OMV Taranaki Ltd
Maui Production Station

Monitoring Programme

Annual Report

2020-2021

Technical Report 2021-37

Working with people | caring for Taranaki

Taranaki
Regional Council

Taranaki Regional Council
Private Bag 713
Stratford

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Executive summary

OMV Taranaki Ltd (OMV) operates the Maui Production Station located on Tai Road, Oaonui, in the Ngapirau catchment. This report for the period July 2020 to June 2021 describes the monitoring programme implemented by the Taranaki Regional Council (the Council) to assess the OMV'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 OMV's activities.

During the monitoring period, OMV Taranaki Ltd demonstrated an overall high level of environmental performance.

OMV holds four resource consents, which include a total of 40 conditions setting out the requirements that they must satisfy. OMV holds two consents relating to discharges to water, one consent to discharge emissions to the air, and one to maintain a structure in the coastal marine area.

The Council's monitoring programme for the year under review included four inspections, ten discharge and receiving water samples collected for physicochemical analysis, one biomonitoring survey of receiving waters, and two ambient air quality analyses. The consent holder supplied information on flaring and the results of discharge and receiving water quality analysis.

Council inspections and sampling, in conjunction with sampling conducted by OMV during the 2020-2021 period, showed that the discharges were unlikely to be causing any adverse effects on the Ngapirau Stream. This was supported by the findings of the macroinvertebrate survey carried out in the stream.

There were no adverse effects noted on the environment resulting from the exercise of the air discharge consent. The ambient air quality monitoring at the Maui Production Station showed that levels of carbon monoxide, combustible gases, PM_{10} particulates, and nitrogen oxides were all below levels of concern at the time of sampling. No offensive or objectionable odours were detected beyond the boundaries during inspections.

During the period under review, OMV demonstrated an overall high level of both environmental performance and administrative compliance with the resource consents. The Maui Production Station was well managed and maintained.

For reference, in the 2020-2021 year, consent holders were found to achieve a high level of environmental performance and compliance for 86% of the consents monitored through the Taranaki tailored monitoring programmes, while for another 11% 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 2021-2022 year.

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1 Introduction

1.1 Compliance monitoring programme reports and the Resource Management Act 1991

1.1.1 Introduction

This report is for the period July 2020 to June 2021 by the Taranaki Regional Council (the Council) on the monitoring programme associated with resource consents held by OMV Taranaki Ltd (OMV), formerly Shell Taranaki Ltd. OMV operates the Maui Production Station situated on Tai Road, Oaonui.

The report includes the results and findings of the monitoring programme implemented by the Council in respect of the consents held by OMV that relate to discharges of water within the Ngapirau catchment, structures in the coastal marine area, and 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 OMV's use of water, land and air, and is the 30th combined annual report by the Council for the Maui Production Station.

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 though annual programmes;
- the resource consents held by OMV in the Ngapirau catchment;
- the nature of the monitoring programme in place for the period under review; and
- a description of the activities and operations conducted at the Maui Production Station.

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 2021-2022 monitoring year.

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

1.1.3 The Resource Management Act 1991 and monitoring

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

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

e. risks to the neighbourhood or environment.

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

1.1.4 Evaluation of environmental and administrative performance

Besides discussing the various details of the performance and extent of compliance by OMV, 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 OMV'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 2020-2021 year, consent holders were found to achieve a high level of environmental performance and compliance for 86% of the consents monitored through the Taranaki tailored monitoring programmes, while for another 11% of the consents, a good level of environmental performance and compliance was achieved. [1]

1.2 Process description

The onshore Maui Production Station at Oaonui (Photo 1) was built to process gas and condensate from the offshore Maui Field. Exploration of the Maui field began in 1969, and production commenced in 1979 from the Maui-A platform. Gas and condensate is transported 33 km from the offshore Maui-A platform to the onshore Maui Production Station via submarine pipelines. Another platform, Maui-B, was installed in 1992. Gas and condensate from Maui-B is piped 15 km to Maui-A for initial separation, and then to the production station.

The Maui Production Station separates the various hydrocarbon components, mainly by distillation. The production station supplies natural gas to the national grid and liquefied petroleum gas (LPG) is transported off-site by road tankers. Condensate is piped to storage tanks at Omata.

Facilities at the Maui Production Station include: an administration building and workshop which accommodates the control room on the upper floor; glycol trains and oil heaters located in the north west portion of the site; fractionation trains, gas trains and compressor houses; condensate storage, LPG storage and LPG load out facilities; and a flare compound that contains a 55 m high flare stack, a radio tower, and a flare seal recovery system, located in the south western corner of the site.

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[1] The Council has used these compliance grading criteria for more than 17 years. They align closely with the 4 compliance grades in the MfE Best Practice Guidelines for Compliance, Monitoring and Enforcement, 2018

The plant formerly used two flares as essential plant safety features designed to combust excess gas during planned maintenance activities, and emergency situations. A change to plant management has seen this reduced to one flare. The flare continuously burns fuel gas as a purge to prevent air ingress to the flare system (thus avoiding an explosion risk) and to maintain a pilot flame at the flare tip.

The Council is responsible for monitoring the onshore production station and pipelines within the coastal marine area (to 12 nautical miles). Monitoring of the offshore Maui-A and B platforms does not come under the jurisdiction of the Council as they are situated outside the coastal marine area.

Photo 1 Maui Production Station

1.3 Resource consents

OMV holds four resource consents relating to the Maui Production Station site, the details of which are summarised in the table below. Summaries of the conditions attached to each permit are set out in Section 3 of this report.

A summary of the various consent types issued by the Council is included in Appendix I, as are copies of all permits held by OMV during the period under review.

Table 1 Resource consents held in relation to the Maui Production Station

Consent number	Purpose	Granted	Review	Expires
Water discharge permits				
0245-4	To discharge treated stormwater from the Maui Production Station to the Ngapirau Stream.	July 2020	June 2024	June 2036
0246-4	To discharge treated domestic effluent from the oxidation ponds at the Maui Production Station into the Ngapirau Stream	July 2020	June 2024	June 2036

Consent number	Purpose	Granted	Review	Expires
Air discharge permit				
4052-4	To discharge emissions into the air from the refining and distribution of hydrocarbons and associated processes at the Maui Production Station site.	January 2003	-	June 2024
Coastal permits				
5224-2	To place and maintain two pipelines in, under and over the foreshore and seabed in the coastal marine area between mean high water spring and the outer limit of the territorial sea	March 1998	-	June 2025

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 Maui Production Station 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

The Maui Production Station was visited four times 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 OMV were identified and accessed, so that performance in respect of operation, internal monitoring, and supervision could be reviewed by the Council. The neighbourhood was surveyed for environmental effects.

1.4.4 Chemical sampling

Samples of site stormwater, domestic sewage, and the combined discharge were collected on two occasions. Sampling upstream and downstream of the discharge point (Photo 2) and mixing zone was undertaken on two occasions concurrently at three sites in the Ngapirau Stream.

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 each plant, with monitoring consisting of continuous measurements of gas concentrations for the gases of interest (carbon monoxide and combustible gases). A PM_{10} particulate monitor was deployed concurrently with the multi-gas meter. Two nitrogen oxide measuring devices were also deployed in the vicinity of the plant on one occasion during the year under review.

1.4.5 Biomonitoring surveys

A biological survey was performed once in the Ngapirau Stream to determine whether or not the discharge of stormwater from the site has had a detrimental effect upon the communities of the stream.

Photo 2 Discharge to the Ngapirau Stream

2 Results

2.1 Water

2.1.1 Inspections

Four routine inspections were carried out at the Maui Production Station during the 2020-2021 period. The inspections were undertaken on 8 September and 30 October 2020, and 19 March and 12 May 2021.

The site was neat and tidy on all occasions and no issues were noted. Discharge from the site was clear with no adverse effects observed in the receiving waters. A pilot flare was observed during inspections with no significant smoke or odours noted.

2.1.2 Results of discharge monitoring

2.1.2.1 Site stormwater

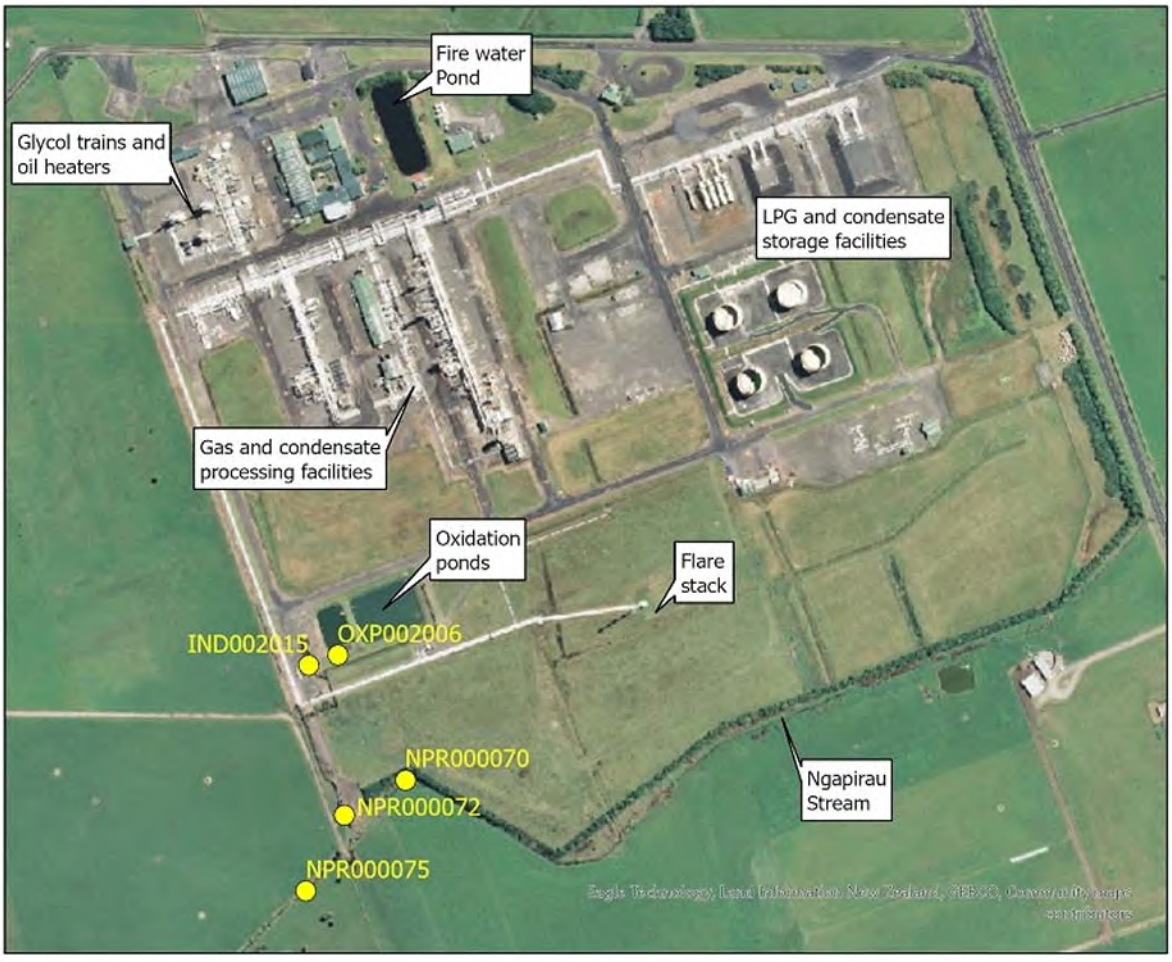

Figure 1 Maui Production Station and associated sampling sites

The stormwater network at the Maui Production Station consists of open stormwater drains around the site perimeter and stormwater pipelines from the process areas. The perimeter drains also accept stormwater runoff from Tai Road and a number of adjoining farms. The main internal discharges are into the open stormwater drains at several separate points. Stormwater from the internal catchment passes through the oily water separator before moving on to the secondary oil trap located at the south-west corner of the site.

The stormwater from inside the bunded areas does not enter into the stormwater drains and is directed straight to the oily waste separator. The stormwater in the perimeter drains goes directly to the secondary oil trap. The treated stormwater then flows to a tributary drain which discharges to the Ngapirau Stream.

OMV have treated their domestic sewage on site since 1979 using a two-pond aerobic oxidation system. The discharge is to a perimeter drain, which flows to an oily water separator where it combines with the site stormwater before being discharged to the Ngapirau Stream (Figure 1).

The combined discharge from the site includes the treated stormwater discharge from process areas, the oxidation pond discharge and runoff collected in perimeter drains. It passes through a separator before entering the Ngapirau Stream.

Chemical water quality sampling of the treated stormwater discharge from the production station was undertaken twice during the 2020-2021 period. The location of the sampling site (IND002015) is shown in Figure 1. Table 2 presents the results of this sampling.

Table 2 Results of stormwater discharge monitoring from Maui Production Station (IND002015)

Parameter	Units	25 August 2020	17 May 2021	Consent limits
Chloride	g/m^3	25	10	< 230
Conductivity	g/m^3	20.5	8.4	-
Hydrocarbons	g/m^3	< 0.7	0.8	15
Suspended solids	g/m^3	6	6	100
pH		7.4	6.9	6.0 – 9.0
Turbidity	NTU	10.6	5.5	-

All measured parameters were within the limits stipulated by consent 0245-4 and were indicative of a clean discharge.

2.1.2.2 Domestic wastewater

The discharge from two-pond aerobic oxidation system to the perimeter drain was sampled twice during the monitoring period. The results are presented in Table 3 and the sampling site (OXP002006) is shown in Figure 1.

Table 3 Results of oxidation pond discharge monitoring at Maui Production Station (OXP002006)

Parameter	Units	25 August 2020	17 May 2021
Conductivity @ 25°C	mS/m	20.1	5.9
Enterococci bacteria	/100 ml	51	6,500
E. coli	/100 ml	100	4,400
Ammoniacal nitrogen	g/m^3N	0.136	0.140
Suspended solids	g/m^3	< 3	9
pH		7.5	7.0
Turbidity	FNU	2.7	9.9

The results for the period under review were typical of well-treated oxidation pond effluent which would not be expected to cause more than minor off site effects. There is also significant on site dilution of the discharge, provided by combination with the site stormwater discharge prior to reaching the Ngapirau Stream.

2.1.2.3 Combined discharge

The combined discharge from the site includes the treated stormwater discharge from process areas, the oxidation pond discharge and runoff collected in perimeter drains. It passes through a separator before entering the Ngapirau Stream. The sampling point is in the tributary between the production station site boundary and the Ngapirau Stream (site NPR000072). It was sampled twice during the period under review. The results of this sampling are presented in Table 4.

Table 4 Results of combined discharge monitoring from Maui Production Station (NPR000072)

Parameter	Units	25 August 2020	17 May 2021	Consent limits 0245-4
Chloride	g/m^3	28	11	230
Conductivity @ 25°C	mS/m	20.0	8.0	-
Enterococci bacteria	/100 ml	90	5,700	-
E. coli	/100 ml	220	15,000	-
Hydrocarbons	g/m^3	< 0.7	< 0.7	15
Ammoniacal nitrogen	g/m^3N	0.050	0.111	-
Suspended solids	g/m^3	< 3	12	100
pH		7.5	6.9	6 - 9
Temperature	°C	-	14.4	-
Turbidity	FNU	2.5	11.7	-

The results complied with all applicable consent conditions and indicate a reasonably clean discharge with low suspended solids and no detectable hydrocarbons. This is complemented by the results of the concurrent receiving water sampling shown in Table 6.

E. coli numbers were unusually high in the sample collected on 17 May 2021 (15,000 cfu/100ml), however numbers in the Ngapirau Stream upstream of the discharge (Table 6) were even higher at 28,000 cfu/100ml, and numbers reduced downstream of the discharge to 22,000 cfu/100ml.

Every month, OMV provided the Council with the results for daily composite samples of the combined stormwater and oxidation ponds discharge, sampled downstream of the final separator. The results are summarised in Table 5.

Both hydrocarbon and suspended solid results were low on average and below the limits stipulated by consent 0245-4 throughout the monitoring period.

Glycol was detected in low levels (below the reporting limit) in the samples collected from November 2020 through to May 2021, and was present in the June 2021 sample. This was well below the 15 g/m^3 allowed by consent 0245-4.

Table 5 OMV Maui Production Station combined discharge results summary for 2020-2021

Month	Hydrocarbons (g/m^3)		Suspended solids (g/m^3)		Glycol (g/m^3)	
Consent 0245-4 limits	*15*		*100*		*15*	
	Max	Average	Max	Average	Max	Average
July 2020	< 2	< 2	6	2	0	0
August 2020	< 2	< 2	11	5	0	0

Month	Hydrocarbons (g/m^3)		Suspended solids (g/m^3)		Glycol (g/m^3)	
Consent 0245-4 limits	*15*		*100*		*15*	
	Max	Average	Max	Average	Max	Average
September 2020	< 2	< 2	27	10	0	0
October 2020	< 2	< 2	23	9	0	0
November 2020	< 2	< 2	20	10	< 1	0
December 2020	< 2	< 2	50	12	< 1	0
January 2021	< 2	< 2	33	14	< 1	0
February 2021	2.3	< 2	43	13	< 1	0
March 2021	7	< 2	23	12	< 1	0
April 2021	< 2	< 2	25	10	< 1	0
May 2021	2.9	<2	41	13	< 1	0
June 2021	4	< 2	39	10	1.0	0
Days limit exceeded	0		0		No limit	

2.1.2.4 Fire-fighting, stormwater and wastewater discharge

Wood Group has operated a Fire Training Centre adjacent to the production station, to train personnel for fire and helicopter crash response. In previous years, fire training exercises were carried out approximately 25 times per year. Hydrocarbons (mainly LPG) were used as accelerants in training exercises. The residues accumulated in the first holding and settling pond, along with the wastewater used during exercises and stormwater.

The discharge was previously from the second pond, from below the surface (to prevent entrainment of any hydrocarbon sheen), and flowed to the Oaonui Stream. The wastewater and stormwater were held in the ponds for a varying amount of time depending on rainfall. Discharge only occurred when the ponds were full. In the past this was approximately once or twice per month due to low inflow volumes and evaporation. A recirculation system was installed during the 2018-2019 year to further limit discharges, while 5,000 L tanks were utilised during 2019-2020 to store excess volumes when rainfall exceeded capacity of the ponds and the recirculation system.

During the 2019-2020 year, there was a reduction in the use of the Fire Training Centre and the recirculation system. Additional tanks contained all wastewater so that there were no further discharges from these ponds. During 2020-2021 the Fire Training Centre was relocated to a site in New Plymouth. Wood Group is currently cleaning out the settling ponds as part of the lease agreement with OMV. This activity includes the removal of all pond water and sludge from the site to an appropriate disposal location.

2.1.3 Results of receiving environment monitoring

2.1.3.1 Chemical

The receiving stream for the treated stormwater and oxidation pond discharge, the Ngapirau Stream, arises from springs approximately four kilometres above the production station and meets the coast between the Okaweu and Oaonui Streams approximately two kilometres from the production station.

Receiving water quality sampling was undertaken upstream (NPR000070), from the discharge drain above the confluence with the stream (NPR000072) and downstream (NPR000075) of the discharge. The results are shown in Table 6, and the sampling sites are shown in Figure 1.

There was very little difference in the results of upstream compared with downstream, and in general the dilution provided by the discharge improved water quality in the stream below. The poor water quality of the stream above the production station discharge is most likely related to dominant effects from surrounding dairy farming activities within a small catchment area.

Condition 6 of consent 0246-4 requires that the discharge shall not give rise to an increase in turbidity of more than 50%, this condition was complied with in both samples (turbidity actually decreased at the downstream site by almost 50% on both occasions).

Table 6 Receiving environment results for the Maui Production Station

Parameter	Units	25 August 2020		17 May 2021	
		Upstream NPR000070	Downstream NPR000075	Upstream NPR000070	Downstream NPR000075
Conductivity	mS/m	38.5	30.6	25.0	32.6
E. coli	/100 ml	160	210	28,000	22,000
Enterococci bacteria	/100 ml	16	30	7,300	7,000
Hydrocarbons	g/m^3	< 0.7	< 0.7	< 0.7	< 0.7
Ammoniacal nitrogen	g/m^3 N	0.58	0.26	0.41	0.21
Turbidity	FNU	9.5	4.7	93	40
pH		7.2	7.0	6.7	6.9
Chloride	g/m^3	55	41	28	17
Suspended solids	g/m^3	16	5	164	67

2.1.3.2 Biomonitoring

The Council collected streambed macroinvertebrates from two sites (approximately 500 m and 1,600 m downstream of the discharge) in an unnamed coastal stream (informally known as the Ngapirau Stream) on 12 January 2021 to investigate the effects of the Maui Production Station discharge on macroinvertebrate health. Macroinvertebrates were identified, different types of taxa counted (taxa richness), and MCI and SQMCI scores were calculated 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 the 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.

Macroinvertebrate taxa richness were typical for the available habitat, and were within the previously recorded range. The MCI scores indicated 'poor' health at both sites and were similar to their respective medians. Additionally, SQMCI scores indicate that site 2 was in 'poor' health and site 3 in 'fair health' and were significantly higher than the median scores at each site. Differences between the two sites in the current survey can largely be explained by low flow conditions, which were more evident at site 2 compared to site 3.

Although historic surveys of macroinvertebrate communities at these sites show a progressive increase in the proportion of tolerant taxa (indicating deteriorating water quality), the macroinvertebrate communities were similar to previous survey results. Overall, the discharges from the Maui Production Station does not seem to be negatively affecting macroinvertebrate community health in the Ngapirau Stream.

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

2.1.3.3 Monitoring of PFAS substances in the Ngapirau and Oaonui catchments

Stormwater and shallow groundwater runoff from some petrochemical sites may contain a range of per- and poly-fluoroalkyl substances (collectively referred to as PFAS) from historic activities, including the use of fire-fighting foams. If present these contaminants have the potential to enter local waterways. PFAS are a class of manufactured chemicals that have been used since the 1950s to make commercial and industrial products that resist heat, stains, grease and water. These chemicals have been identified worldwide as emerging contaminants. Some PFAS have been shown to be toxic to some animals, and because they don't break down in the environment they have potential to bioaccumulate in plants and animals. Perfluorooctanesulfonic acid (PFOS) is a highly persistent PFAS compound.

A proportion of stormwater discharges approximating normal summer low flow rates from the Maui Production Station is currently passed through an activated carbon filtration system to assist in reducing PFAS/PFOS compounds entering the Ngapirau Stream.

Condition 9 of the renewed consent 0245-4 required OMV to design and submit an environmental monitoring programme to determine the concentrations of PFAS/PFOS in the Ngapirau and Oaonui catchments.

Sampling will be carried out twice per year, once in the 'dry season' (January to March) and once in the 'wet season' (June to August). Results from the first dry season samples collected in February 2021 are presented in Table 7 below with site locations shown in Figure 2.

Table 7 Results of PFOS sampling in the Ngapirau and Oaonui streams, February 2021

Stream	Ngapirau		Oaonui			
Date	9 Feb 21		9 Feb 21		26 Feb 21	
Parameter µg/L	Upstream N-UP	Downstream N-DOWN	Upstream O-UP	Downstream O-DOWN	Upstream O-UP	Downstream FTC-DOWN
Total PFOS	<0.025	0.39	<0.025	<0.025	<0.025	<0.025

The results of all analyses were below laboratory limits of reporting for both Oaonui sites and the Ngapirau upstream site. PFAS was detected in the Ngapirau Steam at the downstream site, with a total PFOS concentration of 0.39 µg/L. This lies between the 90% (2 µg/L) and 95% (0.13 µg/L) species protection guideline value for freshwater and is considered 'acceptable' for the Ngapirau which is a highly disturbed system with no public access.

Conversely, the Oaonui is a high value, easily accessible stream and it is reassuring that no PFAS/PFOS was detected during the sampling. Future testing will use ultra-trace analysis to improve detection in the Oaonui Stream (the 99% species guideline protection value of 0.00023 µg/L is below the current laboratory level of detection).

Figure 2 Site locations for PFAS/PFOS sampling in the Oaonui and Ngapirau Streams

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, and no offensive, obnoxious or objectionable odours were 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. The deployment lasted approximately 48 hours, with the instrument placed in a downwind position at the start of the deployment. Monitoring consisted of continuous measurements of gas concentrations for the gases of interest (carbon monoxide and combustible gases). The monitoring sites used in the year under review are shown in Figure 3.

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

Figure 3 Air monitoring sites at Maui Production Station for 2020-2021

The details of the sample run are summarised in Table 8 and the data from the sample run are presented graphically in Figure 4.

Table 8 Results of carbon monoxide and LEL monitoring at Maui Production Station

Period (from-to)		13 to 15 October 2020 (48 hours)
Max	CO(ppm)	6.50(1)
	LEL(%)	0.10(2)
Mean	CO(ppm)	0.30
	LEL(%)	0.00
Min	CO(ppm)	0.00
	LEL(%)	0.00

Notes: (1) the instrument records in units of ppm. At 25°C and 1 atm, 1ppm CO = 1.145 mg/m^3
(2) because the LEL of methane is equivalent to a mixture of approximately 5% methane in air, then the actual concentration of methane in air can be obtained by dividing the percentage LEL by 20.

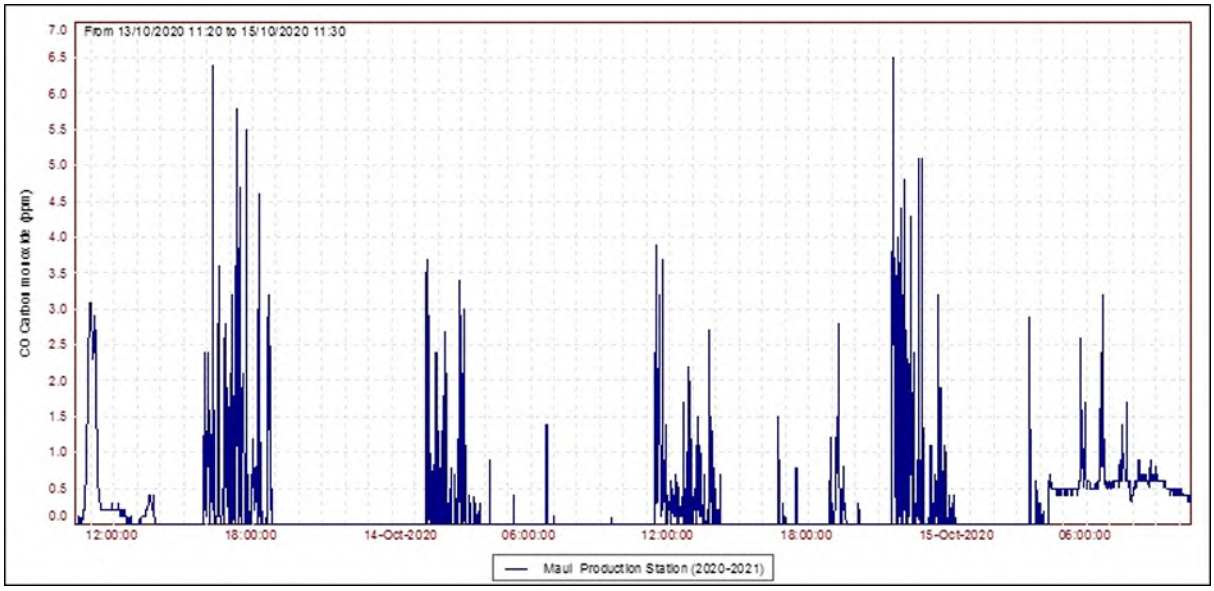

Figure 4 Ambient carbon monoxide levels in the vicinity of Maui Production Station

The consent covering air discharges from the Maui Production Station has specific limits related to particular gases. Special condition 9 of consent 4052-4 sets a limit on the carbon monoxide concentration at or beyond the production station's boundary. The limit is expressed as 10 mg/m³ for an eight hour average or 30 mg/m³ for a one hour average exposure. The maximum momentary concentration of carbon monoxide found during the monitoring run was 7.4 mg/m³ while the average concentration for the entire dataset was 0.33 mg/m³ which comply with consent conditions. This is consistent with the pattern found in previous years.

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

2.2.2.2 PM_{10} particulates

In September 2004 the Ministry for the Environment enacted National Environmental Standards (NESs) relating to certain air pollutants. The NES for PM_{10} particulates is 50 µg/m³ (24 hour average).

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

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

During the reporting period, a DustTrak PM_{10} monitor was deployed on one occasion in the vicinity of Maui Production Station. The deployment lasted approximately 40 hours, with the instrument placed in a down-wind position at the start of the deployment. Monitoring consisted of continual measurements of PM_{10} concentrations. The location of the DustTrak monitor during the sampling run is shown in Figure 2. The results of the sample run are presented in Table 9 and Figure 5.

Table 9 Daily averages of PM_{10} results from monitoring at Maui Production Station

	13 to 15 October 2020 (40 hours)	
24 hr. set	Day 1 (start to 24 hours)	Day 2 (24 hours to end)
Daily average	9.6 µg/m³	9.4 µg/m³
NES	50 µg/m³	

During the 40 hour run, from 13 to 15 October, the average recorded PM_{10} concentration was 9.6 µg/m³ for the first 24 hour period and 9.4 µg/m³ for the second 24 hour period. These daily averages equate to 19% of the 50 µg/m³ value that is set by the NES. Background levels of PM_{10} in the region have been found to be typically around 11 µg/m³.

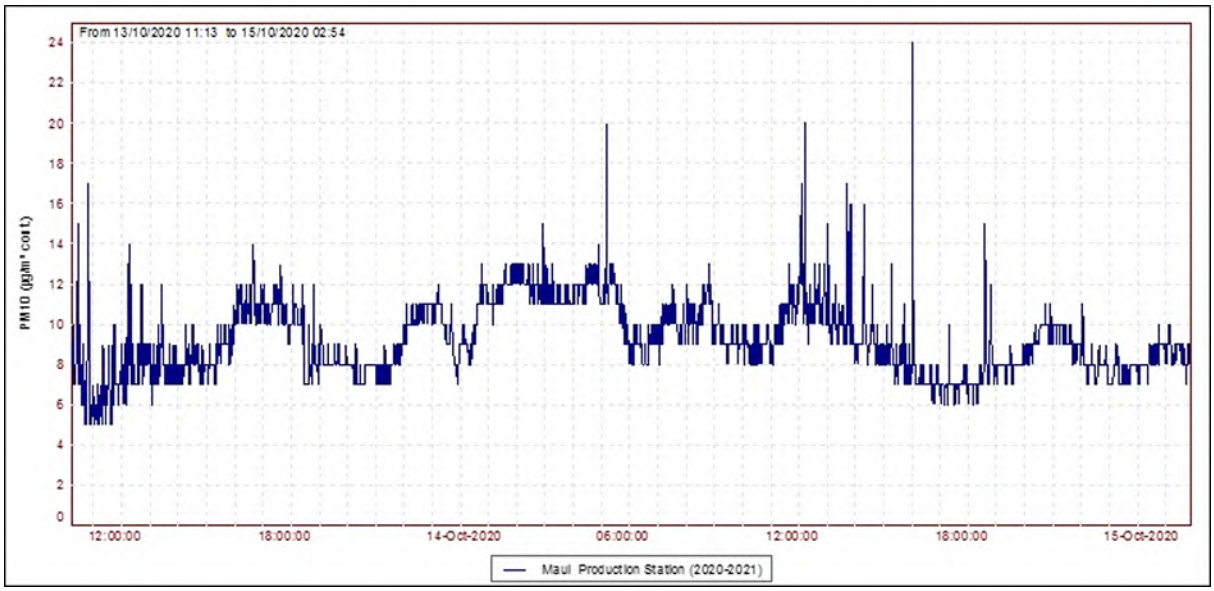

Figure 5 PM_{10} concentrations (µg/m³) at Maui Production Station

2.2.2.3 Nitrogen oxides

From 2014 onwards, the Council implemented a coordinated region-wide compliance monitoring programme to measure nitrogen oxides (NOx). The programme involves deploying measuring devices at 28 NOx monitoring sites (including two sites in the vicinity of Maui Production Station) on the same day, with retrieval three weeks later. This approach assists the Council in further evaluating the effects of local and regional emission sources and ambient air quality in the region.

The consent covering air discharges from the Maui Production Station has specific limits related to particular gases. Special condition 8 of consent 4052-4 sets a limit on the nitrogen dioxide concentration at or beyond the production station's boundary. The limit is expressed as 200 µg/m³ for a one hour average or 100 µg/m³ for a 24 hour average exposure.

NOx passive adsorption discs were placed at two locations in the vicinity of the Maui Production Station on one occasion during the year under review. The discs were left in place for a period of 21 days. The calculated one hour and 24 hour theoretical maximum NOx concentrations found at Maui Production Station during the year under review equate to 10.4 µg/m³ and 5.5 µg/m³, respectively. The results show that the ambient ground level concentration of NOx is well below the limits set out by consent 4052-4.

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

2.2.3 Summary of flaring volumes reported by OMV

OMV provided the Council with an annual report on flaring and emissions during the 2020-2021 period, as required by consent 4052-4. A summary of flaring volumes at Maui Production Station is provided in Figure 6. The total volume flared in the 2020-2021 year was 601,700 m³ of gas, a large decrease compared to the previous monitoring period. This was mainly due to a rationalisation of the purge gas rate and the permanent reduction to a single flare. With the exception of August and November 2020, flaring was relatively consistent through the period (around 30,000 m³/month). The unusually high volume of flaring in August was due to restarting the plant following major (planned) maintenance work.

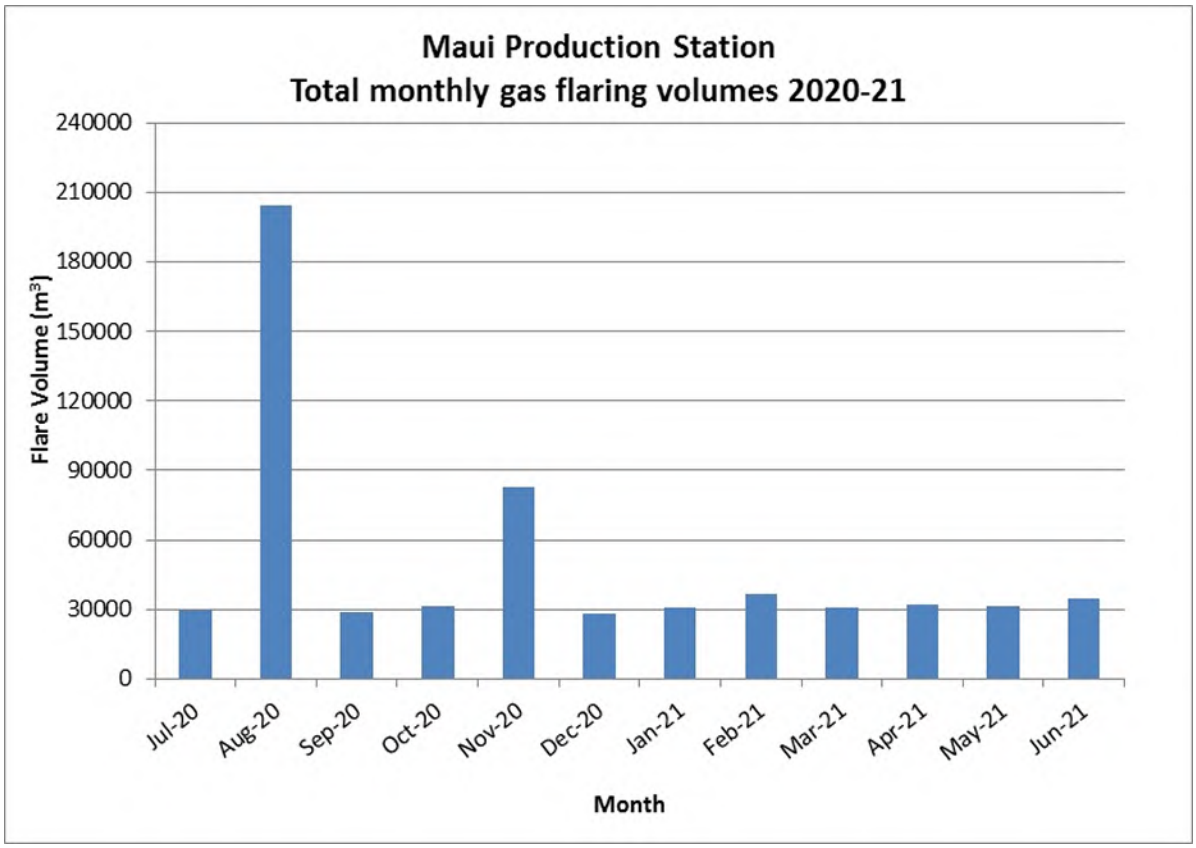

Figure 6 Monthly gas flaring for Maui Production Station under consent 4052-4

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 OMV. 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 OMV's activities during the 2020-2021 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
18 Nov 2020	Self-notification was received regarding the discharge of an unknown quantity of condensate into bunds, sumps and the hydrocarbon separation system	Y	N	A report from OMV found human error was the cause of the spill (a sample line was left open). All hydrocarbon was contained and removed with no breach of consent conditions. A review of practices and processes was undertaken by OMV. No further action was taken by Council.

3 Discussion

3.1 Discussion of site performance

Monitoring of the Maui Production Station during the 2020-2021 year found that the site was well managed. All consent conditions relating to site operations and management were complied with.

An updated combined site management and contingency plan was received in March 2021 as per conditions 4 and 5 of consent 0245-4.

Due to known contamination from the historical use of fluorine-based fire-fighting foams, Wood Group installed a wastewater retention and recirculation system at the adjacent Fire Training Centre (FTC) during the 2018-2019 monitoring period to prevent any further discharges occurring from the storage ponds to the Oaonui Stream. No further discharges have occurred from the FTC, and Wood Group has since relocated to a new site in New Plymouth. All pond water and sludge will be removed from the site and disposed of appropriately.

3.2 Environmental effects of exercise of consents

Receiving water inspections and sampling, in conjunction with sampling conducted by OMV during the 2020-2021 period, indicated that the discharges were not causing any adverse effects on the Ngapirau Stream at the time. This was supported by the findings of the macroinvertebrate survey carried out in the stream.

In December 2020 OMV submitted an environmental monitoring programme as per condition 9 of consent 0245-4. The results from the first round of sampling in February 2021 found no evidence of PFAS/PFOS in the Oaonui Stream, while PFAS/PFOS were detected in low levels at the downstream site in the Ngapirau Stream.

There were no adverse effects noted on the environment resulting from the exercise of the air discharge consent. The ambient air quality monitoring at the site indicated that levels of carbon monoxide, combustible gases, PM_{10} particulates, and nitrogen oxides were all below levels of concern at the time of sampling. No offensive or objectionable odours were detected beyond the boundary during inspections and there were no complaints in relation to air emissions from the site.

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 11-14.

Table 11 Summary of performance for consent 0245-4

Purpose: ***To discharge treated stormwater from the Maui Production Station to the Ngapirau Stream***		
Condition requirement	**Means of monitoring during period under review**	**Compliance achieved?**
1. Exercise of consent in accordance with information provided in application	Inspections and sampling	Yes
2. Best practicable option to prevent or minimise adverse environmental effects	Council and consent holder sampling	Yes

Purpose: *To discharge treated stormwater from the Maui Production Station to the Ngapirau Stream*		
Condition requirement	**Means of monitoring during period under review**	**Compliance achieved?**
3. Stormwater catchment area no more than 36 ha	Site inspections	Yes
4. Site operated in accordance with Management Plan	Combined plan received March 2021	Yes
5. Consent holder to maintain and regularly update 'Contingency Plan'	Combined plan received March 2021	Yes
6. Standards to be met in discharge	Council and consent holder sampling	Yes
7. Effects not to be observed in receiving water	Inspections, sampling and biomonitoring	Yes
8. Consent holder to notify Council prior to making changes to processes or operations	Liaison with consent holder	Yes
9. Design of environmental monitoring programme to determine concentrations of per- and poly-fluroalkyl substances in Ngapirau and Oaonui catchments	Submitted December 2020	Yes
10. Review of consent	Next option for review in June 2024	N/A
Overall assessment of consent compliance and environmental performance in respect of this consent		**High**
Overall assessment of administrative performance in respect of this consent		**High**

N/A = not applicable

Table 12 Summary of performance for consent 0246-4

Purpose: *To discharge treated domestic effluent from the oxidation ponds at the Maui Production Station to the Ngapirau Stream*		
Condition requirement	**Means of monitoring during period under review**	**Compliance achieved?**
1. Exercise of consent in accordance with information provided in application	Inspections	Yes
2. Oxidation pond to be maintained in aerobic condition during daylight hours	Not assessed during period under review	N/A
3. Best practicable option to prevent or minimise adverse environmental effects	Inspections	Yes
4. Consent holder to maintain and regularly update 'Contingency Plan'	Plan received March 2021	Yes

Purpose: *To discharge treated domestic effluent from the oxidation ponds at the Maui Production Station to the Ngapirau Stream*		
Condition requirement	**Means of monitoring during period under review**	**Compliance achieved?**
5. Effects not to be observed in the receiving water	Inspections, biomonitoring, and sampling	Yes
6. Turbidity of Ngapirau Stream not to increase by more than 50% downstream	Sampling	Yes
7. Standards for unionised ammonia and filtered $CBOD_5$ in receiving water 20 m downstream	Not assessed during period under review	N/A
8. Review of consent	Next option for review in June 2024	N/A
Overall assessment of consent compliance and environmental performance in respect of this consent		**High**
Overall assessment of administrative performance in respect of this consent		**High**

N/A = not applicable

Table 13 Summary of performance for Consent 4052-4

Purpose: *To discharge emissions into the air from the refining and distribution of hydrocarbons and associated processes at the Maui Production Station site*		
Condition requirement	**Means of monitoring during period under review**	**Compliance achieved?**
1. Adoption of best practicable option to minimise adverse effects	Site inspections and liaison with consent holder	Yes
2. Minimise emissions by appropriate selection, operation, supervision, control and maintenance of equipment	Site inspections and liaison with consent holder	Yes
3. Appropriate maintenance and operation of equipment	Site inspections	Yes
4. Treatment of flaring gas by effective liquid separation and recovery	Site inspections	Yes
5. Provision of annual report on flaring to council	Report received	Yes
6. No offensive, obnoxious or objectionable odours beyond site boundary	Site inspections	Yes
7. Limit on maximum ground level concentration of sulphur dioxide	Not measured, sampling in previous years	N/A
8. Limit on maximum ground level concentration of nitrogen oxides	Air quality monitoring	Yes

Purpose: *To discharge emissions into the air from the refining and distribution of hydrocarbons and associated processes at the Maui Production Station site*		
Condition requirement	**Means of monitoring during period under review**	**Compliance achieved?**
9. Limit on maximum ground level concentration of carbon monoxide	Air quality monitoring	Yes
10. Limit on maximum ground level concentration of benzene	Not monitored during period under review	N/A
11. Limit on maximum ground level concentration for other contaminants	Not monitored during period under review	N/A
12. Consultation with Council prior to significant alterations to plant, processes, or operations	Site inspections and liaison with consent holder	Yes
13. Notification of flaring more than five minutes in duration	Flaring notifications received	Yes
14. Notification to Council of incidents or hazardous situations	No incidents or hazardous situations to notify this period	Yes
15. Record of smoke emitting events	Site inspections, records kept by consent holder, and liaison with consent holder	Yes
16. Maintenance of log of continuous flaring incidents	Site inspections, records kept by consent holder, and liaison with consent holder	Yes
17. Depressurisation of plant to prevent dense black smoke being discharged from the flare	Site inspections, records kept by consent holder, and liaison with consent holder	Yes
18. Optional 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 Overall assessment of administrative performance in respect of this consent		**High** **High**

N/A = not applicable

Table 14 Summary of performance for Consent 5224-2

Purpose: *To place and maintain two pipelines in, under and over the foreshore and seabed in the coastal marine area between mean high water spring and the outer limit of the territorial sea*		
Condition requirement	**Means of monitoring during period under review**	**Compliance achieved?**
1. Notify Council before undertaking major maintenance works	Liaison with consent holder	Yes
2. During maintenance works observe measures to prevent discharge and minimise disturbance	Liaison with consent holder	Yes

Purpose: *To place and maintain two pipelines in, under and over the foreshore and seabed in the coastal marine area between mean high water spring and the outer limit of the territorial sea*		
Condition requirement	**Means of monitoring during period under review**	**Compliance achieved?**
3. Structures to be removed and area reinstated when no longer required	Currently operational	N/A
4. Review of consent	No further option for review prior to expiry	N/A
Overall assessment of consent compliance and environmental performance in respect of this consent		**High**
Overall assessment of administrative performance in respect of this consent		**High**

N/A = not applicable

Table 15 Evaluation of environmental performance over time

Year	Consent no	High	Good	Improvement req	Poor
2010-11	0245-3, 0246-3, 4052-4, 5224-2	3	1	-	-
	1228-4	1	-	-	-
2011-12	0245-3, 0246-3, 4052-4, 5224-2	3	1	-	-
	1228-4	1	-	-	-
2012-14	0245-3, 0246-3, 4052-4, 5224-2	3	1	-	-
	1228-4	1	-	-	-
2014-15	0245-3, 0246-3, 4052-4, 5224-2	4	-	-	-
	1228-4	1	-	-	-
2015-16	0245-3, 0246-3, 4052-4, 5224-2	4	-	-	-
	1228-4	-	1	-	-
2016-17	0245-3, 0246-3, 4052-4, 5224-2	4	-	-	-
	1228-4	-	1	-	-
2017-18	0245-3, 0246-3, 4052-4, 5224-2	4	-	-	-
	1228-4	-	1	-	-
2018-19	0245-3, 0246-3, 4052-4, 5224-2	4	-	-	-
	1228-4	-	1	-	-
2019-20	0245-3, 0246-3, 1228-4, 4052-4, 5224-2	5	-	-	-
Totals		38	7	-	-

During the year, OMV demonstrated an overall high level of both environmental performance and administrative compliance with the resource consents as defined in Section 1.1.4. The Maui Production Station was well managed and maintained.

3.4 Recommendations from the 2019-2020 Annual Report

In the 2019-2020 Annual Report, it was recommended:

1. THAT in the first instance, monitoring of consented activities at Maui 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.

These recommendations were implemented.

3.5 Alterations to monitoring programmes for 2021-2022

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

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

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

No changes are planned for the 2021-2022 monitoring programme.

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 2021-2022.

4 Recommendations

1. THAT in the first instance, monitoring of consented activities at Maui Production Station in the 2021-2022 year continue at the same level as in 2020-2021.
2. THAT should there be issues with environmental or administrative performance in 2021-2022, monitoring may be adjusted to reflect any additional investigation or intervention as found necessary.

Glossary of common terms and abbreviations

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

Biomonitoring	Assessing the health of the environment using aquatic organisms.
Bund	A wall around a tank to contain its contents in the case of a leak.
CO	Carbon monoxide
Conductivity	Conductivity, an indication of the level of dissolved salts in a sample, usually measured at 25°C and expressed in mS/m.
EPA	Environmental Protection Agency.
g/m^3	Grams per cubic metre, and equivalent to milligrams per litre (mg/L). In water, this is also equivalent to parts per million (ppm), but the same does not apply to gaseous mixtures.
Incident	An event that is alleged or is found to have occurred that may have actual or potential environmental consequences or may involve non-compliance with a consent or rule in a regional plan. Registration of an incident by the Council does not automatically mean such an outcome had actually occurred.
Intervention	Action/s taken by Council to instruct or direct actions be taken to avoid or reduce the likelihood of an incident occurring.
Investigation	Action taken by Council to establish what were the circumstances/events surrounding an incident including any allegations of an incident.
Incident Register	The Incident Register contains a list of events recorded by the Council on the basis that they may have the potential or actual environmental consequences that may represent a breach of a consent or provision in a Regional Plan.
LEL	Lower Explosive Limit (LEL) gives the percentage of the lower explosive limit, expressed as methane, that is detected in the air sampled.
m^2	Square Metres.
mg/m^3	Milligrams per cubic metre.
MCI	Macroinvertebrate community index; a numerical indication of the state of biological life in a stream that takes into account the sensitivity of the taxa present to organic pollution in stony habitats.
MfE	Ministry for the Environment.
Mixing zone	The zone below a discharge point where the discharge is not fully mixed with the receiving environment. For a stream, conventionally taken as a length equivalent to seven times the width of the stream at the discharge point.
mS/m	Millisiemens per metre.
NOx	Nitrogen oxides.
NH_4	Ammonium, normally expressed in terms of the mass of nitrogen (N).
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).
PFAS	Per-and poly-fluoroalkyl substances (fluorosurfactants). A class of manufactured chemicals that have been used since the 1950s to make commercial and industrial products that resist heat, stains, grease and water, including 'Scotchguard', non-stick cookware products and fire-fighting foams. These chemicals have been identified

	worldwide as emerging contaminants. Some PFAS have been shown to be toxic to some animals, and because they don't break down in the environment they have potential to bioaccumulate in plants and animals.
PFOS	Perfluorooctanesulfonic acid. A highly persistent PFAS compound which was added to Annex B of the Stockholm Convention on Persistent Organic Pollutants in May 2009.
pH	A numerical system for measuring acidity in solutions, with 7 as neutral. Numbers lower than 7 are increasingly acidic and higher than 7 are increasingly alkaline. The scale is logarithmic i.e. a change of 1 represents a ten-fold change in strength. For example, a pH of 4 is ten times more acidic than a pH of 5.
Physicochemical	Measurement of both physical properties (e.g. temperature, clarity, density) and chemical determinants (e.g. metals and nutrients) to characterise the state of an environment.
PM_{10}	Relatively fine airborne particles (less than 10 micrometre diameter, respectively).
Resource consent	Refer Section 87 of the RMA. Resource consents include land use consents (refer Sections 9 and 13 of the RMA), coastal permits (Sections 12, 14 and 15), water permits (Section 14) and discharge permits (Section 15).
RMA	*Resource Management Act 1991* and including all subsequent amendments.
Separator	A device designed to separate oil and suspended solids from wastewater and stormwater.
SS	Suspended solids.
SQMCI	Semi quantitative macroinvertebrate community index.
Temp	Temperature, measured in °C (degrees Celsius).
Turb	Turbidity, expressed in NTU.
$\mu g/m^3$	Micrograms per cubic metre of air.

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

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Appendix I

Resource consents held by OMV Taranaki 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:	OMV Taranaki Limited Private Bag 2035 New Plymouth 4340
Decision Date	24 July 2020
Commencement Date	24 July 2020

Conditions of Consent

Consent Granted:	To discharge treated stormwater from the Maui Production Station into the Ngapirau Stream
Expiry Date:	1 June 2036
Review Date(s):	June 2024, June 2030 and in accordance with special condition 10
Site Location:	Maui Production Station, Tai Road, Oaonui
Grid Reference (NZTM)	1669910E-5637970N
Catchment:	Ngapirau

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

General condition

a. The consent holder shall pay to the Taranaki Regional Council all the administration, monitoring and supervision costs of this consent, fixed in accordance with section 36 of the Resource Management Act 1991.

Special conditions

1. The exercise of this consent shall be undertaken in general accordance with the information provided in support of the application for this consent. In the case of any contradiction between the application and the conditions of this consent, the conditions of this consent shall prevail.

2. The consent holder shall at all times adopt the best practicable option, as defined in section 2 of the Resource Management Act 1991, to prevent or minimise any actual or likely adverse effect on the environment associated with the discharge of contaminants from the site.

3. Stormwater discharged shall be collected from a catchment area of no more than 36.3 ha.

4. The site shall be operated in accordance with a 'Management Plan' prepared by the consent holder and approved by the Chief Executive, Taranaki Regional Council, acting in a certification capacity. The plan shall detail how the site is to be managed to minimise the contaminants that become entrained in the stormwater and shall include as minimum:

   a) the loading and unloading of materials;
   b) maintenance of conveyance systems;
   c) general housekeeping; and
   d) management of the stormwater treatment system.

5. The consent holder shall maintain and regularly update a 'Contingency Plan' that details measures and procedures that will be undertaken to prevent, and to avoid environmental effects from, a spillage or any discharge of contaminants not authorised by this consent. The plan and any amended versions shall be provided to the Chief Executive of the Taranaki Regional Council.

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

Constituent	Standard
pH	Within the range 6.0 to 9.0
suspended solids	Concentration not greater than 100 gm^{-3}
total recoverable hydrocarbons	Concentration not greater than 15 gm^{-3}
chloride	Concentration not greater than 230 gm^{-3}
glycol	Concentration not greater than 15 gm^{-3}

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

7. After allowing for reasonable mixing, within a mixing zone extending 20 metres downstream of the discharge point, the discharge shall not, either by itself or in combination with other discharges, give rise to any or all of the following effects in the receiving water:

   a) the production of any conspicuous oil or grease films, scums or foams, or floatable or suspended materials;
   b) any conspicuous change in the colour or visual clarity;
   c) any emission of objectionable odour;
   d) the rendering of fresh water unsuitable for consumption by farm animals;
   e) any significant adverse effects on aquatic life.

8. The consent holder shall notify the Chief Executive, Taranaki Regional Council, prior to making any changes to the processes or operations undertaken at the site, or the chemicals used or stored on site that could alter the nature of the discharge. Any such change shall then only occur following receipt of any necessary approval under the Resource Management Act. Notification shall include the consent number and a brief description of the proposed changes. Unless the Chief Executive advises that an alternative electronic method is required, this notice shall be served by completing and submitting the 'Notification of work' form on the Council's website (http://bit.ly/TRCWorkNotificationForm).

9. Before 1 January 2021, the consent holder shall design and submit for approval to the Chief Executive, Taranaki Regional Council an environmental monitoring programme that determines, on an ongoing basis, the concentrations of per- and poly-fluoroalkyl substances in the Ngapirau and Oaonui Catchments. This programme shall include, but not be limited to: selection of sites and analytical parameters; frequency of sampling; and methodologies. The approved programme shall be implemented and results shall be reported to Taranaki Regional Council by 30 September each year.

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:

    a) during the month of June 2024 and/or June 2030 and/or;
    b) within 3 months of receiving a notification under special condition 8 above;

    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 24 July 2020

For and on behalf of
Taranaki Regional Council

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A D McLay
Director - Resource Management

Discharge Permit

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

Name of Consent Holder:	OMV Taranaki Limited Private Bag 2035 New Plymouth 4340
Decision Date	24 July 2020
Commencement Date	24 July 2020

Conditions of Consent

Consent Granted:	To discharge treated domestic effluent from the oxidation ponds at the Maui Production Station into the Ngapirau Stream
Expiry Date:	1 June 2036
Review Date(s):	June 2024, June 2030
Site Location:	Maui Production Station, Tai Road, Oaonui
Grid Reference (NZTM)	1669910E-5637970N
Catchment:	Ngapirau

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

General condition

a. The consent holder shall pay to the Taranaki Regional Council all the administration, monitoring and supervision costs of this consent, fixed in accordance with section 36 of the Resource Management Act 1991.

Special conditions

1. The exercise of this consent shall be undertaken in general accordance with the information provided in support of the application for this consent. Where there is conflict between the application and consent conditions, the conditions shall prevail.

2. The oxidation pond system shall be maintained in an aerobic condition at all times during daylight hours.

3. 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 the environment.

4. The consent holder shall maintain and annually update a 'Contingency Plan' that details measures and procedures to be undertaken to prevent, and to avoid environmental effects from any discharge of contaminants not authorised by this consent. The Plan and any amended version(s) shall be provided to the Chief Executive of the Taranaki Regional Council.

5. At a point 20 metres downstream of the discharge point, the discharge shall not give rise to any of the following effects in the receiving waters of the Ngapirau 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) any significant adverse effect on aquatic ecosystems.

6. At a point 20 metres downstream of the discharge point, the discharge shall not give rise to an increase in turbidity of more than 50% (as determined using FNU (Formazin Nephelometric Units)) in the Ngapirau Stream.

7. At a point 20 metres downstream of the discharge point, the discharge shall not cause the receiving waters of the Ngapirau Stream to exceed the following concentrations:

Contaminant	Concentration
Unionised ammonia	0.025 gm^{-3}
Filtered carbonaceous BOD_5	2.0 gm^{-3}

8. In accordance with section 128 and section 129 of the Resource Management Act 1991, the Taranaki Regional Council may serve notice of its intention to review, amend, delete or add to the conditions of this resource consent by giving notice of review during the month of June 2024 and/or June 2030, for the purpose of ensuring that the conditions are adequate to deal with any adverse effects on the environment arising from the exercise of this resource consent, which were either not foreseen at the time the application was considered or which it was not appropriate to deal with at the time.

Signed at Stratford on 24 July 2020

For and on behalf of
Taranaki Regional Council

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A D McLay
Director - Resource Management

Discharge Permit

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

Name of Consent Holder:	OMV Taranaki Limited Private Bag 2035 New Plymouth 4340	
Decision Date (Change):	9 August 2013	
Commencement Date (Change):	9 August 2013	(Granted Date: 9 January 2003)

Conditions of Consent

Consent Granted:	To discharge emissions into the air from the refining and distribution of hydrocarbons and associated processes at the Maui Production Station site
Expiry Date:	1 June 2024
Review Date(s):	June 2018
Site Location:	Maui Production Station, Tai Road, Oaonui
Grid Reference (NZTM)	1670046E-5638140N

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 adopt the best practicable option, as defined in section 2 of the Resource Management Act 1991, to prevent or minimise any actual or likely adverse effect on the environment associated with the discharge of contaminants into the air from the site.

2. 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.

3. All equipment used to avoid, remedy, or mitigate any effect on the environment from the discharge of emissions into the air shall be maintained in good condition and shall be operated within design parameters at all times that the plant is in operation.

4. The consent holder shall undertake effective liquid separation and recovery, as far as is practicable, to avoid or mitigate smoke emissions during flaring.

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

a) detailing gas combustion in the flares under condition 16, such information to be compiled on a month by month basis;
b) detailing smoke emissions as required under condition 15;
c) detailing any measures to reduce smoke emissions;
d) detailing any measures to reduce flaring;
e) providing data on the emitted and/or ambient concentrations and/or mass discharge rates and/or an emission inventory, of such contaminants the Chief Executive, Taranaki Regional Council, may from time to time specify;
f) detail current measures by the consent holder to improve plant efficiency on the site; and
g) addressing any other issue relevant to the minimisation or mitigation of emissions from the flares or from elsewhere on the site.

6. The discharges authorised by this consent shall not give rise to any offensive or obnoxious or objectionable odour at or beyond the site boundary in the opinion of an enforcement officer of the Taranaki Regional Council.

7. The consent holder shall control all emissions of sulphur dioxide to the atmosphere from the site, in order that the maximum ground level concentration of sulphur dioxide arising from the exercise of this consent measured under ambient conditions does not exceed 350 μg m^{-3} [one-hour average exposure] or 125 μg m^{-3} [twenty-four hour average exposure] at or beyond the boundary of the site.

8. The consent holder shall control all emissions of nitrogen oxides to the atmosphere from the site, in order that the maximum ground level concentration of nitrogen dioxide arising from the exercise of this consent measured under ambient conditions does not exceed 100 μg m^{-3} [twenty-four hour average exposure], or 200 μg m^{-3} [one-hour average exposure] at or beyond the boundary of the site.

9. The consent holder shall control all emissions of carbon monoxide to the atmosphere from the flare, whether alone or in conjunction with any other emissions from the site arising through the exercise of any other consent, in order that the maximum ground level concentration of carbon monoxide arising from the exercise of this consent measured under ambient conditions does not exceed 10 mg m^{-3} [eight-hour average exposure], or 30 mg m^{-3} one-hour average exposure] at or beyond the boundary of the property on which the production station flare is located.

10. The consent holder shall control all emissions of benzene to the atmosphere from the site, in order that the maximum ground level concentration of benzene arising from the exercise of this consent measured under ambient conditions does not exceed the relevant Ministry for the Environment Ambient Air Quality Guideline for beneze [10 μg m^{-3} [annual average exposure] from 2002 until 2010 and 3.6 μg m^{-3} [annual average exposure] from 2010] at or beyond the boundary of the site.

11. The consent holder shall control all emissions to the atmosphere from the site of contaminants other than carbon dioxide, sulphur dioxide, carbon monoxide, and nitrogen oxides, 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 site is not increased above background levels:

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

12. 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.

13. The consent holder shall whenever practicable notify the Chief Executive, Taranaki Regional Council, whenever the continuous flaring of hydrocarbons (other than purge gas) is expected to occur for more than five minutes in duration.

14. Any incident having air environment impact or potential impact which has or is liable to cause significant substantiated complaint or a hazardous situation beyond the boundary of the consent holder's site, shall be notified to the Taranaki Regional Council, as soon as possible, followed by a written report to the Chief Executive, Taranaki Regional Council, within one week of the incident, with comment about the measures taken to minimise the impact of the incident and to prevent re-occurrence.

15. The consent holder shall keep and make available to the Chief Executive, upon request, a record of all smoke emitting incidents, noting time, duration and cause. The consent holder shall also keep, and make available to the Chief Executive, upon request, a record of all complaints received as a result of the exercise of this consent.

16. The consent holder shall keep and maintain a log of all continuous flaring incidents longer than five minutes, and any intermittent flaring lasting for an aggregate of ten minutes or longer in any 120-minute period. Such a log shall contain the date, the start and finish times, the quantity and type of material flared, and the reason for flaring. This log shall be made available to the Chief Executive upon request, and summarised annually in the report required under condition 5. All practicable steps shall be taken to minimise flaring.

17. Other than in emergencies, or during tests or exercises to simulate emergencies to a maximum frequency of twice per year, depressurisation of the plant, or sections of the plant, shall be carried out over a sufficient period of time to prevent dense black smoke from being discharged from the flares.

18. Subject to the provisions of this condition, the Council may within six months of receiving a report prepared by the consent holder pursuant to condition 5 of this consent but not more often than once every three years, or in June 2006 and/or June 2012 and/or June 2018, serve notice that it intends to review the conditions of this resource consent in accordance with section 128(1)(a) of the Resource Management Act 1991 for the purposes of:

    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; and/or

    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; and/or

    c) to alter, add or delete limits on mass discharge quantities or discharge or ambient concentrations of any contaminant or contaminants; and/or

    d) taking into account any Act of Parliament, regulation, national policy statement or national environmental standard which relates to limiting, recording, or mitigating emissions of carbon dioxide, sulphur dioxide, nitrogen dioxide and/or benzene, and which is relevant to the air discharge from the Maui Production Station.

Transferred at Stratford on 29 December 2018

For and on behalf of
Taranaki Regional Council

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A D McLay
Director - Resource Management

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

Name of Consent Holder:	OMV Taranaki Limited Private Bag 2035 New Plymouth 4340
Decision Date:	10 March 1998
Commencement Date:	10 March 1998

Conditions of Consent

Consent Granted:	To place and maintain two pipelines in, under and over the foreshore and seabed in the coastal marine area between mean high water spring and the outer limit of the territorial sea
Expiry Date:	1 June 2025
Site Location:	Oaonui Beach To Outer Limit Of The Territorial Sea, Oaonui
Grid Reference (NZTM)	1668150E-5638140N
Catchment:	Tasman Sea

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

General conditions

a) That 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) That 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) That 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 undertaking any major maintenance works which could involve disturbance of, or discharge to, the coastal marine area.

2. That during any subsequent maintenance works, the consent holder must observe every practicable measure to prevent the discharge of silt and/or debris and/or any other contaminants to, and to minimise the disturbance of, the bed of the coastal marine area.

3. That where practicable, the structures licensed by this consent shall be removed and the area reinstated, if and when they are no longer required, to the satisfaction of the Chief Executive, Taranaki Regional Council.

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 2005 and/or June 2015, for the purpose of ensuring that the conditions adequately deal with the environmental effects arising from the exercise of this consent, which were not foreseen at the time the application was considered and which it was not appropriate to deal with at that time.

Transferred at Stratford on 29 December 2018

For and on behalf of
Taranaki Regional Council

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A D McLay
Director - Resource Management