contamination is a result of a prior event (rather than current activities at the site) and that periodic stream bank erosion is releasing hydrocarbons. Todd Energy have undertaken to fence and plant approximately 100 m of bank upstream with the goal of minimising erosion the release of legacy contaminants.

There were no adverse effects on the environment resulting from the exercise of the air discharge consents. The ambient air quality monitoring at the production station showed that levels of carbon monoxide, combustible gases, PM<sub>10</sub> 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.

### 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 11-20.

Table 11 Summary of performance for consent 1157-1

<b>Purpose: To discharge uncontaminated stormwater from the site of the MMPS to an unnamed tributary of the Mangahewa Stream</b>		
<b>Condition requirement</b>	<b>Means of monitoring during period under review</b>	<b>Compliance achieved?</b>
1. Ensure the stream can cope with increased volume of water	Inspection	Yes
2. Minimise disturbance of the stream	Inspection	Yes
3. Prevent or mitigate erosion	Inspection	Yes
4. Corrective measures applied are to be to the satisfaction of the Council	Inspection	Yes
5. Install a sampling chamber in the main stormwater line	Inspection	Yes
6. Stormwater design and discharge points to be forwarded to Council	Information received	Yes
7. Provide contingency plan	Latest version approved December 2016	Yes
8. Discharge not to affect various parameters of the receiving water	Sampling	Yes
9. Council may carry out biological monitoring	Biomonitoring undertaken	Yes
10. Review provision	No further option for review prior to expiry	N/A
Overall assessment of consent compliance and environmental performance in respect of this consent		<b>High</b>
Overall assessment of administrative performance in respect of this consent		<b>High</b>

N/A = not applicable

Table 12 Summary of performance for consent 1158-1

<b>Purpose: To discharge treated impounded stormwater from the site of the MMPS into the Waitara River</b>		
<b>Condition requirement</b>	<b>Means of monitoring during period under review</b>	<b>Compliance achieved?</b>
1. Stormwater to be directed for treatment prior to discharge	Inspection	Yes
2. Prevent or mitigate erosion	Inspection	Yes
3. Corrective measures applied are to be to satisfaction of Council	Inspection	Yes
4. Install a sampling chamber in the main stormwater line	Inspection	Yes

<b>Purpose: To discharge treated impounded stormwater from the site of the MMPS into the Waitara River</b>		
<b>Condition requirement</b>	<b>Means of monitoring during period under review</b>	<b>Compliance achieved?</b>
5. Stormwater layout design and discharge points are to be forwarded to the Council	Information received previously	Yes
6. Supply specifications of works to Council	Information received previously	Yes
7. Trained operator onsite capable of operation of all aspects of the treatment works	Inspection	Yes
8. Limits on contaminants in the discharge	Consent holder monitoring – indicative only due to sampling method	Mostly
9. Discharge shall have no other effect on the receiving water	Inspection	Yes
10. Discharge not to cause adverse effects on the biological community of the Waitara River	Not assessed during the period under review	N/A
11. Discharge not to alter colour or clarity of the water	Inspections	Yes
12. Management plan	Management Plan received previously	Yes
13. Spill plan	Latest version approved December 2016	Yes
14. Council may undertake ecological monitoring of the receiving water	Not assessed during the period under review	N/A
15. Toxicological monitoring of discharge	Not undertaken during the period under review	N/A
16. Monitoring of discharge shall be undertaken as required	Consent holder monitoring	Yes
17. Review provision	No further option for review prior to expiry	N/A
Overall assessment of consent compliance and environmental performance in respect of this consent		<b>High</b>
Overall assessment of administrative performance in respect of this consent		<b>High</b>

Table 13 Summary of performance for consent 1159-1

<b>Purpose: To divert unnamed tributaries of the Mangahewa Stream in the vicinity of the MMPS, and to discharge surface water run-off from adjacent land into the Mangahewa Stream, to permit construction and operation of the said facility</b>		
<b>Condition requirement</b>	<b>Means of monitoring during period under review</b>	<b>Compliance achieved?</b>
1. Plans and location of diversions to be forwarded to Council	Received	Yes

<b>Purpose: To divert unnamed tributaries of the Mangahewa Stream in the vicinity of the MMPS, and to discharge surface water run-off from adjacent land into the Mangahewa Stream, to permit construction and operation of the said facility</b>		
<b>Condition requirement</b>	<b>Means of monitoring during period under review</b>	<b>Compliance achieved?</b>
2. Ensure natural channels of stream can cope with increased flow	Inspection	Yes
3. Prevent or mitigate erosion	Inspection	Yes
4. Any corrective measures are to be to the satisfaction of Council	Inspection	Yes
5. Council may carry out biological monitoring	Biomonitoring undertaken	Yes
6. Review provision	No further option for review prior to expiry	N/A
Overall assessment of consent compliance and environmental performance in respect of this consent		<b>High</b>
Overall assessment of administrative performance in respect of this consent		<b>High</b>

Table 14 Summary of performance for consent 1226-1

<b>Purpose: To take water from the Mangahewa Stream for process, fire-fighting and domestic purposes associated with operation of the MMPS</b>		
<b>Condition requirement</b>	<b>Means of monitoring during period under review</b>	<b>Compliance achieved?</b>
1. Minimum flow of at least 5 litres/sec to be maintained in tributary	Not assessed	N/A
2. Install metering system and forward records to Council	Records provided to Council	Yes
3. Intake structure to be designed to minimise disturbance	Inspection	Yes
4. Submit plans of intake structure	Provided	Yes
5. Review provision	No further option for review prior to expiry	N/A
Overall assessment of consent compliance and environmental performance in respect of this consent		<b>High</b>
Overall assessment of administrative performance in respect of this consent		<b>High</b>

Table 15 Summary of performance for consent 1227-1

<b>Purpose: To construct a weir control for the MMPS water intake on the Mangahewa Stream in the Onaero Catchment</b>		
<b>Condition requirement</b>	<b>Means of monitoring during period under review</b>	<b>Compliance achieved?</b>
1. Submit plans and location of all works	Received	Yes
2. Works to minimise disturbance to beds and banks of river channel flows	Inspection	Yes
3. Prevent or mitigate any erosion	Inspection	Yes
4. Intake structure to be designed and constructed to permit passage of fish upstream	Not assessed during period under review, previous fish surveys have shown compliance	Yes
5. Minimum flow of no less than 5 litres/sec in the Mangahewa Stream	Not assessed	N/A
6. Operation of sluice pipe for desilting only with written approval of Council	No requests to undertake desilting	N/A
7. Review provision	No further option for review prior to expiry	N/A
Overall assessment of consent compliance and environmental performance in respect of this consent		<b>High</b>
Overall assessment of administrative performance in respect of this consent		<b>High</b>

Table 16 Summary of performance for consent 4006-2

<b>Purpose: To erect, place and maintain a bridge over the Waitara River for oil field access purposes</b>		
<b>Condition requirement</b>	<b>Means of monitoring during period under review</b>	<b>Compliance achieved?</b>
1. Notify Council prior to maintenance works which may disturb the river bed	No works undertaken	N/A
2. Structure shall be maintained to ensure conditions of consent are met	Inspection	Yes
3. Structure shall be removed and area reinstated when no longer required	Structure still in use	N/A
4. Review provision	Next option for review in 2021, recommendation attached in section 3.6	N/A
Overall assessment of consent compliance and environmental performance in respect of this consent		<b>High</b>
Overall assessment of administrative performance in respect of this consent		<b>High</b>

Table 17 Summary of performance for consent 4050-3

<b>Purpose: To discharge emissions into the air arising from the flaring of hydrocarbons associated with production activities at the McKee-C wellsite and from hydrocarbon processing operations and miscellaneous emissions at the MMPS</b>		
<b>Condition requirement</b>	<b>Means of monitoring during period under review</b>	<b>Compliance achieved?</b>
1. Consent holder shall adopt the best practicable option	Inspection	Yes
2. Hydrocarbon storage vessels are to be fitted with vapour recovery systems	Inspection	Yes
3. Opacity of smoke emissions shall not exceed 1 on the Ringlemann Scale	Not assessed	N/A
4. There shall be no offensive odour or smoke beyond the boundary	Inspection	Yes
5. Limits on CO concentration at or beyond the boundary	Ambient air sampling	Yes
6. Limits on NOx concentration at or beyond boundary	Ambient air sampling	Yes
7. No hazardous/toxic/noxious emissions at or beyond boundary	Inspection and ambient air sampling	Yes
8. Limit on increase of contaminant concentrations at or beyond boundary	Ambient air sampling	Yes
9. Natural gas and condensate analysis to be made available	Not requested	N/A
10. Consent holder to record occasions of visible smoke	Inspection	Yes
11. Consent holder to maintain flaring log	Inspection and log received by Council	Yes
12. Provision of flaring and emissions report each May	Report received	Yes
13. No alterations to be made without consulting Council prior	Inspection	Yes
14. No liquid or solid hydrocarbons to be combusted except in emergency	Inspection and consent holders records	Yes
15. Council to be notified of flaring	Notifications received	Yes
16. Consent holder to notify residents within 1 km prior to flaring	No complaints received	Yes

<b>Purpose: To discharge emissions into the air arising from the flaring of hydrocarbons associated with production activities at the McKee-C wellsite and from hydrocarbon processing operations and miscellaneous emissions at the MMPS</b>		
<b>Condition requirement</b>	<b>Means of monitoring during period under review</b>	<b>Compliance achieved?</b>
17. Wind speed and direction to be taken into consideration for flaring	No complaints received	Yes
18. Natural gas flared to be treated by effective separation and recovery	Inspection	Yes
19. Council to be notified if separation fails	No incidents during period	N/A
20. Only well stream substances to be combusted in flare pit	Inspection and records	Yes
21. Review provision	Next option for review in 2021, recommendation attached in section 3.6	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		<b>High High</b>

Table 18 Summary of performance for consent 7290-1

<b>Purpose: To discharge emissions into the air from natural gas combustion and other related activities associated with the operation of an electricity generation plant at the MMPS</b>		
<b>Condition requirement</b>	<b>Means of monitoring during period under review</b>	<b>Compliance achieved?</b>
1. Adoption of the best practicable option	Inspection	Yes
2. Consult with Council prior to alterations	Inspection	Yes
3. Dangerous levels of airborne contaminants at or beyond the boundary not allowed	Air quality monitoring	Yes
4. Odour, dust or smoke that is offensive or obnoxious or objectionable at or beyond the boundary not allowed	Inspection	Yes
5. Hazardous, toxic or noxious contaminants at or beyond the boundary not allowed	Inspection and air quality monitoring	Yes
6. Maximum ground level concentration of carbon monoxide at or beyond the boundary	Air quality monitoring	Yes

<b>Purpose: To discharge emissions into the air from natural gas combustion and other related activities associated with the operation of an electricity generation plant at the MMPS</b>		
<b>Condition requirement</b>	<b>Means of monitoring during period under review</b>	<b>Compliance achieved?</b>
7. Maximum ground level concentration of nitrogen dioxide at or beyond the boundary	Air quality monitoring	Yes
8. Specified maximum ground level concentrations for contaminants other than carbon dioxide, carbon monoxide, and nitrogen oxides	Air quality monitoring	Yes
9. Lapse condition	Not applicable – consent exercised	N/A
10. Review provision	Next option for review in 2021, recommendation attached in section 3.6	N/A
Overall assessment of consent compliance and environmental performance in respect of this consent		<b>High</b>
Overall assessment of administrative performance in respect of this consent		<b>High</b>

Table 19 Summary of performance for consent 7435-1

<b>Purpose: To discharge stormwater into an unnamed tributary of the Mangahewa Stream in the Onaero catchment from a LPG Plant</b>		
<b>Condition requirement</b>	<b>Means of monitoring during period under review</b>	<b>Compliance achieved?</b>
1. Consent holder shall adopt the best practicable option	Inspection and liaison with consent holder	Yes
2. Maximum catchment area 7,800 m <sup>2</sup>	Site plans	Yes
3. Provide site plans	Plans received	Yes
4. Notify Council prior to exercise of consent	Notifications received	Yes
5. Maintain contingency plan	Latest version approved December 2016	Yes
6. Maintain stormwater management plan	Plan received	Yes
7. Stormwater directed to treatment system	Inspection	Yes
8. Hazardous substance storage to be bunded	Inspection	Yes
9. Limits contaminants in the discharge	Consent holder monitoring	Yes
10. Discharge not to cause certain effects in receiving waters	Inspection and biomonitoring	Yes

<b>Purpose: To discharge stormwater into an unnamed tributary of the Mangahewa Stream in the Onaero catchment from a LPG Plant</b>		
<b>Condition requirement</b>	<b>Means of monitoring during period under review</b>	<b>Compliance achieved?</b>
11. Lapse provision	Not applicable - consent exercised	N/A
12. Review provision	Next option for review in 2021, recommendation attached in section 3.6	N/A
Overall assessment of consent compliance and environmental performance in respect of this consent		<b>High High</b>
Overall assessment of administrative performance in respect of this consent		

Table 20 Summary of performance for consent 7436-1

<b>Purpose: To discharge emissions to air from the flaring of natural gas in emergency situations and miscellaneous emissions associated with the treatment of gas at the McKee LPG Plant and the Mangahewa Extraction Train 2</b>		
<b>Condition requirement</b>	<b>Means of monitoring during period under review</b>	<b>Compliance achieved?</b>
1. Consent holder shall adopt the best practicable option	Inspection	Yes
2. No alterations to be made without consulting Council prior	Inspection	Yes
3. Consent holder to minimise emissions	Inspection	Yes
4. Monthly flaring information to be provided to Council	Information received	Yes
5. No dangerous levels of contaminants at or beyond the boundary	Inspection and ambient air sampling	Yes
6. There shall be no offensive/obnoxious/objectionable odour/dust/smoke at or beyond the boundary	Inspection	Yes
7. No hazardous/toxic/noxious emissions at or beyond boundary	Inspection and ambient air sampling	Yes
8. Limits on CO concentration at or beyond boundary	Ambient air sampling	Yes
9. Limits on NO <sub>x</sub> concentration at or beyond boundary	Ambient air sampling	Yes
10. Limit on increase of contaminant concentrations at or beyond boundary	Ambient air sampling	Yes
11. Lapse provision	Not applicable - consent exercised	N/A

<b>Purpose: To discharge emissions to air from the flaring of natural gas in emergency situations and miscellaneous emissions associated with the treatment of gas at the McKee LPG Plant and the Mangahewa Extraction Train 2</b>		
<b>Condition requirement</b>	<b>Means of monitoring during period under review</b>	<b>Compliance achieved?</b>
12. Review provision	Next option for review in 2021, recommendation attached in section 3.6	N/A
Overall assessment of consent compliance and environmental performance in respect of this consent		<b>High</b>
Overall assessment of administrative performance in respect of this consent		<b>High</b>

Table 21 Evaluation of environmental performance over time

<b>Year</b>	<b>Consent no</b>	<b>High</b>	<b>Good</b>	<b>Improvement req</b>	<b>Poor</b>
2009-10	1157-1, 1158-1, 1159-1, 1226-1, 1227-1, 4006-2, 4050-3, 7290-1, 7435-1, 7436-1	10	-	-	-
2010-11	1157-1, 1158-1, 1159-1, 1226-1, 1227-1, 4006-2, 4050-3, 7290-1, 7435-1, 7436-1	7	2	1	-
2011-12	1157-1, 1158-1, 1159-1, 1226-1, 1227-1, 4006-2, 4050-3, 7290-1, 7435-1, 7436-1	9	-	1	-
2012-14	1157-1, 1158-1, 1159-1, 1226-1, 1227-1, 4006-2, 4050-3, 7435-1, 7436-1	8	2	-	-
2014-15	1157-1, 1158-1, 1159-1, 1226-1, 1227-1, 4006-2, 4050-3, 7435-1, 7436-1	10	-	-	-
2015-16	1157-1, 1158-1, 1159-1, 1226-1, 1227-1, 4006-2, 4050-3, 7290-1, 7435-1, 7436-1	10	-	-	-
2016-17	1157-1, 1158-1, 1159-1, 1226-1, 1227-1, 4006-2, 4050-3, 7290-1, 7435-1, 7436-1	10	-	-	-
2017-18	1157-1, 1158-1, 1159-1, 1226-1, 1227-1, 4006-2, 4050-3, 7290-1, 7435-1, 7436-1	10	-	-	-
2018-19	1157-1, 1158-1, 1159-1, 1226-1, 1227-1, 4006-2, 4050-3, 7290-1, 7435-1, 7436-1	10	-	-	-
Totals		84	4	2	0

During the year, Todd Energy demonstrated an overall high level of both environmental performance and administrative compliance with the resource consents as defined in Section 1.1.4. There was one

unauthorised incident recorded by the Council in relation to Todd Energy's activities, with no significant adverse effects observed.

### 3.4 Recommendations from the 2018-2019 Annual Report

In the 2018-2019 Annual Report, it was recommended:

1. THAT in the first instance, monitoring of consented activities at McKee Mangahewa Production Station in the 2019-2020 year be amended from that undertaken in 2018-2019, by reducing the number of inspections from six to four.
2. THAT should there be issues with environmental or administrative performance in 2019-2020, monitoring may be adjusted to reflect any additional investigation or intervention as found necessary.

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

### 3.5 Alterations to monitoring programmes for 2020-2021

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

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

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

It is proposed that for 2020-2021 the monitoring programme remains unchanged from that of 2019-2020.

It should be noted that the proposed programme represents a reasonable and risk-based level of monitoring for the site in question. The Council reserves the right to subsequently adjust the programme from that initially prepared, should the need arise if potential or actual non-compliance is determined at any time during 2020-2021.

### 3.6 Exercise of optional review of consent

Resource consents 4006-2, 4050-3, 7290-1, 7435-1, and 7436-1 provides for an optional review of the consent in June 2021. Condition attached to the consents allow the Council to review the consent, for the purpose of dealing with any significant adverse effect on the environment arising from the exercise of the consent.

Based on the results of monitoring in the year under review, and in previous years as set out in earlier annual compliance monitoring reports, it is considered that there are no grounds that require a review to be pursued.

## 4 Recommendations

1. THAT in the first instance, monitoring of consented activities at McKee Mangahewa Production Station in the 2020-2021 year continue at the same level as in 2019-2020.
2. THAT should there be issues with environmental or administrative performance in 2020-2021, monitoring may be adjusted to reflect any additional investigation or intervention as found necessary.
3. THAT the option for a review of resource consents 7435-1, 4006-2, 4050-3, 7290-1, and 7436-1 in June 2021, as set out in conditions of the consents, not be exercised, on the grounds that the current conditions are adequate.

## 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.
Conductivity	Conductivity, an indication of the level of dissolved salts in a sample, usually measured at 25°C and expressed in mS/m.
EGP	The electricity generation plant at MMPS.
g/m <sup>3</sup>	Grams per cubic metre, and equivalent to milligrams per litre (mg/L). In water, this is also equivalent to parts per million (ppm), but the same does not apply to gaseous mixtures.
Incident	An event that is alleged or is found to have occurred that may have actual or potential environmental consequences or may involve non-compliance with a consent or rule in a regional plan. Registration of an incident by the Council does not automatically mean such an outcome had actually occurred.
Intervention	Action/s taken by Council to instruct or direct actions be taken to avoid or reduce the likelihood of an incident occurring.
Investigation	Action taken by Council to establish what were the circumstances/events surrounding an incident including any allegations of an incident.
Incident Register	The Incident Register contains a list of events recorded by the Council on the basis that they may have the potential or actual environmental consequences that may represent a breach of a consent or provision in a Regional Plan.
L/s	Litres per second.
LEL	Lower Explosive Limit. The percentage of the lower explosive limit, expressed as methane that is detected in the air sampled.
m <sup>2</sup>	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.
mg/m <sup>3</sup>	Milligrams per cubic metre.
MPP	McKee Power Plant.
MMPS	McKee Mangahewa Production Station.
mS/m	Millisiemens per metre.
NO <sub>3</sub>	Nitrate, normally expressed in terms of the mass of nitrogen (N).
NO <sub>x</sub>	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 <sub>10</sub>	Relatively fine airborne particles (less than 10 micrometre diameter).
ppm	Parts per million. Equal to 1mg/L (water) or 1mg/kg (soil).
Resource consent	Refer Section 87 of the RMA. Resource consents include land use consents (refer Sections 9 and 13 of the RMA), coastal permits (Sections 12, 14 and 15), water permits (Section 14) and discharge permits (Section 15).
RMA	<i>Resource Management Act 1991</i> and including all subsequent amendments.
SS	Suspended solids.
SQMCI	Semi quantitative macroinvertebrate community index.
Temp	Temperature, measured in °C (degrees Celsius).
Turb	Turbidity, expressed in NTU.
µg/m	Micrograms per cubic metre of air, equivalent to one-millionth of a gram per cubic metre of air.

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

## Bibliography and references

- Ministry for the Environment. 2018. *Best Practice Guidelines for Compliance, Monitoring and Enforcement under the Resource Management Act 1991*. Wellington: Ministry for the Environment.
- Taranaki Regional Council (2020): *Biomonitoring of the Mangahewa Stream in relation to the McKee Production Station, November 2019*. Internal memorandum KB091.
- Taranaki Regional Council (2020): *Biomonitoring of the Mangahewa Stream in relation to the McKee Production Station, March 2020*. Internal memorandum KB092.
- Taranaki Regional Council (2020): *Ambient Gas (PM10, NOx, CO and LEL) Monitoring at McKee Production Station during the 2018-2019 monitoring year, June 2019*.
- Taranaki Regional Council (2020): *Todd Energy Limited McKee Magahewa Production Station Monitoring Programme Annual Report 2018-2019*. Technical Report 19-39.
- Taranaki Regional Council (2019): *Todd Energy Limited McKee Production Station Monitoring Programme Annual Report 2017-2018*. Technical Report 18-71.
- Taranaki Regional Council (2018): *Todd Energy Limited McKee Production Station Monitoring Programme Annual Report 2016-2017*. Technical Report 17-56.
- Taranaki Regional Council (2017): *Todd Petroleum Mining Company Limited McKee Production Station and Power Plant Monitoring Programme Annual Report 2015-2016*. Technical Report 16-26.
- Taranaki Regional Council (2016): *Todd Petroleum Mining Company Limited McKee Production Station and Power Plant Monitoring Programme Annual Report 2014-2015*. Technical Report 15-83.
- Taranaki Regional Council (2016): *Todd Petroleum Mining Company Limited McKee Production Station and Power Plant Monitoring Programme Biennial Report 2012-2014*. Technical Report 14-102.
- Taranaki Regional Council (2012): *Todd Taranaki Ltd McKee Production Station Monitoring Programme Annual Report 2011-2012*. Technical Report 12-89.
- Taranaki Regional Council (2011): *Todd Taranaki Ltd McKee Production Station Monitoring Programme Annual Report 2010-2011*. Technical Report 11-75.
- Taranaki Regional Council (2010): *Todd Taranaki Ltd McKee Production Station Monitoring Programme Annual Report 2009-2010*. Technical Report 10-85.
- Taranaki Regional Council (2009): *Todd Taranaki Ltd McKee Production Station Monitoring Programme Annual Report 2008-2009*. Technical Report 09-30.
- Taranaki Regional Council (2008): *Todd Taranaki Ltd McKee Production Station Monitoring Programme Annual Report 2007-2008*. Technical Report 08-23.
- Taranaki Regional Council (2007): *Todd Taranaki Ltd McKee Production Station Monitoring Programme Annual Report 2006-2007*. Technical Report 07-52.
- Taranaki Regional Council (2006): *Todd Taranaki Ltd McKee Production Station Monitoring Programme Annual Report 2005-2006*. Technical Report 06-95.
- Taranaki Regional Council (2005): *Shell Todd Oil Services Ltd McKee Production Station Monitoring Programme Annual Report 2004-2005*. Technical Report 05-36.
- Taranaki Regional Council (2004): *Shell Todd Oil Services Ltd Monitoring Programme Annual Report 2003-2004*. Technical Report 04-22.

- Taranaki Regional Council (2003): *Shell Todd Oil Services Ltd Monitoring Programme Annual Report 2002-2003*. Technical Report 03-66.
- Taranaki Regional Council (2002): *Fletcher Challenge Energy Taranaki Ltd Monitoring Programme Annual Report 2001-2002*. Technical Report 02-47.
- Taranaki Regional Council (2001): *Fletcher Challenge Energy Taranaki Ltd Monitoring Programme Annual Report 2000-2001*. Technical Report 01-83.
- Taranaki Regional Council (2000): *Fletcher Challenge Energy Taranaki Ltd Monitoring Programme Annual Report 1999-2000*. Technical Report 00-24.
- Taranaki Regional Council (1999): *Fletcher Challenge Energy Taranaki Ltd Monitoring Programme Annual Report 1998-1999*. Technical Report 99-16.
- Taranaki Regional Council (1998): *Fletcher Challenge Energy Taranaki Ltd Air and Water Monitoring Report 1997/98*. Technical Report 98-61.
- Taranaki Regional Council (1997): *Fletcher Challenge Energy Taranaki Ltd Air and Water Monitoring Report 1996/97*. Technical Report 97-51.
- Taranaki Regional Council (1996): *Petrocorp Exploration Ltd Air and Water Monitoring Report 1995/96*. Technical Report 96-60.
- Taranaki Regional Council (1995): *Petrocorp Exploration Ltd Air and Water Monitoring Report 1994/95*. Technical Report 95-54.
- Taranaki Regional Council (1994): *Petrocorp Exploration Ltd Air and Water Monitoring Report 1993/94*. Technical Report 94-73.
- Taranaki Regional Council (1993): *Petrocorp Exploration Ltd Air and Water Monitoring Report 1992/93*. Technical Report 93-35A.
- Taranaki Regional Council (1992): *Petrocorp Exploration Ltd Air and Water Monitoring Report 1991/92*. Technical Report 92-25.
- Taranaki Regional Council (1991): *Petrocorp Exploration Ltd Air and Water Monitoring Report 1990/91*. Technical Report 91-25.
- Taranaki Regional Council (1990): *Petrocorp Exploration Ltd Air and Water Monitoring Report 1989/90*. Technical Report 90-14.

# Appendix I

## Resource consents held by Todd Energy 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: Todd Energy Limited  
P O Box 802  
NEW PLYMOUTH

Decision Date  
(Change): 8 August 1984

Commencement Date  
(Change): 8 August 1984 [Granted: 28 September 1983]

**Conditions of Consent**

Consent Granted: To discharge up to 325 litres/second of uncontaminated stormwater from the site of McKee Production Facility into an unnamed tributary of the Mangahewa Stream at or about GR: Q19:255-343

Expiry Date: 1 June 2023

Site Location: Grantee's property,  
near unnamed tributary of Mangahewa Stream

Legal Description: Pt Otaraoa No 3 DP 2961 Blk X Waitara SD

Catchment: Onaero

Tributary: Mangahewa

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

**General conditions**

- a) This right is subject to all the relevant provisions of the Water and Soil Conservation Act 1967, and any regulations made thereunder. It is the obligation of the grantee of this right to comply with all statutory requirements relating to the exercise thereof.
- b) The Taranaki Regional Council may prescribe the method of management of this right, including the limitation of periods during which the right may be fully exercised, if a water shortage or other abnormal circumstance occurs in the locality.
- c) The grantee shall keep such records relating to the exercise of this right as may reasonably be required by the Taranaki Regional Council and shall, if so requested, supply this information to the Taranaki Regional Council. Further, the grantee shall, at his own expense, if the Taranaki Regional Council so requests, install such measuring devices as are considered reasonably necessary by the Taranaki Regional Council for the acquisition of such records.
- d) This right is granted subject to the Taranaki Regional Council or its servants or agents being permitted such access as is reasonably required for the purposes of carrying out inspections and measurements in connection with this right.
- e) The standards, techniques and methods of monitoring of this right shall be to the specific approval of the Chief Executive, Taranaki Regional Council.
- f) The design, construction and maintenance of any works relating to the right shall be to a standard adequate to meet the conditions of this right, so that the exercise of this does not cause damage to any property or injury to any person.
- g) This right may be cancelled in writing to the grantee by the Taranaki Regional Council if the right is not exercised within twelve months of the date of grant or such longer time as the Chief Executive, Taranaki Regional Council, may approve.
- h) This right may be terminated by the Taranaki Regional Council upon not less than 12 months notice in writing to the grantee if, in the opinion of the Taranaki Regional Council, the public interest so requires, but without prejudice to the grantee to apply for a further right in respect of the same matter.
- i) The actual and reasonable cost of supervision of this right, including certification, approval, monitoring, water sampling and analyses, be met by the grantee.
- j) The Grantee shall provide to the Chief Executive, Taranaki Regional Council, on his request (and, at his discretion, for his approval) plans, specifications and maintenance programmes of works associated with the exercise of this right, showing that the conditions of this right are able to be met.
- k) Before the Taranaki Regional Council or its Chief Executive:
  - i) imposes any requirement or makes any request under General Condition (c);  
or
  - ii) grants or withholds any approval under the provisions of this right; or

## Consent 1157-1

- iii) makes any determination as to any programme or supervision or monitoring or as to the actual and reasonable cost to be met by the Grantee; or
- iv) makes any determination as to adequacy under General Conditions (f) and/or (j);

the Taranaki Regional Council shall confer with the Grantee to enable agreement to be reached between the Taranaki Regional Council and the Grantee on the subject matter and costs thereof, provided that if any dispute arises concerning the matters dealt with in (i)-(iv) above, the dispute shall be referred to an independent arbitrator to be mutually agreed upon, the arbitration to be conducted in accordance with the Arbitration Act 1908, or in such a manner as the parties affecting may agree upon.

### **Special conditions**

1. That the Grantee shall be responsible for ensuring that the natural channels of the streams below the discharge point, for a distance to be decided upon by agreement between the Chief Executive, Taranaki Regional Council and the Grantee, are capable of coping with the increased volumes of water.
2. That the works associated with the exercise of this right shall be designed to minimise disturbance to the bed and banks of the stream channels both at low flows and design flood levels, subject to Condition 1 above.
3. That the Grantee shall, where possible, prevent or mitigate any erosion which may occur as a result of works associated with the exercise of this right.
4. That any corrective measures applied as a result of (2) and (3) above shall be to the satisfaction of the Chief Executive, Taranaki Regional Council.
5. That the Grantee shall install a sampling chamber in the main stormwater discharge lines, to the satisfaction of the Chief Executive, Taranaki Regional Council.
6. That plans for stormwater design layout and discharge points shall be forwarded to the Chief Executive, Taranaki Regional Council, for his approval prior to the commencement of construction.
7. That the Grantee shall provide, for the approval of the Chief Executive, Taranaki Regional Council, a contingency plan for actions to be taken in the event of a spillage or accumulation of off-specification effluent, at least three months or such shorter time as the Chief Executive, Taranaki Regional Council may allow, prior to the exercise of this right.
8. That the discharge shall not alter the level or concentration of suspended solids, oils and hydrocarbons, pH, temperature or any other parameter in the receiving water, without prior written approval of the Chief Executive, Taranaki Regional Council.
9. That the Taranaki Regional Council may carry out a programme of biological monitoring of the Mangahewa Stream environment, subject to Section 24K of the Water and Soil Conservation Act 1967.

Consent 1157-1

10. That there shall be a review by the Grantee and Taranaki Regional Council of all conditions, restrictions and prohibitions every five years, and if as a result of this review the Grantee or the Taranaki Regional Council require a variation, then the variation procedures shall be pursuant to Section 24B of the Water and Soil Conservation Act 1967.

Transferred at Stratford on 15 November 2013

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:            Todd Energy Limited  
   P O Box 802  
   NEW PLYMOUTH

Decision Date                8 August 1984  
(Change):

Commencement Date        8 August 1984 [Granted: 28 September 1983]  
(Change):

**Conditions of Consent**

Consent Granted:            To discharge up to 10 litres/second of treated impounded  
   stormwater from the site of the McKee Production Facility  
   into the Waitara River at or about GR: Q19:241-337

Expiry Date:                 1 June 2023

Site Location:                East Bank Of Waitara River

Legal Description:          Pt Otaraoa No 3 DP 2961 Blk X Waitara SD

Catchment:                    Waitara

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

**General conditions**

- a) This right is subject to all the relevant provisions of the Water and Soil Conservation Act 1967, and any regulations made thereunder. It is the obligation of the grantee of this right to comply with all statutory requirements relating to the exercise thereof.
- b) The Taranaki Regional Council may prescribe the method of management of this right, including the limitation of periods during which the right may be fully exercised, if a water shortage or other abnormal circumstance occurs in the locality.
- c) The grantee shall keep such records relating to the exercise of this right as may reasonably be required by the Taranaki Regional Council and shall, if so requested, supply this information to the Taranaki Regional Council. Further, the grantee shall, at his own expense, if the Taranaki Regional Council so requests, install such measuring devices as are considered reasonably necessary by the Taranaki Regional Council for the acquisition of such records.
- d) This right is granted subject to the Taranaki Regional Council or its servants or agents being permitted such access as is reasonably required for the purposes of carrying out inspections and measurements in connection with this right.
- e) The standards, techniques and methods of monitoring of this right shall be to the specific approval of the Chief Executive, Taranaki Regional Council.
- f) The design, construction and maintenance of any works relating to the right shall be to a standard adequate to meet the conditions of this right, so that the exercise of this does not cause damage to any property or injury to any person.
- g) This right may be cancelled in writing to the grantee by the Taranaki Regional Council if the right is not exercised within twelve months of the date of grant or such longer time as the Chief Executive, Taranaki Regional Council, may approve.
- h) This right may be terminated by the Taranaki Regional Council upon not less than 12 months notice in writing to the grantee if, in the opinion of the Taranaki Regional Council, the public interest so requires, but without prejudice to the grantee to apply for a further right in respect of the same matter.
- i) The actual and reasonable cost of supervision of this right, including certification, approval, monitoring, water sampling and analyses, be met by the grantee.
- j) The Grantee shall provide to the Chief Executive, Taranaki Regional Council, on his request (and, at his discretion, for his approval) plans, specifications and maintenance programmes of works associated with the exercise of this right, showing that the conditions of this right are able to be met.
- k) Before the Taranaki Regional Council or its Chief Executive:
  - i) imposes any requirement or makes any request under General Condition (c);  
or
  - ii) grants or withholds any approval under the provisions of this right; or

## Consent 1158-1

- iii) makes any determination as to any programme or supervision or monitoring or as to the actual and reasonable cost to be met by the Grantee; or
- iv) makes any determination as to adequacy under General Conditions (f) and/or (j);

the Taranaki Regional Council shall confer with the Grantee to enable agreement to be reached between the Taranaki Regional Council and the Grantee on the subject matter and costs thereof, provided that if any dispute arises concerning the matters dealt with in (i)-(iv) above, the dispute shall be referred to an independent arbitrator to be mutually agreed upon, the arbitration to be conducted in accordance with the Arbitration Act 1908, or in such a manner as the parties affecting may agree upon.

### Special conditions

1. That any stormwater originating from process or tankage areas, or areas where the level of contamination or likely contamination is significant, or is contaminated in the opinion of the Chief Executive, Taranaki Regional Council, shall be retained in the stormwater holding pond for treatment and discharged via the treatment system as treated stormwater.
2. That the Grantee shall, where possible, prevent or mitigate any erosion which occurs as a result of works associated with the exercise of this right.
3. That any corrective measures applied as a result of (2) above shall be to the satisfaction of the Chief Executive, Taranaki Regional Council.
4. That the Grantee shall install a sampling chamber in the treated stormwater discharge line to the outfall, to the satisfaction of the Chief Executive, Taranaki Regional Council
5. That plans for stormwater design layout, discharge point and works shall be forwarded to the Chief Executive, Taranaki Regional Council, for the written approval, prior to the commencement of construction.
6. The Grantee shall supply specifications of all works associated with the exercise of this right showing that the special conditions of the right particularly (8) and (9) can be met, at least three months prior to the exercise of this right for the written approval of the Chief Executive, Taranaki Regional Council.
7. That at all times of plant operation a suitably trained operator be available on site capable of operation of all aspects of the treatment works, to the satisfaction of the Chief Executive, Taranaki Regional Council.
8. That on the basis of 24 hour flow-proportioned composite samples, components of the effluent stream shall conform to the following:

Temperature	<20°C
pH	6.5 – 8.5
Total recoverable hydrocarbons	90% of samples <10 g/m <sup>3</sup> the balance of samples <20 g/m <sup>3</sup>
Suspended solids	<30 g/m <sup>3</sup>

## Consent 1158-1

9. That other than specified in Condition 8 above, the discharge shall not alter the level of concentration of any other parameter in the receiving water, without prior written approval of the Chief Executive, Taranaki Regional Council
10. The discharge shall cause no adverse effects to the biological communities of the Waitara River.
11. That the discharge shall not alter to a conspicuous extent the natural colour and clarity of the receiving water.
12. That the grantee shall provide an Effluent Disposal Management Plan for the plant, including commissioning phases, at least three months (or such shorter time as the Chief Executive, Taranaki Regional Council, may allow) prior to the exercise of this right for the approval of the Chief Executive, Taranaki Regional Council.
13. That the Grantee shall provide a Contingency Plan for actions to be taken in the event of a spillage or accumulation of off-specification effluent, at least three months (or such shorter time as the Chief Executive, Taranaki Regional Council may allow) prior to the exercise of this right, for the approval of the Chief Executive, Taranaki Regional Council
14. That ecological monitoring of the receiving water may be carried out by the Taranaki Regional Council to determine the effects of the discharge on in-stream ecology, subject to Section 24K of the Water and Soil Conservation Act 1967.
15. The Commission may undertake such toxicological testing of the final discharge from time to time, as may be required by the Chief Executive, Taranaki Regional Council, subject to Section 24K of the Water and Soil Conservation Act 1967.
16. The Grantee shall undertake such monitoring of the final discharge as may be required by the Chief Executive, Taranaki Regional Council (Section 24K of the Water and Soil Conservation Act 1967).
17. That there shall be a review by the Grantee and Taranaki Regional Council of all conditions, restrictions and prohibitions every five years, and if as a result of this review the Grantee or the Taranaki Regional Council require a variation, then the variation procedures shall be pursuant to Section 24B of the Water and Soil Conservation Act 1967.

Transferred at Stratford on 15 November 2013

For and on behalf of  
Taranaki Regional Council

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**Director-Resource Management**

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

Name of  
Consent Holder: Todd Energy Limited  
P O Box 802  
NEW PLYMOUTH

Decision Date 8 August 1984  
(Change)

Commencement Date 8 August 1984 (Granted: 28 September 1983)  
(Change)

**Conditions of Consent**

Consent Granted: To divert unnamed tributaries of the Mangahewa Stream in the vicinity of the McKee Production Facility, and to discharge surface water run-off from adjacent land into the Mangahewa Stream, to permit construction and operation of the said facility at or about GR: Q19:255-343

Expiry Date: 1 June 2023

Site Location: Grantee's property,  
near unnamed tributary of Mangahewa Stream

Legal Description: N/A

Catchment: Onaero

Tributary: Mangahewa

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

**General conditions**

- a) This right is subject to all the relevant provisions of the Water and Soil Conservation Act 1967, and any regulations made thereunder. It is the obligation of the grantee of this right to comply with all statutory requirements relating to the exercise thereof.
- b) The Taranaki Regional Council may prescribe the method of management of this right, including the limitation of periods during which the right may be fully exercised, if a water shortage or other abnormal circumstance occurs in the locality.
- c) The grantee shall keep such records relating to the exercise of this right as may reasonably be required by the Taranaki Regional Council and shall, if so requested, supply this information to the Taranaki Regional Council. Further, the grantee shall, at his own expense, if the Taranaki Regional Council so requests, install such measuring devices as are considered reasonably necessary by the Taranaki Regional Council for the acquisition of such records.
- d) This right is granted subject to the Taranaki Regional Council or its servants or agents being permitted such access as is reasonably required for the purposes of carrying out inspections and measurements in connection with this right.
- e) The standards, techniques and methods of monitoring of this right shall be to the specific approval of the Chief Executive, Taranaki Regional Council.
- f) The design, construction and maintenance of any works relating to the right shall be to a standard adequate to meet the conditions of this right, so that the exercise of this does not cause damage to any property or injury to any person.
- g) This right may be cancelled in writing to the grantee by the Taranaki Regional Council if the right is not exercised within twelve months of the date of grant or such longer time as the Chief Executive, Taranaki Regional Council, may approve.
- h) This right may be terminated by the Taranaki Regional Council upon not less than 12 months notice in writing to the grantee if, in the opinion of the Taranaki Regional Council, the public interest so requires, but without prejudice to the grantee to apply for a further right in respect of the same matter.
- i) The actual and reasonable cost of supervision of this right, including certification, approval, monitoring, water sampling and analyses, be met by the grantee.
- j) The Grantee shall provide to the Chief Executive, Taranaki Regional Council, on his request (and, at his discretion, for his approval) plans, specifications and maintenance programmes of works associated with the exercise of this right, showing that the conditions of this right are able to be met.
- k) Before the Taranaki Regional Council or its Chief Executive:
  - i) imposes any requirement or makes any request under General Condition (c);  
or
  - ii) grants or withholds any approval under the provisions of this right; or

## Consent 1159-1

- iii) makes any determination as to any programme or supervision or monitoring or as to the actual and reasonable cost to be met by the Grantee; or
- iv) makes any determination as to adequacy under General Conditions (f) and/or (j);

the Taranaki Regional Council shall confer with the Grantee to enable agreement to be reached between the Taranaki Regional Council and the Grantee on the subject matter and costs thereof, provided that if any dispute arises concerning the matters dealt with in (i)-(iv) above, the dispute shall be referred to an independent arbitrator to be mutually agreed upon, the arbitration to be conducted in accordance with the Arbitration Act 1908, or in such a manner as the parties affecting may agree upon.

### **Special conditions**

1. That plans and locations for the proposed diversions shall be forwarded to the Chief Executive, Taranaki Regional Council, for his written approval prior to commencement of construction.
2. That the Grantee shall be responsible for ensuring that the natural channels of the streams below the diversion, for a distance to be decided upon by agreement between the Chief Executive, Taranaki Regional Council and the Grantee, are capable of coping with the increased volumes of water.
3. That the Grantee shall, where possible, prevent or mitigate any erosion which occurs as a result of works associated with the exercise of this right.
4. That any corrective measures applied as a result of (2) and (3) above shall be to the satisfaction of the Chief Executive, Taranaki Regional Council.
5. That the Taranaki Regional Council may carry out a programme of biological monitoring of the Mangahewa Stream environment, subject to Condition (1) above.
6. That there shall be a review by the Grantee and Taranaki Regional Council of all conditions, restrictions and prohibitions every five years, and if as a result of this review the Grantee or the Taranaki Regional Council require a variation, then the variation procedures shall be pursuant to Section 24B of the Water and Soil Conservation Act 1967.

Transferred at Stratford on 15 November 2013

For and on behalf of  
Taranaki Regional Council

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**Director-Resource Management**



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

Name of  
Consent Holder:            Todd Energy Limited  
   P O Box 802  
   NEW PLYMOUTH

Decision Date                8 August 1984  
(Change):

Commencement Date    8 August 1984    (Granted: 14 March 1984)  
(Change):

**Conditions of Consent**

Consent Granted:            To take up to 172,800 litres/day of water at a maximum  
   rate of 2 litres/second from the Mangahewa Stream for  
   process and domestic purposes associated with operation  
   of the Mckee Production Station at or about GR: Q19:256-  
   344

Expiry Date:                1 June 2023

Site Location:                Mangahewa Stream, Otaraoa Road, Waitara

Legal Description:        Pt Otaraoa No 3 DP 2961 Blk X Waitara SD

Catchment:                 Onaero

Tributary:                    Mangahewa

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

**General conditions**

- a) This right is subject to all the relevant provisions of the Water and Soil Conservation Act 1967, and any regulations made thereunder. It is the obligation of the grantee of this right to comply with all statutory requirements relating to the exercise thereof.
- b) The Taranaki Regional Council may prescribe the method of management of this right, including the limitation of periods during which the right may be fully exercised, if a water shortage or other abnormal circumstance occurs in the locality.
- c) The grantee shall keep such records relating to the exercise of this right as may reasonably be required by the Taranaki Regional Council and shall, if so requested, supply this information to the Taranaki Regional Council. Further, the grantee shall, at his own expense, if the Taranaki Regional Council so requests, install such measuring devices as are considered reasonably necessary by the Taranaki Regional Council for the acquisition of such records.
- d) This right is granted subject to the Taranaki Regional Council or its servants or agents being permitted such access as is reasonably required for the purposes of carrying out inspections and measurements in connection with this right.
- e) The standards, techniques and methods of monitoring of this right shall be to the specific approval of the Chief Executive, Taranaki Regional Council.
- f) The design, construction and maintenance of any works relating to the right shall be to a standard adequate to meet the conditions of this right, so that the exercise of this does not cause damage to any property or injury to any person.
- g) This right may be cancelled in writing to the grantee by the Taranaki Regional Council if the right is not exercised within twelve months of the date of grant or such longer time as the Chief Executive, Taranaki Regional Council, may approve.
- h) This right may be terminated by the Taranaki Regional Council upon not less than 12 months notice in writing to the grantee if, in the opinion of the Taranaki Regional Council, the public interest so requires, but without prejudice to the grantee to apply for a further right in respect of the same matter.
- i) The actual and reasonable cost of supervision of this right, including certification, approval, monitoring, water sampling and analyses, be met by the grantee.
- j) The Grantee shall provide to the Chief Executive, Taranaki Regional Council, on his request (and, at his discretion, for his approval) plans, specifications and maintenance programmes of works associated with the exercise of this right, showing that the conditions of this right are able to be met.
- k) Before the Taranaki Regional Council or its Chief Executive:
  - i) imposes any requirement or makes any request under General Condition (c);  
or
  - ii) grants or withholds any approval under the provisions of this right; or

## Consent 1226-1

- iii) makes any determination as to any programme or supervision or monitoring or as to the actual and reasonable cost to be met by the Grantee; or
- iv) makes any determination as to adequacy under General Conditions (f) and/or (j);

the Taranaki Regional Council shall confer with the Grantee to enable agreement to be reached between the Taranaki Regional Council and the Grantee on the subject matter and costs thereof, provided that if any dispute arises concerning the matters dealt with in (i)-(iv) above, the dispute shall be referred to an independent arbitrator to be mutually agreed upon, the arbitration to be conducted in accordance with the Arbitration Act 1908, or in such a manner as the parties affecting may agree upon.

### **Special conditions**

1. That a minimum flow of not less than 5 litres/second should be maintained in the tributary at all times except when due to natural conditions.
2. That the Grantee shall install a metering system to continuously record the abstraction rate with an error of less than 10%, and shall supply this record or parts of this records to the Taranaki Regional Council at the Taranaki Regional Council's request.
3. That the intake structure shall be designed to minimise disturbance to the stability of the bed and banks of the streams/river's channels both at low flows and flood levels. The intakes shall be so designed, constructed, maintained and modified so as to permit upstream passage of fish.
4. That the Grantee shall submit plans of the intake structure, its location, and the metering system to the Taranaki Regional Council for written approval by the Chief Executive, prior to commencement of construction.
5. That there shall be a review by the Grantee and Taranaki Regional Council of all conditions, restrictions and prohibitions every five years, and if as a result of this review the Grantee or the Taranaki Regional Council require a variation, then the variation procedures shall be pursuant to Section 24B of the Water and Soil Conservation Act 1967.

Transferred at Stratford on 15 November 2013

For and on behalf of  
Taranaki Regional Council

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**Director-Resource Management**



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

Name of  
Consent Holder: Todd Energy Limited  
P O Box 802  
NEW PLYMOUTH

Decision Date: 14 March 1984

Commencement Date: 14 March 1984

**Conditions of Consent**

Consent Granted: To construct a weir control for the Mckee Production Site  
water intake on the Mangahewa Stream in the Onaero  
Catchment at or about GR: Q19:256-344

Expiry Date: 1 June 2023

Site Location: Mangahewa Stream, Otaraoa Road, Waitara

Legal Description: Pt Otaraoa No 3 DP 2961 Blk X Waitara SD

Catchment: Onaero

Tributary: Mangahewa

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

**General conditions**

- a) This right is subject to all the relevant provisions of the Water and Soil Conservation Act 1967, and any regulations made thereunder. It is the obligation of the grantee of this right to comply with all statutory requirements relating to the exercise thereof.
- b) The Taranaki Regional Council may prescribe the method of management of this right, including the limitation of periods during which the right may be fully exercised, if a water shortage or other abnormal circumstance occurs in the locality.
- c) The grantee shall keep such records relating to the exercise of this right as may reasonably be required by the Taranaki Regional Council and shall, if so requested, supply this information to the Taranaki Regional Council. Further, the grantee shall, at his own expense, if the Taranaki Regional Council so requests, install such measuring devices as are considered reasonably necessary by the Taranaki Regional Council for the acquisition of such records.
- d) This right is granted subject to the Taranaki Regional Council or its servants or agents being permitted such access as is reasonably required for the purposes of carrying out inspections and measurements in connection with this right.
- e) The standards, techniques and methods of monitoring of this right shall be to the specific approval of the Chief Executive, Taranaki Regional Council.
- f) The design, construction and maintenance of any works relating to the right shall be to a standard adequate to meet the conditions of this right, so that the exercise of this does not cause damage to any property or injury to any person.
- g) This right may be cancelled in writing to the grantee by the Taranaki Regional Council if the right is not exercised within twelve months of the date of grant or such longer time as the Chief Executive, Taranaki Regional Council, may approve.
- h) This right may be terminated by the Taranaki Regional Council upon not less than 12 months notice in writing to the grantee if, in the opinion of the Taranaki Regional Council, the public interest so requires, but without prejudice to the grantee to apply for a further right in respect of the same matter.
- i) The actual and reasonable cost of supervision of this right, including certification, approval, monitoring, water sampling and analyses, be met by the grantee.
- j) The Grantee shall provide to the Chief Executive, Taranaki Regional Council, on his request (and, at his discretion, for his approval) plans, specifications and maintenance programmes of works associated with the exercise of this right, showing that the conditions of this right are able to be met.
- k) Before the Taranaki Regional Council or its Chief Executive:
  - i) imposes any requirement or makes any request under General Condition (c);  
or
  - ii) grants or withholds any approval under the provisions of this right; or

## Consent 1227-1

- iii) makes any determination as to any programme or supervision or monitoring or as to the actual and reasonable cost to be met by the Grantee; or
- iv) makes any determination as to adequacy under General Conditions (f) and/or (j);

the Taranaki Regional Council shall confer with the Grantee to enable agreement to be reached between the Taranaki Regional Council and the Grantee on the subject matter and costs thereof, provided that if any dispute arises concerning the matters dealt with in (i)-(iv) above, the dispute shall be referred to an independent arbitrator to be mutually agreed upon, the arbitration to be conducted in accordance with the Arbitration Act 1908, or in such a manner as the parties affecting may agree upon.

### **Special conditions**

1. That the Grantee shall submit plans and the proposed locations of all works associated with this right to the Chief Executive, Taranaki Regional Council for written approval prior to commencement of construction.
2. That the works associated with the exercise of this right shall be designed to minimise disturbance to the bed and banks of the river channel both at low flows and design flood levels.
3. That the Grantee shall, where possible, prevent or mitigate any erosion which may occur as a result of works associated with the exercise of this right.
4. That the intake structure shall be so designed, constructed and maintained so as to permit the upstream passage of fish.
5. That a minimum flow of not less than 5 litres/second should be maintained in the Mangahewa Stream at all times.
6. That the operation of the sluice pipe through the weir, for the purposes of desilting the impoundment, shall only take place following the obtaining of prior written approval from the Chief Executive, Taranaki Regional Council.
7. That there shall be a review by the Grantee and Taranaki Regional Council of all conditions, restrictions and prohibitions every five years, and if as a result of this review the Grantee or the Taranaki Regional Council require a variation, then the variation procedures shall be pursuant to Section 24B of the Water and Soil Conservation Act 1967.

Transferred at Stratford on 15 November 2013

For and on behalf of  
Taranaki Regional Council

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**Director-Resource Management**



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

Name of  
Consent Holder: Todd Energy Limited  
P O Box 802  
NEW PLYMOUTH

Decision Date: 14 July 1999

Commencement Date: 14 July 1999

**Conditions of Consent**

Consent Granted: To erect, place and maintain a bridge over the Waitara River for oil field access purposes at or about GR: Q19:248-322

Expiry Date: 1 June 2033

Review Date(s): June 2003, June 2009, June 2015, June 2021, June 2027

Site Location: Waitara River, Bristol/McKee Road, Waitui

Legal Description: Road Reserve Blk XIV Waitara SD

Catchment: Waitara

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

**Special conditions**

- 1. That the consent holder shall notify the Taranaki Regional Council, at least 48 hours prior to the commencement and upon completion of any subsequent maintenance works which would involve disturbance of or deposition to the riverbed or discharges to water.
- 2. That the structure[s] authorised by this consent shall be maintained to ensure the conditions of this consent are met.
- 3. That the structure[s] authorised by this consent shall be removed and the area reinstated, if and when the structure[s] are no longer required. The consent holder shall notify the Taranaki Regional Council at least 48 hours prior to structure[s] removal and reinstatement.
- 4. That the Taranaki Regional Council may review any or all of the conditions of this consent by giving notice of review during the month of June 2003 and/or June 2008 and/or June 2015 and/or June 2021 and/or June 2027, for the purpose of ensuring that the conditions adequately deal with the environmental effects arising from the exercise of this 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 15 November 2013

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: Todd Energy Limited  
P O Box 802  
NEW PLYMOUTH 4340

Decision Date: 30 September 2009

Commencement Date: 30 September 2009

**Conditions of Consent**

Consent Granted: To discharge emissions into the air arising from the flaring of hydrocarbons associated with production activities at the McKee-C wellsite and from hydrocarbon processing operations and miscellaneous emissions at the McKee Production Station at or about (NZTM) 1715282E-5672495N

Expiry Date: 1 June 2027

Review Date(s): June 2015, June 2021

Site Location: McKee Production Station, Otaraoa Road,  
Tikorangi, Waitara

Legal Description: Lot 1 DP 14374 Blk 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**

#### **All operations**

1. 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 McKee Production Station or McKee-C wellsite [including use of a separator during well clean-up].
2. All liquid hydrocarbon storage vessels shall be fitted with vapour recovery systems.
3. The opacity of any smoke emissions shall not exceed a level of 1 as measured on the Ringelmann Scale.
4. There shall not be any offensive odour or smoke, as determined by an enforcement officer of the Taranaki Regional Council, at or beyond the boundary of the property where the production station and wellsite is located.
5. The consent holder shall control all emissions of carbon monoxide to the atmosphere from the flare so that, whether alone or in conjunction with any other emissions from the wellsite, the maximum ground level concentration of carbon monoxide arising from the exercise of this consent measured under ambient conditions does not exceed 10 milligrams per cubic metre [mg/m<sup>3</sup>] [eight-hour average exposure], or 30 mg/m<sup>3</sup> one-hour average exposure at or beyond the boundary of the property where the production station and wellsite are located.
6. The consent holder shall control all emissions of nitrogen oxides to the atmosphere from the flare so that, whether alone or in conjunction with any other emissions from the wellsite, 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 [µg/m<sup>3</sup>] [24-hour average exposure], or 200 µg/m<sup>3</sup> [1-hour average exposure] at or beyond the boundary of the of the property where the production station and wellsite are located.

## Consent 4050-3

7. The consent holder shall control emissions to the atmosphere, from the production station, wellsite and flare, of contaminants other than carbon dioxide, carbon monoxide, and nitrogen oxides so that, whether alone or in conjunction with any other emissions from the production station, is not hazardous or toxic or noxious at or beyond the boundary of the property.
8. The consent holder shall control emissions to the atmosphere from the production station, wellsite and flare of contaminants other than carbon dioxide, carbon monoxide, and nitrogen oxides so that, whether alone or in conjunction with any emissions from the flare, the maximum ground level concentration for any particular contaminant arising from the exercise of this consent measured at or beyond the boundary of the property where the wellsite is located, is not increased above background levels:
  - a) by more than 1/30<sup>th</sup> 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].
9. The consent holder shall make available to the Chief Executive, Taranaki Regional Council, upon request, an analysis of a typical gas and condensate stream from the field, covering sulphur compound content and the content of carbon compounds of structure C<sub>6</sub> or higher number of compounds.
10. Each time there is visible smoke as a result of the exercise of this consent, the consent holder shall record the time, duration and cause. The consent holder shall make the record available to the Chief Executive, Taranaki Regional Council, upon request.
11. The consent holder shall record and maintain a log of all continuous flaring events longer than five minutes duration, and any intermittent flaring lasting for an aggregate of ten minutes or longer in any 120-minute period. The log shall contain the date, the start and finish times of the flaring event, the quantity and type of material flared, and the reason for flaring. The log shall be made available to the Chief Executive, Taranaki Regional Council, upon request, and summarised annually in the report required under condition 12.
12. 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 smoke emissions as required under condition 11;
  - ii) detailing any measures undertaken or proposed to reduce smoke emissions;
  - iii) detailing any measures undertaken or proposed to reduce flaring;
  - iv) addressing any other issue relevant to the minimisation or mitigation of emissions from the flare.

### **McKee Production Station**

13. 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 authorised by this consent, without prior consultation with the Chief Executive, Taranaki Regional Council.
14. No liquid or solid hydrocarbons from the McKee Production Station shall be combusted through the gas flare system, other than in an emergency.

### **McKee-C wellsite**

15. The consent holder shall notify the Chief Executive, Taranaki Regional Council, whenever the continuous flaring of hydrocarbons [other than purge gas] from the McKee-C wellsite is expected to occur for more than five minutes in duration. Notification shall be no less than 24 hours before the flaring commences. Notification shall include the consent number and be emailed to [worknotification@trc.govt.nz](mailto:worknotification@trc.govt.nz). Notification by fax or post is acceptable if the consent holder does not have access to email.
16. At least 24 hours before any flaring from the McKee-C wellsite, other than in emergencies, the consent holder shall provide notification to all 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 complaints received in respect of any flaring activity.
17. 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, and throughout, any episode of flaring from the McKee-C wellsite so as to minimise offsite effects.
18. All gas that is flared from the McKee-C wellsite must first be treated by effective liquid and solid separation and recovery to ensure that smoke emission during flaring is minimised.
19. If separation required by special condition 18 cannot be implemented or maintained at any time while there is a flow from the well, whether natural or induced, then the consent holder shall immediately advise the Compliance Manager, Taranaki Regional Council, and shall in any case re-establish liquid and solid separation and recovery within three hours.
20. Only substances originating from the well stream and treated as outlined by conditions 18 and 19 shall be combusted within the flare pit.

**Review**

21. 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 2015 and/or June 2021, for any of the following purposes:
- a) dealing with any significant adverse effect on the environment arising from the exercise of the consent which was not foreseen at the time the application was considered or which it was not appropriate to deal with at the time;
  - b) requiring the consent holder to adopt the best practicable option to remove or reduce any adverse effect on the environment caused by the discharge;
  - c) to alter, add or delete limits on mass discharge quantities or discharge or ambient concentrations of any contaminant.

Signed at Stratford on 15 November 2013

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: Todd Energy Limited  
P O Box 802  
NEW PLYMOUTH 4340

Decision Date: 24 June 2008

Commencement Date: 24 June 2008

**Conditions of Consent**

Consent Granted: To discharge emissions into the air from natural gas combustion and other related activities associated with the operation of an electricity generation plant at the McKee Production Station at or about (NZTM) 1715334E-5672399N

Expiry Date: 1 June 2027

Review Date(s): June 2015, June 2021

Site Location: McKee Production Station, Otaraoa Road, Tikorangi

Legal Description: Lot 1 DP 14374 Blk 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**

1. Notwithstanding any other conditions of this consent the consent holder shall at all times adopt the best practicable option [as defined in Section 2 of the Resource Management Act 1991] to prevent or minimise any actual or likely adverse effects on the environment associated with the discharge of contaminants into the environment arising from the emissions to air from the site.
2. Prior to undertaking any alterations to the plant, processes or operations, which may significantly change the nature or quantity of contaminants emitted to air from the site, the consent holder shall first consult with the Chief Executive, Taranaki Regional Council, and shall obtain any necessary approvals under the Resource Management Act 1991.
3. The discharges authorised by this consent shall not, whether alone or in conjunction with any other emissions from the site arising through the exercise of any other consent held by the consent holder, give rise to any dangerous levels of airborne contaminants at or beyond the boundary of the property including but not limited to any risk of fire or explosion.
4. The discharges authorised by this consent shall not, whether alone or in conjunction with any other emissions from the site arising through the exercise of any other consent held by the consent holder, give rise to any odour or dust or smoke that is offensive or obnoxious or objectionable at or beyond the boundary of the property on which the production station is located.

## Consent 7290-1

5. The consent holder shall not discharge any contaminant to air from the site at a rate or a quantity such that the contaminant, whether alone or in conjunction with any other emissions from the site arising through the exercise of any other consent held by the consent holder, is or is liable to be hazardous or toxic or noxious at or beyond the boundary of the property where the electricity generation plant is located.
6. The consent holder shall control all discharges of carbon monoxide to the atmosphere from the site, whether alone or in conjunction with any other emissions from the site arising through the exercise of any other consent held by the consent holder, 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 milligrams per cubic metre [eight-hour average exposure], or 30 milligrams per cubic metre [one-hour average exposure] at or beyond the boundary of the property on which the production station is located.
7. The consent holder shall control all discharges of nitrogen dioxide or its precursors to the atmosphere from the site, whether alone or in conjunction with any other discharges to the atmosphere from the site arising through the exercise of any other consent held by the consent holder, 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 200 micrograms per cubic metre [one hour average exposure], or 100 micrograms per cubic metre [twenty-four hour average exposure], at or beyond the boundary of the property on which the production station is located.
8. The consent holder shall control discharges to the atmosphere from the site of contaminants other than carbon dioxide, carbon monoxide, and nitrogen oxides, whether alone or in conjunction with any other emissions from the site arising through the exercise of any other consent held by the consent holder, 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 property on which the production station is located, is not increased above background levels:
  - a) by more than 1/30th of the relevant Workplace Exposure Standard-Time Weighted Average [exposure averaged over a duration as specified for the Workplace Exposure Standard-Time Weighted Average], or by more than 1/10th of the Workplace Exposure Standard-Short Term Exposure Limit over any short period of 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 the General Excursion Limit at any time [all terms as defined in Workplace Exposure Standards, 2002, Department of Labour].
9. This consent shall lapse five years after the date of issue of this consent, unless the consent is given effect to before the end of that period or the Taranaki Regional Council fixes a longer period pursuant to section 125(1)(b) of the Resource Management Act 1991.

Consent 7290-1

10. In accordance with section 128 and section 129 of the Resource Management Act 1991, the Taranaki Regional Council may serve notice of its intention to review, amend, delete or add to the conditions of this resource consent by giving notice of review during the month of June 2015 and/or 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 15 November 2013

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: Todd Energy Limited  
P O Box 802  
NEW PLYMOUTH 4340

Decision Date: 8 July 2009

Commencement Date: 8 July 2009

**Conditions of Consent**

Consent Granted: To discharge stormwater into an unnamed tributary of the Mangahewa Stream in the Onaero catchment from a LPG Plant at or about (NZTM) 1715355E-5672389N

Expiry Date: 1 June 2039

Review Date(s): June 2015, June 2021, June 2027, June 2033

Site Location: McKee Production Station, Otaraoa Road, Waitara

Legal Description: Lot 1 DP 14374 Blk X Waitara SD

Catchment: Onaero

Tributary: Mangahewa

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

### General conditions

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

### Special conditions

1. The consent holder shall at all times adopt the best practicable option, as defined in section 2 of the Resource Management Act 1991, to prevent or minimise any adverse effects of the discharge on any water body.
2. The stormwater discharged shall be from a catchment area not exceeding 7,800 m<sup>2</sup>.
3. Within one month of the completion of the development of the site the consent holder shall provide, to the written satisfaction of the Chief Executive, Taranaki Regional Council, detailed plans of stormwater catchment and drainage pathways, including clean areas, potentially contaminated areas, and bunded areas, and the containment, treatment and discharge systems put into place.
4. The consent holder shall notify the Chief Executive, Taranaki Regional Council, in writing at least seven days prior to the exercise of this consent. Notification shall include the consent number and a brief description of the activity consented and be emailed to [worknotification@trc.govt.nz](mailto:worknotification@trc.govt.nz). Notification by fax or post is acceptable only if the consent holder does not have access to email.
5. The consent holder shall maintain a contingency plan. The contingency plan shall be adhered to in the event of a spill or emergency and shall, to the satisfaction of the Chief Executive, Taranaki Regional Council, detail 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.

## Consent 7435-1

6. The consent holder shall maintain a stormwater management plan. This plan shall be adhered to at all times and shall, to the satisfaction of the Chief Executive, Taranaki Regional Council document how the site is to be managed in order to minimise the contaminants that become entrained in the stormwater. The plan shall include but not necessarily be limited to:
  - a. management of the interceptor system.
  - b. the loading and unloading of materials;
  - c. maintenance of conveyance systems; and
  - d. general housekeeping.
7. All stormwater discharged under this permit shall be directed for treatment through the stormwater treatment system for discharge in accordance with the special conditions of this permit.
8. Any above ground hazardous substances storage areas shall be bunded with drainage to sumps, or other appropriate recovery systems, and not directly to the stormwater catchment.
9. The following concentrations shall not be exceeded in the discharge,

<b>Component</b>	<b>Concentration</b>
pH (range)	6.0-9.0
suspended solids	100 gm <sup>-3</sup>
total recoverable hydrocarbons [infrared spectroscopic technique]	15 gm <sup>-3</sup>
chloride	50 gm <sup>-3</sup>

This condition shall apply prior to the entry of the treated stormwater into the unnamed tributary of the Mangahewa Stream at a designated sampling point approved by the Chief Executive, Taranaki Regional Council.

10. After allowing for reasonable mixing, within a mixing zone extending 25 metres downstream of the discharge point, the discharge shall not give rise to any of the following effects in the receiving waters of the unnamed tributary of the Mangahewa Stream:
  - a) the production of any conspicuous oil or grease films, scums or foams, or floatable or suspended materials;
  - b) any conspicuous change in the colour or visual clarity;
  - c) any emission of objectionable odour;
  - d) the rendering of fresh water unsuitable for consumption by farm animals;
  - e) any significant adverse effects on aquatic life.
11. This consent shall lapse on 30 September 2014, unless the consent is given effect to before the end of that period or the Taranaki Regional Council fixes a longer period pursuant to section 125(1)(b) of the Resource Management Act 1991.

Consent 7435-1

12. In accordance with section 128 and section 129 of the Resource Management Act 1991, the Taranaki Regional Council may serve notice of its intention to review, amend, delete or add to the conditions of this resource consent by giving notice of review during the month of June 2015 and/or June 2021 and/or June 2027 and/or June 2033, 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 November 2013

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: Todd Energy Limited  
P O Box 802  
NEW PLYMOUTH 4340

Decision Date  
(Change): 24 October 2012

Commencement  
Date (Change): 24 October 2012 (Granted: 8 July 2009)

**Conditions of Consent**

Consent Granted: To discharge emissions to air from the flaring of natural gas in emergency situations and miscellaneous emissions associated with the treatment of gas at the McKee LPG Plant and the Mangahewa Extraction Train 2 at or about (NZTM) 1715363E-5672126N

Expiry Date: 1 June 2039

Review Date(s): June 2015, June 2021, June 2027, June 2033

Site Location: McKee Production Station, Otaraoa Road, Waitara

Legal Description: Lot 1 DP 14374 Blk X Waitara SD  
(Discharge source & site)

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

### **General conditions**

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

### **Special conditions**

1. The consent holder shall at all times adopt the best practicable option [as defined in Section 2 of the Resource Management Act 1991] to prevent or minimise any actual or likely adverse effects on the environment associated with the discharge of contaminants into the environment arising from the emissions to air from the site.
2. Prior to undertaking any alterations to the plant, processes or operations, which may significantly change the nature or quantity of contaminants emitted to air from the site, the consent holder shall first consult with the Chief Executive, Taranaki Regional Council, and shall obtain any necessary approvals under the Resource Management Act 1991.
3. The consent holder shall minimise the emissions and impacts of air contaminants discharged from the site by the selection of the most appropriate process equipment, process control equipment, emission control equipment, methods of control, supervision and operation, and the proper and effective operation, supervision, control and maintenance of all equipment and processes.
4. 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.
5. The discharges authorised by this consent shall not, whether alone or in conjunction with any other emissions from the McKee Production Station, give rise to any dangerous levels of airborne contaminants at or beyond the boundary of the property including but not limited to any risk of fire or explosion.

## Consent 7436-1

6. The discharges authorised by this consent shall not, whether alone or in conjunction with any other emissions from the McKee Production Station arising through the exercise of any other consent held by the consent holder, give rise to any odour or dust or smoke that is offensive or obnoxious or objectionable at or beyond the boundary of the property on which the production station is located.
7. The consent holder shall not discharge any contaminant to air from the site at a rate or a quantity such that the contaminant, whether alone or in conjunction with any other emissions from the McKee Production Station arising through the exercise of any other consent held by the consent holder, is or is liable to be hazardous or toxic or noxious at or beyond the boundary of the property where the LPG plant is located.
8. The consent holder shall control all discharges of carbon monoxide to the atmosphere from the site, whether alone or in conjunction with any other emissions from the McKee Production Station arising through the exercise of any other consent held by the consent holder, 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 milligrams per cubic metre [eight-hour average exposure], or 30 milligrams per cubic metre [one-hour average exposure] at or beyond the boundary of the property on which the LPG plant is located.
9. The consent holder shall control all discharges of nitrogen dioxide or its precursors to the atmosphere from the site, whether alone or in conjunction with any other discharges to the atmosphere from the McKee Production Station arising through the exercise of any other consent held by the consent holder, 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 200 micrograms per cubic metre [one hour average exposure], or 100 micrograms per cubic metre [twenty-four hour average exposure], at or beyond the boundary of the property on which the LPG plant is located.
10. The consent holder shall control discharges to the atmosphere from the site of contaminants other than carbon dioxide, carbon monoxide, and nitrogen oxides, whether alone or in conjunction with any other emissions from the McKee Production Station arising through the exercise of any other consent held by the consent holder, 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 property on which the LPG plant is located, is not increased above background levels:
  - a) by more than 1/30th of the relevant Workplace Exposure Standard-Time Weighted Average [exposure averaged over a duration as specified for the Workplace Exposure Standard-Time Weighted Average], or by more than 1/10th of the Workplace Exposure Standard-Short Term Exposure Limit over any short period of 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 the General Excursion Limit at any time [all terms as defined in Workplace Exposure Standards, 2002, Department of Labour].

## Consent 7436-1

11. This consent shall lapse on 30 September 2014, 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.
12. In accordance with section 128 and section 129 of the Resource Management Act 1991, the Taranaki Regional Council may serve notice of its intention to review, amend, delete or add to the conditions of this resource consent by giving notice of review during the month of June 2015 and/or June 2021 and/or June 2027 and/or June 2033, 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 November 2013

For and on behalf of  
Taranaki Regional Council

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**Director-Resource Management**