Methanex Motunui and Waitara Valley

Combined Monitoring Programme

Annual Report

2022-2023

Technical Report 2023-40

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Taranaki Regional Council

Taranaki Regional Council
Private Bag 713
Stratford

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Executive summary

Methanex New Zealand Ltd (Methanex) operates methanol production facilities located at Motunui and Waitara Valley, in the Manu, Waihi and Waitara River catchments.

This report for the period July 2022 to June 2023 describes the monitoring programme implemented by the Taranaki Regional Council (the Council) to assess Methanex'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 Methanex's activities.

During the monitoring period, Methanex demonstrated a high level of environmental performance and high level of administrative performance.

Methanex holds 11 resource consents, which include a total of 111 special conditions setting out the requirements that Methanex must satisfy. Methanex holds two consents to allow it to take and use water from two abstraction points on the Waitara River. Six consents allow the discharge of effluent/stormwater into the Manu and Waihi Streams and the Tasman Sea via the Waitara marine outfall. Methanex also holds two consents to discharge emissions into the air at its sites. Finally, one consent provides for a structure in the Waitara River associated with the water take.

The Council's monitoring programme for the year under review included three inspections, continuous self-monitoring by Methanex (specifically involving collection of water samples for physicochemical analysis), review of regularly provided consent holder data and two inter-laboratory comparison.

The monitoring showed that Methanex operated both sites in accordance with the requirements of their resource consents. As in previous years, the facilities were well managed and a high level of housekeeping was maintained.

For reference, in the 2022-2023 year, consent holders were found to achieve a high level of environment performance and compliance for 878 (87%) of a total of 1007 consents monitored through the Taranaki tailored monitoring programmes, while for another 96 (10%) of the consents a good level of environmental performance and compliance was achieved. A further 27 (3%) of consents monitored required improvement in their performance, while the remaining one (<1%) achieved a rating of poor.

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

This report includes recommendations for the 2023-2024 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 2022 to June 2023 by the Taranaki Regional Council (the Council) on the monitoring programme associated with resource consents held by Methanex New Zealand Ltd (Methanex). This Company was formed on the first of January 2015, when the two previously separate Methanex companies (Methanex Motunui Ltd and Methanex New Zealand Ltd) were amalgamated.

Methanex operates a methanol production facility located on the coast at Motunui, close to Waitara (the Motunui site), and a second facility located 2.5 km south east and upstream of the mouth of the Waitara River (the Waitara Valley site). The Motunui site is located across the Manu and Waihi Stream catchments, and the Waitara Valley site is situated in the Waitara River catchment. Together, these facilities can produce up to 6,500 tonnes of methanol a day.

This report includes the results and findings of the monitoring programme implemented by the Council in respect of the consents held by Methanex that relate to abstractions and discharges of water within the Waitara River catchment, and the air discharge permits held by Methanex to cover emissions to air from their sites.

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 Methanex's use of water, land and air, and is the 42nd combined annual report by the Council for Methanex or preceding companies operating the same site.

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 Methanex for the Waitara Valley and Motunui sites;
- the nature of the monitoring programme in place for the period under review; and
- a description of the activities and operations conducted in Methanex's site/catchment.

Section 2 presents the compliance monitoring of the Motunui site during the period under review, including scientific and technical data. Thereafter the results are discussed, together with their interpretations, and their significance for the environment.

Section 3 presents the compliance monitoring of the Waitara Valley site during the period under review, including scientific and technical data. Thereafter the results are discussed, together with their interpretations, and their significance for the environment.

Section 4 presents a summary of recommendations to be implemented in the 2023-2024 monitoring year.

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

For reference, in the 2022-2023 year, consent holders were found to achieve a high level of environment performance and compliance for 878 (87%) of a total of 1007 consents monitored through the Taranaki tailored monitoring programmes, while for another 96 (10%) of the consents a good level of environmental performance and compliance was achieved. A further 27 (3%) of consents monitored required improvement in their performance, while the remaining one (<1%) achieved a rating of poor.[1]

1.2 Historical overview and process description

Historical overview

The Motunui facility was constructed in 1983 and was originally operated by the New Zealand Synthetic Fuels Corporation to produce petrol from natural gas, during the 'Think Big' era. The decision to build the facility was made under the *National Development Act 1979*. New Zealand Synthetic Fuels Corporation operated two production units, Methanol 1 and Methanol 2 as well as a gasoline to methanol plant. At that stage, crude methanol was an intermediate product in the process.

[1] The Council has used these compliance grading criteria for more than 19 years. They align closely with the 4 compliance grades in the MfE Best Practice Guidelines for Compliance, Monitoring and Enforcement, 2018

From 1995 to 2004 the Motunui site ran at close to full production. Around the end of this period, shifts in world demand favoured the production of high grade methanol and this became more profitable for Methanex than its then current operation of conversion of methanol to petrol. As a consequence the synthetic petrol part of the facility was de-commissioned and dismantled in October 2008 following a four year period during which the facility had remained idle. One production unit, Methanol 2, was restarted in 2008 and the restart of Methanol 1 took place in 2012. Presently the Motunui site operates at full capacity.

The Waitara Valley site was originally established by Petralgas Chemicals NZ Ltd (a 50:50 New Zealand government and Alberta Gas partnership) in 1983 as a self-contained facility to convert gas from the offshore Maui field into high grade methanol. In 1989, a second distillation tower was installed at the site to enable crude methanol supplied from the Motunui site to be processed into high grade methanol at the Waitara Valley site. Subsequently the facility changed ownership to Petrocorp and Fletcher Challenge Methanol until 1994 when Methanex Motunui Ltd gained ownership of the site. The construction of two methanol distillation towers at the Methanex Motunui site in 1994 and 1995 led to modifications of the Waitara Valley site, to allow the transfer of crude and refined methanol between the two sites and the port. The Waitara Valley site which had continued to operate between 2004 and 2008 while production at the Motunui facility had ceased, was laid up in November 2008 soon after the restart of the larger Motunui facility. The Waitara Valley site retained importance as a storage facility and a load out site for product going by truck to Tauranga. A restart of the Waitara Valley facility took place in October 2013. In April 2021 Methanex decided to mothball its Waitara Valley Plant due to its inability to secure sufficient gas supply. It is no longer producing methanol but continues to distil crude methanol.

Methanol manufacture

Production of methanol from natural gas (sourced from various Taranaki fields) involves a three stage process. A brief outline of the methanol production process is given below:

Phase 1: Reforming

Natural gas entering the plant undergoes a preparation treatment involving the removal of contaminants (such as sulphur) prior to the reforming process. The processed gas is then mixed with steam (processed from water taken from the Waitara River) at approximately 500°C, before being passed through a reformer containing a nickel catalyst at 900°C. The heat is achieved by burning fuelgas, a mixture of natural gas and waste gases from within the process. Waste heat is recovered for steam generation before the flue gases are discharged to the atmosphere at about 110°C. A synthesis gas is produced in the reformer which contains hydrogen, carbon dioxide, carbon monoxide, methane and nitrogen.

Phase 2: Compression and synthesis

The next phase of the process requires the synthesis gas produced in the reformers to be pressurised (1,500 kPa to 8,600 kPa). The synthesis process involves changing the synthesis gas through a further chemical reaction to a form of crude methanol. This reaction occurs by the channelling of compressed gas into a methanol converter containing a copper/zinc catalyst which yields crude methanol.

Phase 3: Distillation

The distillation process is a low-pressure process, whereby the crude methanol is purified to form chemical grade methanol. There are two distillation towers at Waitara Valley and two at Motunui, which are used to carry out this process.

1.3 Resource consents

Methanex holds 11 resource consents, the details of which are summarised in the table below. Summaries of the conditions attached to each permit are set out in Section 2 and 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 Methanex during the period under review.

During the 2020-2021 monitoring period, Methanex applied to renew all of the consents that were scheduled to expire on 1 June 2021 except for their land use permit (consent 3960-2). With an application to renew the consents in place, Methanex continues to operate the expired consents under Section 124 of the RMA. Consents 3960-2 and 0825-3 have been replaced with a deemed permitted activity permit.

Table 1 Resource consents held by Methanex during the 2022-2023 period

Consent holder	Consent number	Purpose	Granted	Review	Expires
Water abstraction permits					
Methanex Motunui	**0820-2**	To take from Waitara River	29 April 2008	N/A	Expired – S.124 Protection
Methanex Waitara	**0801-2**	To take from Waitara River at two locations	29 April 2008	N/A	Expired – S.124 Protection
Water discharge permits					
Methanex Motunui	**0822-2**	To discharge uncontaminated stormwater to Waihi and Manu Streams	29 Nov 2012	N/A	1 June 2027
Methanex Motunui	**0827-3**	To discharge wastewater to an unnamed tributary of the Waitara River	31 March 2008	N/A	Expired – S.124 Protection
Methanex Motunui	**3400-2**	To discharge treated wastewater and stormwater to the Tasman Sea	29 April 2008	N/A	Expired – S.124 Protection
Methanex Waitara	**0802-2**	To discharge stormwater to the Waitara River	31 March 2008	N/A	Expired – S.124 Protection
Methanex Waitara	**3399-2**	To discharge treated wastewater and stormwater to the Tasman Sea	29 July 2013	N/A	Expired – S.124 Protection
Air discharge permit					
Methanex Motunui	**4042-3**	To discharge contaminants to air	12 Feb 2008	June 2023	1 June 2028
Methanex Waitara	**4045-3**	To discharge contaminants to air	29 April 2008	N/A	Expired – S.124 Protection
Permitted activities					
Methanex Waitara	**3960-2**	To construct rock groyne in the Waitara River	Replaced with deemed permitted activity		
Methanex Motunui	**0825-3**	To discharge uncontaminated stormwater to an unnamed tributary of the Waitara River	Replaced with deemed permitted activity		

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 both sites 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

Both the Motunui and Waitara Valley sites were inspected three times during the monitoring period. On two occasions, the monitoring included the inspection of fish screens. Two of the site visits also included collecting split samples for inter-laboratory comparisons.

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 Methanex 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 Data review

Methanex undertakes a significant amount of self-monitoring of their own activities and associated environmental impacts. The data gathered is reported to the Council on a regular basis, and is reviewed by the Council to determine compliance with resource consent conditions.

The raw water abstraction rate from one location on the Waitara River for the Motunui site was measured continuously. Monthly reports detailing wastewater and stormwater discharge rates, volumes and composition were provided by Methanex to the Council. Wastewater effluent was monitored for a number of parameters with frequencies ranging from continuously (flow and pH) to monthly (trace metals).

These regular records provided to the Council are detailed in Table 2.

Table 2 Regular consent holder monitoring reporting requirements

Consent	Reporting requirement	Provision to the Council	
		Frequency required by consent	Frequency provided by consent holder
0820-2	Abstraction rate and volume	Yearly	Monthly
0801-2			
0802-2	Testing of stormwater quality	Consent not exercised	
0822-2	Testing of stormwater quality	Not specified	Monthly
3399-2 3400-2	Testing of treated waste and stormwater	Yearly	Monthly
	Records of volumes and rate discharged	Monthly	
	Records of chemical dosing	Yearly	
4045-3	Air quality monitoring	3 Yearly	3 Yearly
4042-3		2 Yearly	2 Yearly

Methanex is also required to provide the Council with several reports addressing various receiving environments, site activities and investigations. These reports are outlined below.

Air emissions

Methanex is required to supply Council with a report every two years addressing air emission issues from Motunui. This report is a requirement of consent 4042-3 (granted in April 2008).

The Waitara Valley consent has similar requirements but different time frames. Consent 4045-3 requires a three yearly report on technological advances regarding various emissions (including the cooling tower plume), an inventory of emissions from the distillation tower, energy efficiency improvements and any other matters relating to the mitigation of emissions.

Methanex reports on emissions from both sites in a biennial report. The latest biennial report for the 2020/2021 reporting period was received in December 2022 and is included as Appendix IIII. This report included an inventory of mass emissions of hazardous air pollutants as outlined in the consent, however due to Covid-19 Methanex stated they were unable to get the ambient monitoring completed which would indicate ground level concentrations. The report was reviewed by Council officers and found to meet the consent requirements. The next emissions report is expected by the end of 2024.

Methanex is also required to supply Council with a report every five years addressing advances in technology to minimise the effect of the Motunui site's water vapour plume. This report is a requirement of consent 4042-3 (granted in April 2008). The most recent report was received in December 2022. No new technologies for reducing emissions from the plants were identified that are commercially viable during this reporting period. The next report will be due in 2027.

Water take from the Waitara River

Methanex is required to supply Council with a report every two years addressing the programme Methanex has in place to reduce their use of water. This report is a requirement of consent 0820-2 and 0801-2 (granted in April 2008). The most recent report was received in December 2022.

Contingency plans

Consent 3399-2 and 0822-2 both require the provision of a contingency plan by Methanex to the Council. It is required that these are maintained and consent 3399-2 specifies that the contingency plan should be

reviewed every two years. These reviewed plans were received by the Council in November 2023. The next review is expected before the end of 2025.

Marine outfall

Every five years the Council may require Methanex to supply certification of the integrity and dilution performance of the marine outfall pipe. This is a pipe that provides for the discharge of wastewater/ stormwater approximately 1,250 m offshore from the mouth of the Waitara River in the Tasman Sea. The marine outfall report is a requirement of consent 3400-2 and 3399-2 (granted in April 2008). The most recent report was provided during the 2019-2020 monitoring period and is discussed in that report. The next report will likely be required from Methanex in 2025.

Treated stormwater and wastewater annual report

Methanex is also required to supply Council with a report annually addressing their waste treatment discharges. This is a requirement of consent 3400-2 and 3399-2 (granted in April 2008). An agreement was reached with the Council that as monthly reports are supplied by Methanex there would be no requirement for an additional annual report as effectively the collation of the monthly reports equate to annual reporting.

1.4.5 Inter-laboratory comparisons

On two occasions during the monitoring period samples from the Motunui site and on one occasion from Waitara Valley site, were taken by the Council and Methanex simultaneously for the purpose of validating the capability of the Methanex laboratory to provide accurate and reliable results within permissible levels of uncertainty. Both laboratories analysed the samples for parameters relevant to the consents and the results were compared. The results fell within the permissible levels of uncertainty apart from suspended solids on one occasion where there was insufficient sample collected from Waitara Valley site resulting in a higher than normal result.

2 Motunui

2.1 Process description

The Motunui facility (Photo 1 and Figure 1) has two production units, with a combined methanol production capacity of 5,000 tonnes per day (1.82 million tonnes per year). The Methanol 2 production unit was restarted and began to produce methanol in October 2008 after lying idle for four years. The Motunui Methanol 1 production unit began producing methanol again in July 2012. Increased monitoring was implemented during that restart. The monitoring was reduced back to normal levels during 2013-2014 and has continued as such during the current monitoring period.

Photo 1 Cooling towers and distillation stacks at the Methanex Motunui site

Figure 1 presents the layout of the site and references various components that will be referred to in this report.

2.1.1 Water discharges

There are various sources of wastewater from processes associated with the methanol manufacturing activities at the site, including water treatment wastes, boiler, cooling tower and other blowdowns, sewage, process effluents and stormwater.

- Sludge removed from the clarifiers is allowed to settle in the sludge lagoons. The water from this process is either allowed to evaporate or is discharged via the outfall.
- Naturally occurring dissolved salts in the abstracted river water are removed using ion exchange resins. Process boiler condensates for reuse also go through ion exchangers to remove trace minerals. The resins are regenerated using sulphuric acid and sodium hydroxide. The waste flow is neutralised prior to discharge via the outfall.
- The on-site boilers are fed with demineralised water with added deposit and corrosion control agents. To prevent a build-up of contaminants in the boiler water a portion of the boiler water is continuously removed (blowdown) and replaced with fresh treated water. This wastewater goes to the blowdown pond and is discharged via the outfall.

- The cooling towers function by the evaporation of treated clarified river water. Dissolved river salts could build up rapidly in the water and therefore substantial quantities (about one seventh of the volume) are blown down during each recirculation cycle. The cooling water blowdown may contain corrosion inhibitors, dispersants, surfactants, biocides and antifoams. This wastewater also goes to the blowdown pond and is discharged via the outfall.
- Process wastewaters from the methanol plant saturators and miscellaneous wastes from gauge glasses, sample connections, pump pads, vessel drains and the like.

Those process effluents that require treatment are diluted with other cleaner waste streams and are passed through a trickling filter and activated sludge system before being discharged via the ocean outfall.

Historically, domestic effluent was pumped to a New Plymouth District Council (NPDC) sewer line for treatment at the Waitara Wastewater Treatment Plant (WWWTP). Thereafter the treated wastewater was discharged to the Tasman Sea via the Waitara marine outfall. In the 2013-2014 monitoring period, major work was undertaken to convert the WWWTP to a pump station. The Waitara pump station was commissioned on 15 October 2014 at which point pumping of Waitara municipal sewage to the New Plymouth Wastewater Treatment Plant (NPWWTP) commenced, and treatment and discharge of municipal sewage to the Tasman Sea via the Waitara marine outfall ceased.

Presently NPDC continues to own and operate the outfall. They have a contract in place with Methanex for the Methanex to use the structure. While Methanex is the only current routine user of the outfall, NPDC maintain responsibility for maintenance of it.

Stormwater from the processing areas of the site that has the potential to be contaminated, drains into the stormwater pond under gravity and is then pumped to the effluent treatment plant and discharged via the marine outfall. Stormwater from the tankage area is pumped over into the process sewers which flow to the storm pond. The stormwater falling on the non-process areas of the western half of the site (Figure 1) is directed by "v" ditches running alongside the roads to a dam/pond and then out to the Tasman Sea via the Manu Stream. Stormwater falling on the eastern side of the site is directed to unnamed tributaries of the Waihi Stream via outfalls and a small sedimentation pond.

The sludge lagoons comprise four sludge ponds. Two of the four sludge ponds (ponds 2 and 3) are used for the backwash and dewatering of river silt from the clarification of water from the Waitara River. The other two ponds were not used during this reporting period.

Figure 1 Motunui site layout and water sampling site locations

2.1.2 Emissions to air

The major sources of emissions to air are shown in Figure 2. The greatest quantities of air discharges from the Methanex complex are emitted from the reformer stacks. The flue gases are the products of combustion reactions within the steam reformers. They comprise gases typical of any combustion processes based on natural gas i.e. nitrogen passing through the process unchanged from the atmospheric air drawn in to support combustion, water (from oxygen in the air reacting with hydrogen in natural gas), carbon dioxide (created similarly) and residual oxygen. There are also traces of nitrogen oxides due to atmospheric nitrogen oxidising in the heat of the reformers.

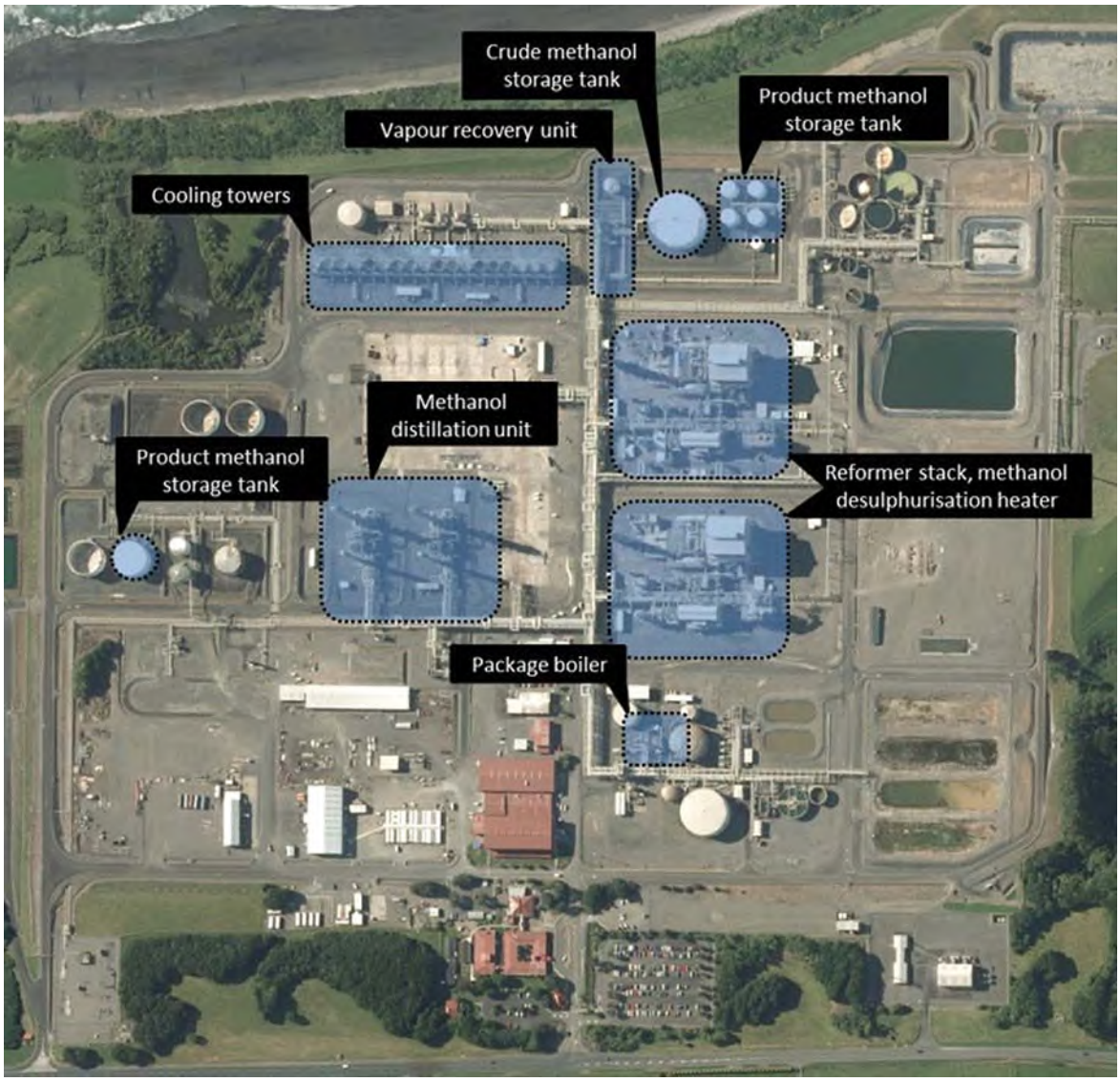

Figure 2 Major process air emission sources at Motunui

Energy efficiency and usage

The integrated nature of the site allows energy recovery and utilisation. At the same time, a large amount of energy is required to drive some of the reactions and refining stages. The volume of gas that may be accessed as raw feedstock by Methanex is fixed by the capacity of the feedstock systems, so that increased productivity and profitability are determined by in-house efficiency and loss control. More specifically, as in-plant efficiency increases, then the amount of carbon dioxide emitted as an exhaust gas per unit of product decreases.

The feedstock gas is preheated by excess heat recovered from other parts of the process, before being reformed to synthesis gas by the injection of steam and with additional heat energy generated by burning both natural gas and waste streams. The exhaust flue gases also have heat recovered from them, to preheat the feedstock gas and to raise steam.

The reaction of the synthesis gas over a catalyst to produce methanol releases heat, which is captured via heat exchanges for use elsewhere. Unreacted synthesis gases are bled off to avoid accumulation and are burnt in the reformer as fuel.

Distillation of the methanol to a chemical-grade (high purity) standard requires heat energy, partly supplied from the reformer process. Purge gases and liquids from the distillation process are recovered for further distillation, with any residues ("fusel oil") being burnt as fuel.

Initiatives to improve energy efficiency undertaken by Methanex have included communication sessions with shift workers to identify energy saving opportunities in addition to constant monitoring of energy performance. A statement of energy efficiency was included in the biennial air emissions report for consent 4042-3 which was lodged in December 2022. This outlined that the plants continued to be analysed to ensure operation was at the highest energy efficiency possible for the design of the plants. The Motunui cooling tower refurbishment project which began in 2014 has continued to take place with 4 cells completed and 3 cells currently in the process of being refurbished. As each cell is completed, incremental efficiency gains are made related to the effectiveness of the fans being required to cool the water at any given ambient temperature. The next report is due by the end of 2024.

2.1.3 Solid waste

Sludge from the clarifiers is removed periodically, while the only opportunity to clean and remove sludge from the blowdown pond, cooling tower sump and off-spec pond is when the entire site is shutdown, as these facilities are in constant use.

The solid wastes generated on site are placed in contained areas and are allowed to dry prior to disposal. The dried sludge has in the past been disposed of to land in a consented area owned by Methanex just outside the boundary fence, northwest of the Motunui site.

Three of the four sludge lagoons are used to dewater river silt from the clarifiers. This sludge is kept separate from other more contaminated material (for example the solid waste cleaned from the other effluent ponds) so that it can be disposed of more easily. The lagoons have a large storage capacity and therefore disposal of dewatered sludge will occur on an infrequent basis.

2.2 Results

2.2.1 Site inspections

Council officers carried out four compliance monitoring site inspections at the Methanex sites on 10 October 2022, 18 January 2023, 26 May 2023 and 23 June 2023 which included two compliance monitoring sampling visits for the purpose of collecting split samples.

During the compliance monitoring site visits, various areas of the site were observed. This typically included inspecting the ponds and sludge lagoons, the containment and associated bunding, the cooling towers, the utilities area, the flare, the water/effluent treatment area and the stormwater discharge points to waterways either side of the Motunui site. Council officers inspected these areas for any apparent discharges, infrastructure issues/damage or potential risks.

The condition of any detectable emissions to air was also noted at each inspection, with particular reference to the cooling tower and the reformer.

10 October 2022

An inspection was undertaken by Council staff, accompanied by Fahad Khan and Megan Sommerville (Methanex personnel).

During the inspection, the sludge lagoons were observed and Pond 2 was partially full while the other three ponds were mainly empty, with clear and tidy surroundings. The stormwater pond had a pH of 8.59, was clear and tidy, and half full with an intact liner. The Blow down pond was tidy and intact, operating at a normal level, and the Off-spec pond was okay and holding stormwater. The Waihi Stream exhibited a moderate discharge of 0.75 L/sec, with no scum, sheen, or foam. The stream appeared clear and uncoloured. The cooling tower showed a slightly noticeable plume, and cells R, P, and N were isolated for refurbishment. Sandblasting was observed on the overhead pipe rack, which was fully contained. The Duck pond was relatively clear, and showed a slight discharge via a vegetated stream bed to the coast. The outfall effluent had pH readings of 7.19 and 7.26, both at 18.8 degrees centigrade. The methanol storage tank area was tidy. No odour was detected beyond the boundary, and the waste water treatment system exhibited full containment with no odour.

18 January 2023

An Inspection was carried out at the Methanol Plants in fine weather by Council staff, accompanied by Fahad Khan (Methanex personnel).

During the inspection, the sludge lagoons at the Motunui Plant were in good condition, with pond 2 having a low level of backwater wash stored. The other three ponds were empty with vegetation in the two eastern ponds. The stormwater pond had a low level, was clear and tidy, and had an intact liner. N, P and R cells of the cooling towers were being refurbished and there was a plume approximately eight meters above the towers. The plume dissipating well within the site due to an onshore breeze, and there was no noticeable droplet fallout. The Blow down pond was tidy and intact, the off-spec pond had secure retention storage with a distinctive green tinge, and the Waihi Stream exhibited no sheen or foam but had significant surface algae (50%) in the retention area. A hydrocarbon filter was in place near the outlet from the pond, and there was a low discharge via the densely vegetated Manu Stream to the coast. The methanol storage tanks were all okay with intact bunds. No noticeable odour attributable to the plant was detected, and various areas, including Methanol Units 1 and 2, and the utility areas were okay with no evidence of spillage.

26 May 2023

An Inspection was carried out at the Methanol Plants in fine weather by Council staff, accompanied by Jeremy Clarke (Methanex personnel).

During the inspection, the sludge lagoons were observed and the outer two ponds were largely inactive, while the inner two contained a small amount of liquid and sludge. One of the ponds was being directed into the Off-spec pond for further analysis, and all pond walls were stable. The stormwater pond had Pied Stilt birds present, and its lining was reported to be in good condition. The off-spec pond was approximately three quarters full with its lining and structure appearing to be well-maintained. The Waihi Stream ran clear after passing through mesh and a hydrocarbon filter, displaying low flow with no sheen or odour. The cooling tower had recently had the N, P, and R cells refurbished and the plume was observed to reach approximately 50 m above the towers. The plume was dissipating within the site after traveling approximately 100m downwind westward. Screening at the Manu Stream was in place and in apparent good order. A small discharge was occurring through the densely vegetated Manu Stream to the coast. A sample of the outfall effluent, was taken at 0845 and recorded a pH of 6.83 and 6.85. The methanol storage tanks were okay, with intact concrete bunds and a very low level of retained surface water. Flare 1 was operational but not visible, and no odour attributable to the plant was detected. Methanol units 1 and 2 were clear with no spillage signs.

23 June 2023

An Inspection was carried out by Council staff, accompanied by Fahad Khan (Methanex personnel).

During the inspection of the sludge lagoons, it was observed that the outer two ponds were largely unused, while the inner two were mostly dry with stable walls. The stormwater pond had a very low water level, but Pied Stilt birds were still present, and the pond lining was in good condition. The offspec pond was approximately three quarters full, receiving green coloured water from the stormwater or blow down ponds, and its lining and structure were in good order. The Waihi Stream had a very low flow with no sheen, odour or algae, despite significant algae cover before mesh and filter. The cooling tower's plume dissipated within the site. The outfall effluent sampler recorded pH of 7.01 and 7.08, at temperatures of 18.90 and 19.3 degrees centigrade respectively. Methanol Storage Tanks were OK, with intact concrete bunds. There were no plant attributable odours detected. Methanol Units 1 and 2 were clear with no spillage.

Surface water

2.2.1.1 Surface water abstraction monitoring by Methanex

Consent 0820-2 to take water from the Waitara River requires abstraction rates of less than 1,400 m^3/hr. There were no recorded exceedances of this limit for the Motunui abstraction consent condition during for the 2022–2023 monitoring period. The maximum hourly flow rate was recorded at 1,304 m^3/hr on 14 February 2023 and the average hourly flow rate was 844 m^3/hr for this period.

Consent 0820-2 specifies that no water may be taken when the flow of the Waitara River at the Bertrand Road gauging station falls below 4,600 L/s. The Waitara River did not fall below this level during the 2022-2023 monitoring period. Appendix III shows the hydrograph for the abstraction at Waitara River at Bertrand Road.

Water use reduction report

The Council received a report from Methanex in December 2022 relating to water use reduction at the Motunui site during the 2020 and 2021 calendar years (Appendix V). This biennial water use reduction report is a requirement of condition 4b of Consent 0820-2 (Motunui).

Methanex reported that during 2020 and 2021, on average the intakes took 61% of the consented take. Major maintenance works and measures implemented by Methanex to improve efficiency, resulted in reductions in the quantity of water consumed over the period. This was achieved through a focus on the operation of the plant. There were also increased plant efficiencies from the major maintenance performed on the plant during the planned shutdowns. The next water use reduction report is due by the end of 2024 to report on the 2022-2023 period.

Pipeline integrity report

Condition 4 of Consent 0820-2 requires that Methanex undertake testing of the intake to the site every five years to establish pipeline integrity. This work was due for completion during 2013. Methanex have investigated methods to undertake this effectively without damaging the existing infrastructure. However, there has been no testing of the Methanex water take pipelines due to the existing issue of there not being any practical methodology to carry out pressurizing of the pipes. Methanex have remained in regular communication with Council on this matter, however have not been able to satisfy this condition of their consent. The Council is aware of the practical issues around achieving this and have accepted the information supplied by Methanex that indicates that the pipeline is unlikely to be significantly leaky. A report was received in September 2018 detailing a video scope inspection of the pipeline.

Further discussion on the background of these issues is provided in the 2018-2019 monitoring programme annual report (Technical Report 2019-30).

2.2.1.2 Effluent monitoring

During July 2022 to June 2023 the Motunui site was operating continuously, although periodically only one of the two reformer units was operating.

Effluent monitoring data gathered by Methanex was sent to the Council on a monthly basis. The data is made up of continuous online data, laboratory analysis of a 24-hour composite effluent sample and mass discharge of water treatment chemicals calculated by Methanex using chemical consumption data.

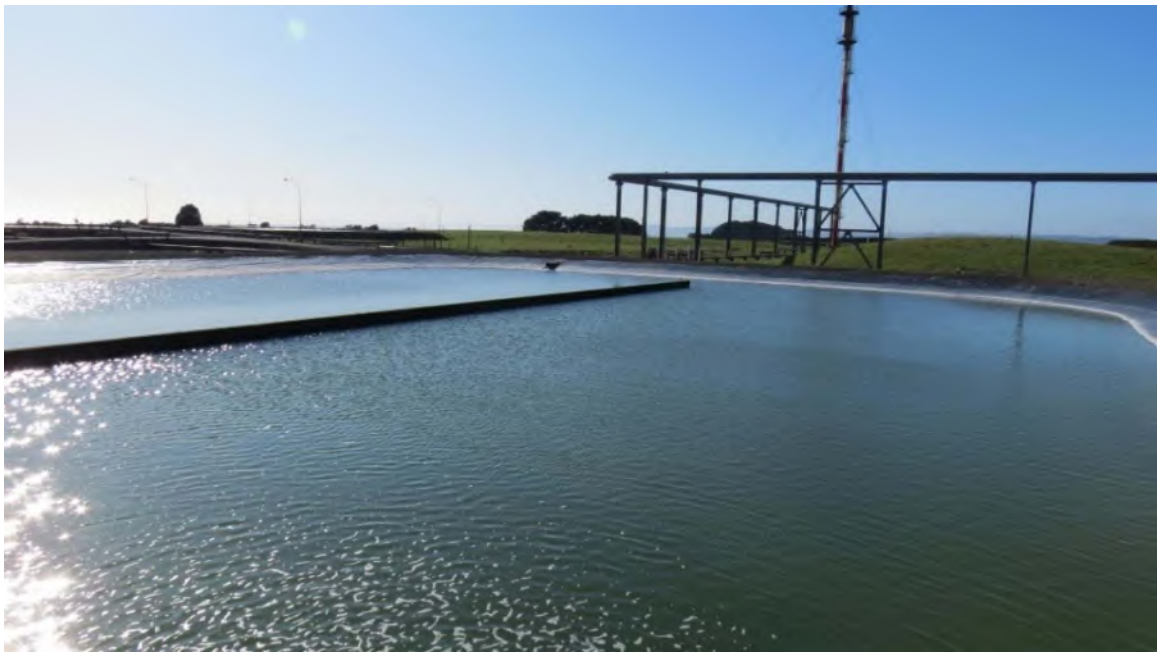

Photo 2 The Motunui site's blow down pond (decommissioned flare 2 can be seen in the background)

Continuous measurement

Flow and pH are measured by online analysers, and recorded continuously. The figures reported to the Council are daily averages (m^3/hr), daily maximum (L/s) and daily volume (m^3/day) for flow, and minima, maxima, and daily averages for pH. A summary of the outfall effluent data is presented in Table 3.

Table 3 Summary of the Motunui site's monitoring results of plant effluent during 2022-2023

Consent 3400-2	Unit	Minimum	Maximum	Consent limit	Number of breaches
Continuous measurement					
Flow (daily average)	m^3/day	0	8,444	12,096	0
pH	-	6.10	8.80	6-9	0
Daily measurement					
Chemical oxygen demand	g/m^3	0	75	200	0
Methanol	g/m^3	0	1	15	0
Suspended solids	kg/day	0	102	500	0
Petroleum hydrocarbons	g/m^3	0	0	10	0
Monthly measurements					
Copper	g/m^3	<0.05	<0.05	0.50	0

Consent 3400-2	Unit	Minimum	Maximum	Consent limit	Number of breaches
Nickel	g/m^3	<0.05	<0.05	1.00	0
Zinc	g/m^3	0.13	0.23	1.00	0

A proportional sampler is used to create a daily composite sample representative of the daily flow of Motunui effluent. This is analysed by the Methanex laboratory, to determine compliance with their discharge consent 3400-2. A summary of this data is included in Table 3 above.

Visual checks of the effluent sample indicated that no hydrocarbons were present throughout the monitoring period.

Chemical dosing rates

Consent 3400-2 (for discharge of process waste from the Motunui site) sets mass discharge limits on the water treatment chemicals used on the site. Methanex calculates water treatment chemical mass discharge rates using chemical consumption data. A summary of this data for the monitoring period is presented in Table 4.

Table 4 Summary of Motunui chemical discharge data (calculated) for July 2022 to June 2023

Consent 3400-2 (special condition 8)					
Chemical	Unit	Minimum	Maximum	Average	Consent Limit
Gengard GN8020	kg/day	32	96	71	300
Inhibitor AZ8104/ EPC8130	kg/day	25	98	58	300
Steamate NA0880	kg/day	11	31	19	40
Optisperse HTP 73301	kg/day	3	88	32	120
Optisperse HTP 73611	kg/day	9	72	34	120
Foamtrol AF2290	kg/day	0	0	0	40
Betz Dearborn AE1115	kg/day	14	27	22	60
Flogard MS6209	kg/day	0	17	8	40
Klairaid PC 1190P	kg/day	38	106	75	600
Spectrus NX1100	kg/day	15	47	31	65
Cortrol OS 5601	kg/day	0	75	16	200
Cortrol OS 7780	kg/day	0	36	11	400
Spectrus BD1501E	kg/day	3	43	11	70

Methanex complied fully with chemical dosing limits during the monitoring period at this site.

Equivalent chemical

During the 2021-2022 monitoring period, Methanex requested to change Inhibitor AZ8104 to Inhibitor EPC8130 as per the process set out in consent 3400-2. The Council undertook an assessment of this change to determine whether the replacement water treatment chemical is considered an equivalent of the existing chemical.

The Council reviewed the information provided on Inhibitor ECP8130 in the safety data and fact sheets produced by the chemical supplier, SUEZ Water Technologies and Solutions and sought further information from the supplier on:

1. The composition of the "acid derivative" that is the active ingredient of Inhibitor ECP8130, and its breakdown products;
2. The toxicological testing of Inhibitor ECP8130 (CAS mixture).

To date this response has not been received. However, the Council has been advised that the proposed new chemical is used for the same purpose and has a similar composition and lower aquatic toxicity. Therefore breakdown products would have the same concentration in the discharge and the requirements of special conditions 10, 11 and 12 on coastal permit 3400-2 have been satisfied for approval of water treatment chemical ECP8130 as an equivalent to Inhibitor AZ8104.

Methanex commenced a trial of ECP8130 on 8 September 2022 until 4 November 2022 when AZ8104 was restarted. A permanent change to ECP8130 commenced on 16 January 2023.

Marine outfall report

A report on the structural integrity of the Waitara marine outfall was submitted to the Council on 23 December 2019. This is a requirement of special condition 19 of Consent 3400-2. The report is discussed and available in the 2019-2020 Methanex annual compliance monitoring report (Report 2020-44). In the report it was noted that the diffuser is effective, with all 35 ports operational. The next report will be due upon request by the Council after December 2024.

Contingency plan

In accordance with consent 3400-2 and 0822-2, Methanex is required to maintain a comprehensive contingency plan for the Motunui site, which would be put into operation in the event of spillages, accidental discharges or pipeline failure. Methanex provided a revised plan including a 'Specific Response Procedure', a 'Notification of Environmental Exceedances Procedure', and a 'Reporting of Environmental Exceedances Procedure' for the Motunui site in November 2009. These spill contingency planning documents were reviewed by Council officers and found to be satisfactory.

Consent 3400-2 requires revision of the spill contingency planning every two years. Methanex provided a revision of their contingency plan in June 2010, May 2012, September 2014, November 2016, January 2018, January 2021 and November 2022. The next review is expected by the end of 2024.

2.2.1.3 Uncontaminated stormwater

Stormwater outlets for uncontaminated stormwater are situated in the Waihi catchment on the eastern side of the Motunui site and at the sea cliff via the Manu Stream on the north western side of the site (Figure 1).

Photo 3 The Manu Stream sampling point at the Motunui site

Photo 4 The Waihi Stream sampling point at the Motunui site

Weekly grab samples of the stormwater discharges were taken and analysed for four water quality characteristics by Methanex staff. The two sampling sites are shown in Photo 3 and Photo 4. The analytical sample results provide an indicator as to whether or not the discharge was contaminated. The results of the Methanex stormwater monitoring for July 2022 to June 2023 are summarised in Table 5 below.

Table 5 Summary of Motunui stormwater monitoring data for 2022-2023

Consent 0822-2					
Parameter	**Unit**	**Minimum**	**Maximum**	**Average***	**Consent limit/ *Guideline***
Manu Stream (photo 3)					
pH	-	6.5	7.5	6.89	6 – 9.5
Petroleum hydrocarbons	g/m^3	<1	<1	<1	<5
Conductivity at 25°C	µs/cm	56.0	140.0	88.1	<300 *
Total suspended solids	g/m^3	3.0	23.0	7.3	<100
Visual hydrocarbons	# Pass / # Fail	Tests passed: All	Tests failed: 0	----	PASS
Waihi Stream (photo 4)					
pH	-	6.1	7.1	6.41	6 – 9.5
Petroleum hydrocarbons	g/m^3	<1	<1	<1	<5
Conductivity at 25°C	µs/cm	37.00	215.00	161.78	<300 *
Total suspended solids	g/m^3	3.0	31.0	4.22	<100
Visual hydrocarbons	# Pass / # Fail	Tests passed: All	Tests failed: 0	----	PASS

* Guideline value, not a consent requirement.

Manu Stream discharge

The quality of the stormwater discharge from the pond was within the consent limits for uncontaminated stormwater on each monitoring occasion.

Waihi Stream

The stormwater samples analysed from the Waihi Stream monitoring site were within the consent limits for uncontaminated stormwater on each monitoring occasion. Conductivity exceeded the guideline value on one occasion in May 2022 but remained well below the higher conductivity range (100-10,000 µs/cm) contributing to saline conditions which would have a significant impact on freshwater habitats.

2.2.1.4 Inter-laboratory comparisons

On the 18th January and the 26th May 2023 the Council and Methanex undertook inter-laboratory comparisons. Samples were collected from the composite outfall sampler and from two sites representing the effects of Motunui site's stormwater discharges on surface water. The results of the inter-laboratory comparisons, which also serve the purpose of compliance monitoring checks, are shown in Table 6 and Table 7. Results from both laboratories for the Motunui effluent samples met the consent limits during the monitoring period. A comparison of the laboratory results showed there were some minor variation in values determined by the laboratories, but with consideration to both laboratories' confidence limits and the sampling techniques (with varying detection limits), it was found that overall there was reasonable agreement.

Table 6 Inter-laboratory comparison of Motunui outfall composite sample results

Parameter	Unit	Consent limits	18 January 2023		26 May 2023	
			Methanex	TRC	Methanex	TRC
Chemical oxygen demand	mg/L	200	57	48	25	16
Conductivity @ 25°C	µs/cm		1,570	1,576	1410	1408
Copper – acid soluble	mg/L	0.5	< 0.05	<0.03	<0.05	<0.03
Methanol	mg/L	15	< 2.0	<2.0	< 2.0	<2.0
Nickel – acid soluble	mg/L	1.0	< 0.05	<0.01	< 0.05	<0.01
pH		6.0-9.0	-	7.5	-	7.4
Total hydrocarbons	mg/L	10	< 1.0	< 4.0	< 1.0	< 4.0
Total suspended solids	mg/L	daily discharge <500 kg	25	17.8	<6	<3
Zinc – acid soluble	mg/L	1.0	0.14	0.147	0.21	0.19

Table 7 Results of Motunui stormwater inter-laboratory comparison between Methanex and the Council

Motunui site stormwater (Consent 0822-2)						
Parameter	Unit	Consent limits	Manu Stream (STW002012)		Waihi Stream (STW002013)	
			Methanex	TRC	Methanex	TRC
18 January 2023						
Conductivity @ 25°C	µs/cm	300*	62	63	194	195
pH		6.0-9.5	7.1	7.1	6.5	6.7
Total hydrocarbons	mg/L	5	<1.0	< 0.7	< 1.0	< 0.7
Total suspended solids	mg/L	100	< 6.0	< 5.4	< 6.0	< 3.0
26 May 2023						
Conductivity @ 25°C	µs/cm	300*	96	92	212	208
pH		6.0-9.5	6.7	7.0	6.2	6.5
Total hydrocarbons	mg/L	5	< 1.0	< 0.7	< 1.0	< 0.07
Total suspended solids	mg/L	100	< 6.0	< 6.0	< 6.0	< 3.0

* Not a consent limit, but a guideline limit

2.2.1.5 Methanex Motunui annual report

Condition 20 of consent 3400-2 requires Methanex to provide the Council with an annual report on its wastewater treatment and disposal system, including monitoring results of the discharge and compliance with the consent.

Monthly reports over the July 2022 to June 2023 period were received by Council and fulfil this consent requirement.

2.2.2 Air

2.2.2.1 Inspections

During the 2022-2023 monitoring period the Council received no complaints in regard to air pollution from the Motunui site.

During site inspections, Council officers also inspect for air discharges such as odour and smoke around the Motunui site. No discharges were recorded during any of the inspections.

2.2.2.2 Consent requirements

Plume abatement report

Condition 5 of resource consent 4042-3 required a report, outlining options for reducing the adverse effects of the cooling tower plume. The consent specified that these reports should be provided in February 2009 and every five years thereafter. The most recent report was received in December 2019 and was discussed in the 2019-2020 annual compliance monitoring report for Methanex (Report 2020-44).

The next plume abatement report is due towards the end of 2024.

Biennial air emissions report

Condition 6 of consent 4042-3 requires Methanex to provide the Council with a biennial report on its air emissions, including a revision of any technological advances in the reduction or mitigation of emissions, a detailed inventory of emissions (excluding carbon dioxide), outlining any energy efficiency measures, and addressing any other issues relevant to minimisation or mitigation of emissions.

The latest biennial report for the 2020/2021 reporting period was received in December 2022 and is included as Appendix IV. This report included an inventory of mass emissions of hazardous air pollutants as outlined in the consent, however due to covid, Methanex stated they were unable to get the ambient monitoring completed which would indicate ground level concentrations. The report was reviewed by Council officers and found to meet the consent requirements. The next emissions report is expected by the end of 2024.

Alterations to the plant, processes or operations

Prior to undertaking any alterations to the plant, processes or operations which may significantly change the nature or quantity of contaminants emitted from the site Methanex must advise the Council. No notifications were received advising of alterations to the plant or plant processes during the period under review.

2.2.3 Soil

Presently the sludge lagoons collect river silt that has been backwashed from the clarifiers. Infrequently, these sludge lagoons are cleaned out and spread to Motunui farmland as permitted by Rule 29 of the *Regional Freshwater Plan*.

2.2.4 Investigations, interventions, and incidents

The monitoring programme for the year was based on what was considered to be an appropriate level of monitoring, review of data, and liaison with the consent holder. 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 Company is indeed the source of the incident (or that the allegation cannot be proven).

In the 2022-2023 period, the Council was not required to undertake significant additional investigations and interventions, or record incidents, in association with Methanex's conditions in resource consents or provisions in Regional Plans.

2.3 Discussion

2.3.1 Discussion of site performance

Previous high standards of housekeeping were apparent at all inspections undertaken at the Motunui site. Maintenance and improvements of the site have been undertaken during the period under review.

Methanex continued to manage consented activities within consent limits over this monitoring period. Methanex has a contingency plan with respect to the operation of the wastewater consent at the Motunui site which they regularly update. They maintain comprehensive spill contingency equipment on site, and personnel are trained with respect to spill response.

Production related emissions to air from the site continued during the period under review. No consent non-compliances were noted and no complaints were received regarding flaring or the cooling tower plumes during the period under review.

2.3.2 Environmental effects of exercise of water abstraction permits

The Motunui consent allows for a water take of up to 1,400 m^3/hr. This limit was not exceeded during the monitoring period.

Methanex personnel have been in ongoing discussion with the Council on demonstrating compliance attainment with their consent conditions in regard to water take pipeline integrity and flow meter positioning and verification issues. During 2017-2018 Methanex installed and verified flowmeters at the point of take for both sites. They are presently compliant with the *Resource Management (Measurement and Reporting of Water Takes) Regulations 2010*. Flowmeters are required to be verified every 5 years. Consent 0820-2 was verified on 23 March 2022.

2.3.3 Environmental effects of exercise of water discharge permits

Methanex staff continued to provide the Council with monthly monitoring data. The parameters measured were all found to comply with consented limits for the water discharge consents held.

Inter-laboratory comparisons between the Council and Methanex laboratories showed a reasonable agreement of results.

No visible environmental effects in any of the receiving watercourses were recorded during the site inspections.

2.3.4 Environmental effects of exercise of air discharge permits

The controls that Methanex have in place to minimise and mitigate the safety risks, in regard to air emissions, to site operators also ensures that there is a low likelihood of adverse environmental effects

offsite. Modelling of air emissions when the site was at full capacity in 2001 has shown emissions levels far below consent limits which are set in line with National Environmental Air Quality Standards.

Neighbourhood effects

No offensive or objectionable odours were noted at the site boundary during any site visit undertaken by Council staff. Furthermore the Council has not received any specific complaints regarding the cooling tower plume through the monitoring period under review.

Ecological effects

No adverse environmental effects were detected during the period under review.

2.3.5 Evaluation of performance

A tabular summary of Methanex's compliance record under its current active consents for the 2022-2023 monitoring year is set out in Table 8 to Table 13.

Table 8 Summary of performance for Consent 0820-2

Purpose: ***To take water from Waitara River***		
Condition requirement	**Means of monitoring during period under review**	**Compliance achieved?**
1. The volume taken shall not exceed 1,400 m^3/hr	Daily maximum flow rates provided monthly	Yes
2. The taking of water is managed to ensure that water is taken only when the river flow is above 4,600 L/s	Continuous gauging at Bertrand Road	Yes
3. Installation and maintenance of a water meter for water take data	Monthly data reports provided	Yes
4. Water use reduction measures– incl. five-yearly testing of pipeline integrity and two-yearly report on water use reduction programme	Water conservation reports received January 2021. There has been no testing of the Methanex water take pipelines due to the existing issue of there not being any practical methodology to carry out pressurizing of the pipes.	Yes Pipeline testing report on hold through discussion with Council.
5. Appropriate screening of intake structure to prevent fish entrainment	Inspection and liaison with consent holder	Yes
6. Lapse of consent	Consent given effect to	N/A
7. Review of consent	No further provision for review	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 9 Summary of performance for Consent 0822-2

Purpose: *To discharge of stormwater from outfalls into Waihi and Manu Streams*		
Condition requirement	**Means of monitoring during period under review**	**Compliance achieved?**
1. Adoption of best practicable option to minimise effects	Inspection and liaison with consent holder	Yes
2. Limitation on stormwater catchment area – specific to application refer to drawing g10637	Inspection and liaison with consent holder	Yes
3. Contingency plan to be maintained and followed in event of a spill. Contingency plan to be supplied to the Council	Contingency plan received and reviewed in 2022	Yes
4. Stormwater management plan to be maintained. To be supplied to the Council and approved	Stormwater Management Plan (within Motunui Spill Contingency Plan) updated 29 April 2022 and provided to Council	Yes
5. Discharge sample analysis. Sampling to occur at specified points from the Waihi Stream and the Manu Stream. Analysed for pH, TSS and total recoverable hydrocarbons	Sample analysis results received.	Yes
6. Manu Stream: Discharge cannot cause specified adverse effects beyond mixing zone	Inspection – observation. Receiving water sample analysis	Yes
7. Waihi Stream: Discharge cannot cause specified adverse effects beyond mixing zone	Inspection – observation. Receiving water sample analysis	Yes
8. The Council is to be notified of any changes that may affect the nature of the discharge	No notification received	Yes
9. Review of consent	No further reviews available	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**

Table 10 Summary of performance for Consent 0825-3

Purpose: *To discharge of stormwater from Motunui intake facility into Waitara River unnamed tributary*		
Condition requirement	**Means of monitoring during period under review**	**Compliance achieved?**
1. Best practicable option to prevent and minimise adverse effects	Discussion with consent holder	Yes

Purpose: *To discharge of stormwater from Motunui intake facility into Waitara River unnamed tributary*		
Condition requirement	**Means of monitoring during period under review**	**Compliance achieved?**
2. Activity undertaken in accordance with application documentation	Liaison with consent holder	Yes
3. Discharge cannot cause specified increase in turbidity in Waitara River beyond the mixing zone	Liaison with consent holder	Yes
4. Lapse of consent	Consent given effect to	N/A
5. Review of consent	No further provision for review	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**

Table 11 Summary of performance for Consent 0827-3

Purpose: *To discharge wastewater from the Motunui in-take facility into Waitara River unnamed tributary*		
Condition requirement	**Means of monitoring during period under review**	**Compliance achieved?**
1. Maximum daily discharge shall not exceed 1,000 m^3/day	Liaison with consent holder	Yes
2. Adoption of best practicable option	Ongoing liaison with consent holder	Yes
3. Activity undertaken in accordance with application documentation	Liaison with consent holder	Yes
4. Discharge cannot cause specified adverse effects on turbidity in Waitara River beyond the mixing zone	No incidents reported. Liaison with consent holder	Yes
5. Review of consent	No further provision for review	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**

Table 12 Summary of performance for Consent 3400-2

Purpose: *To discharge effluent and stormwater into Tasman Sea*		
Condition requirement	**Means of monitoring during period under review**	**Compliance achieved?**
1. Consent holder to adopt best practicable option to prevent or minimise adverse effects	Inspections, liaison and review of reported data.	Yes
2. Consent holder to maintain a record of the volume of effluent discharged each day	Monthly reports provided	Yes
3. Maximum daily discharge 12,096 m^3/day, 140 L/s	Monthly reports received	Yes
4. Minimum initial dilution of effluent 100:1	Outfall specifically designed to achieve this. Modelling exercise was undertaken; this was reported with the five-yearly marine outfall report received in December 2019.	Yes
5. Maximum daily discharge of suspended solids 500 kg	Review of analytical information provided in self-monitoring data and inter-laboratory comparison.	Yes
6. pH not to exceed range of 6 to 9	Review of analytical information provided in self-monitoring data and inter-laboratory comparison.	Yes
7. Limits on concentration of COD, hydrocarbons, methanol, copper, nickel, zinc	Review of analytical information provided in self-monitoring data and inter-laboratory comparison.	Yes
8. Allowable water treatment chemicals and volumes	Liaison with consent holder and inspections.	Yes
9. Maximum daily limit of treatment with Spectrus CT1300 in response to Legionella	Liaison with consent holder and consent holder reports. This condition was not exercised during this monitoring period.	N/A
10. Approval from the Council required to discharge 'equivalent' chemical	Approval granted for Inhibitor AZ8104 to be replaced by EPC8130. Permanent change to 'equivalent' chemical did not occur until January 2023.	N/A
11. Definition of 'equivalent'	Information provided	Yes
12. Discharge of equivalent chemical requires written request	Request obtained	Yes
13. Conditions 5,6,7 and 8 apply to effluent prior to entry into outfall line	Monitoring and sampling carried out with regard to this requirement.	Yes
14. Limits in conditions 7 and 8 apply unless the Council has given approval for a short term change	Not required	N/A

Purpose: *To discharge effluent and stormwater into Tasman Sea*		
Condition requirement	**Means of monitoring during period under review**	**Compliance achieved?**
15. Effects on receiving waters	Historical marine ecological surveys (separate programme).	Yes
16. Consent holder to maintain contingency plan	Updated contingency plans provided 21 November 2022.	Yes
17. No domestic sewage in discharge	Liaison with consent holder. Domestic sewage is routed to the NPWWTP, not directly to the outfall	Yes
18. Consent holder to notify the Council at least seven days before consent is first exercised	Notification on file	Yes
19. Consent holder to certify the structural integrity and dilution performance of outfall at least every five years	Received a report satisfying this requirement 23 December 2019	Yes
20. Consent holder to supply an annual effluent report by 31 March each year	Reports received monthly and reviewed as satisfactory	Yes
21. Lapse of consent	Consent given effect to	N/A
22. Review of consent	No further provision for review	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**

Table 13 Summary of performance for Consent 4042-3

Purpose: *To discharge emissions into the air – methanol distillation and ancillary facilities*		
Condition requirement	**Means of monitoring during period under review**	**Compliance achieved?**
1. Adoption of best practicable option to minimise adverse effects	Inspection and liaison with consent holder	Yes
2. Operate in general accordance with Application documentation	Inspection and liaison with consent holder	Yes
3. Minimisation of emissions through control of processes	Inspection and liaison with consent holder	Yes
4. Consultation and approvals required prior to alterations to plant or processes	Inspection and liaison	Yes
5. Provision of a report on cooling tower plume abatement	Report received December 2019. Next report expected in 2024	Yes
6. Biennial written air discharge emission and mitigation reports	Report received December 2022. Next report expected in 2024	Yes

Purpose: *To discharge emissions into the air – methanol distillation and ancillary facilities*		
Condition requirement	**Means of monitoring during period under review**	**Compliance achieved?**
7. Maximum ground-level concentrations of methanol beyond site boundary	Consent holder monitoring results. Previous modelling has shown compliance when site in full operation.	Yes
8. Maximum ground-level concentrations of carbon monoxide beyond boundary	Consent holder monitoring results. Previous modelling has shown compliance when site in full operation.	Yes
9. Maximum ground-level concentrations of nitrogen dioxide beyond boundary	Consent holder monitoring results. Previous modelling has shown compliance when site in full operation	Yes
10. Maximum ground-level concentrations of other contaminants beyond boundary	Previous modelling has shown compliance when site in full operation	Yes
11. Inventory of emissions to be provided with biennial emission mitigation report	Received December 2022. Next report expected in 2024	Yes
12. No offensive or objectionable odour at the site boundary permitted	Inspection	Yes
13. Adverse effects on ecosystems not permitted	Inspection of surrounding environment found no adverse effects	Yes
14. Optional review provision – notification within 6 months of receiving report (condition 5)		N/A
15. Monitoring provision	Inspection and liaison with consent holder	Yes
16. Lapse provision	N/A	N/A
17. Review, amend or delete provision in June 2018 and/or June 2023	N/A	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 14 Evaluation of environmental performance over time

Year	Consent no	High	Good	Improvement req	Poor
2013-2014	0820-2	1	-	-	-
	0822-2	1	-	-	-
	0825-3	1	-	-	-
	0827-3	1	-	-	-
	3400-2	1	-	-	-
	4042-3	1	-	-	-

Year	Consent no	High	Good	Improvement req	Poor
2014-2015	0820-2	1	-	-	-
	0822-2	1	-	-	-
	0825-3	1	-	-	-
	0827-3	1	-	-	-
	3400-2	1	-	-	-
	4042-3	1	-	-	-
2015-2016	0820-2	1	-	-	-
	0822-2	1	-	-	-
	0825-3	1	-	-	-
	0827-3	1	-	-	-
	3400-2	1	-	-	-
	4042-3	1	-	-	-
2016-2017	0820-2	1	-	-	-
	0822-2	1	-	-	-
	0825-3	1	-	-	-
	0827-3	1	-	-	-
	3400-2	1	-	-	-
	4042-3	1	-	-	-
2017-2018	0820-2	1	-	-	-
	0822-2	1	-	-	-
	0825-3	1	-	-	-
	0827-3	1	-	-	-
	3400-2	1	-	-	-
	4042-3	1	-	-	-
2018-2019	0820-2	1	-	-	-
	0822-2	1	-	-	-
	0825-3	1	-	-	-
	0827-3	1	-	-	-
	3400-2	1	-	-	-
	4042-3	1	-	-	-
2019-2020	0820-2	1	-	-	-
	0822-2	1	-	-	-
	0825-3	1	-	-	-
	0827-3	1	-	-	-
	3400-2	1	-	-	-
	4042-3	1	-	-	-

Year	Consent no	High	Good	Improvement req	Poor
2020-2021	0820-2	1	-	-	-
	0822-2	1	-	-	-
	0825-3	1	-	-	-
	0827-3	1	-	-	-
	3400-2	1	-	-	-
	4042-3	1	-	-	-
2021-2022	0820-2	1	-	-	-
	0822-2	1	-	-	-
	0825-3	1	-	-	-
	0827-3	1	-	-	-
	3400-2	1	-	-	-
	4042-3	1	-	-	-
2022-2023	0820-2	1	-	-	-
	0822-2	1	-	-	-
	0825-3	1	-	-	-
	0827-3	1	-	-	-
	3400-2	1	-	-	-
	4042-3	1	-	-	-
Totals		60	0	0	0

In assessing a compliance and environmental performance ranking for Methanex, consideration was also given to any incidents that occurred during the monitoring period as well as overall environmental performance and risk management. During the period, Methanex demonstrated an overall high level of environmental and administrational performance and compliance with the resource consents for the Motunui installation as defined in Appendix II.

2.3.6 Recommendations from the 2021-2022 Annual Report

In the 2021-2022 Annual Report, it was recommended:

1. THAT in the first instance, monitoring of consented activities at Methanex Motunui in the 2022-2023 year continue at the same level as in 2021-2022.
2. THAT should there be issues with environmental or administrative performance in 2022-2023, monitoring may be adjusted to reflect any additional investigation or intervention as found necessary.

Recommendations 1 was fully implemented during the 2022-2023 monitoring period. No significant issues with environmental or administrative performance were noted during the period and therefore there was no need to implement recommendation 2.

2.3.7 Alterations to monitoring programmes for 2023-2024

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 the 2023-2024 monitoring of consented activities at Methanex Motunui continue at the same level as in 2022-2023.

It should be noted that the proposed programme represents a reasonable and risk-based level of monitoring for the sites in question. The Council reserves the right to subsequently adjust the programme from that initially prepared, should the need arise if potential or actual non-compliance is determined at any time during 2023-2024.

2.4 Recommendations

1. THAT in the first instance, monitoring of consented activities at Methanex Motunui in the 2023-2024 year continue at the same level as in 2022-2023.
2. THAT should there be issues with environmental or administrative performance in 2023-2024, monitoring may be adjusted to reflect any additional investigation or intervention as found necessary.

3 Waitara Valley

3.1 Process description

The Waitara Valley site had been shut down since 2008 and was restarted in October 2013 following significant maintenance and refurbishment work.

In February 2021 the Council was notified that Methanex had idled its Waitara Valley methanol plant having been unable to secure sufficient gas supplies to keep the plant operating. Methanex stated that it would maintain the facility in a safe condition and would restart the plant should gas become available. Some activities have continued at Waitara Valley such as distillation of crude methanol and truck loading to continue to supply the local market.

This site (Photo 5) is a 1,500 tonne/day methanol production facility, which could produce 547,500 tonnes/year of chemical grade methanol. Actual production varies with the availability of natural gas.

Methanex Waitara Valley site is divided into several discrete areas associated with the on-site production of methanol (Figure 3).

The processing area includes the reformer, main compressor, and the distillation units (D1 & D2). The distillation towers are the tallest structures on the site at 51.5 m, followed by the reformer stack at 38 m. Product storage area consists of one substantial storage tank and six smaller tanks. A cooling tower and the main servicing facilities are located in the utility area. It is noted that the cooling tower technology in place at the Waitara Valley site differs from the system used at Motunui and the cooling tower is considerably smaller in size.

Photo 5 Methanex Waitara Valley site

Figure 3 Waitara Valley site layout and discharge sampling site location

3.1.1 Water discharges

There were various sources of wastewater from processes associated with the methanol manufacturing activities at the site, including water treatment wastes, boiler, cooling tower and other blowdowns, process effluents, domestic effluent and stormwater. The primary sources of water discharges, and the main features of the site are identified in Figure 3. This effluent is produced in a similar manner to that described in this report for the Motunui site (refer to section 2.1.1 of this report).

The Waitara marine outfall is the primary method used to dispose of stormwater and wastewater (excluding sewage) from the site.

Discharges to the Waitara River now occur very infrequently and only after consultation with Council. A small area of the site in the vicinity of the ponds and domestic wastewater treatment area flows overland to a small tributary of the river. A diesel tank in this higher risk area is bunded, and the sump under the diesel tank is sampled and tested prior to discharge.

3.1.2 Emissions to air

The principal emissions from the site were:

a. flue gases from the reformer furnace stack. These comprise typical products from the combustion of natural gas i.e. water vapour, oxygen, carbon dioxide, and traces of nitrogen oxides and carbon monoxide;
b. flue gases from the boiler stacks, which were similar to the above;
c. steam emissions from various vents;
d. water vapour and water droplets from the cooling tower, which could contain entrained water salts and treatment chemicals; and
e. organic vapours (particularly methanol) from the distillation column vents.

With the current status of the plant, source (e) above is the only significant source.

3.1.3 Solid wastes

Solid wastes were previously generated at the site. The main source of this was sludge from the ponds. When the ponds were de-sludged, the material was allowed to dry on-site and tested so that the appropriate method of disposal could be determined.

3.2 Results

3.2.1 Site inspections

Council officers carried out four compliance monitoring site inspections on 10 October 2022, 18 January 2023, 26 May 2023 and 23 June 2023 with the collection of split samples undertaken during the January inspection. As the facility was essentially non-operational during the May and June inspections, no split samples were able to be collected.

10 October 2022

An inspection was undertaken by Council staff, accompanied by Fahad Khan and Megan Sommerville (Methanex personnel).

During the inspection, it was noted that the fire water pond was partially full. The stormwater pond was also partially full both with intact bunds and relatively clear water. The check pond had been emptied to allow staff to assess the liner condition. The outfall effluent was all okay. The tanker load-out area, was clear and tidy with no signs of spillage. No odours were detected offsite. The chemical storage area was tidy and well-

maintained, and there were no odours or spills noted at the onsite sewage facility. The flare pilot was operating but not visible from ground level, and although the Methanex raw water intake was not inspected during this occasion, the overall plant inspection revealed a well-maintained and compliant facility.

18 January 2023

An inspection was undertaken by Council staff, accompanied by Fahad Khan (Methanex personnel).

During the inspection, it was noted that the fire water pond was approximately a third full, and the black synthetic liner appeared intact. The stormwater pond walls were in a generally good condition with a relatively low water volume. The check pond had an intact black synthetic liner with a low to mid-level volume. The outfall effluent had no visible issues, with pH readings of 7.95 and 7.71. The tanker load-out area was dry with no evidence of spillage, and no odour attributable to plant operation was detected. The cooling tower showed no plume, with a small volume of water entering the sump. The chemical storage facility was securely locked, with some historical spillage evidence on the concrete floor, but all appeared to be in good order. The on-site sewage facility had no observed issues. At the intake from the Waitara River facility, the fish screens were clear and in good visual condition.

26 May 2023

A compliance monitoring inspection was carried out by Council staff, accompanied by Jeremy Clarke (Methanex personnel).

During the inspection, it was noted that the firewater pond was fairly full, with the liner intact. The visible section of the stormwater pond wall appeared in good condition. The check pond displayed an intact black synthetic liner with a very low volume held. The tanker load-out area was clean. No odours attributable to the plant were detected. The cooling tower was not operating, however, flushing water continued without issues. The chemical storage facility had no issues and was secure. The on-site sewage facility had no observed issues, and the intake from the Waitara River indicated clear and sound fish screens.

23 June 2023

A compliance monitoring inspection was carried out by Council staff, accompanied by Jodi Haskell (Methanex personnel).

During the inspection, it was noted that the firewater pond was fairly full, with the liner appearing to be in good condition. The stormwater pond was approximately 1.04 m deep, which is considered quite low, as it typically ranges between 1m and 1.5 m. The visible section of the pond wall appeared in good condition. The check pond was discharging offshore, with the black synthetic liner intact. The tanker load-out site was clean. No odours attributable to the plant were detected. The cooling tower area had no identified issues, and the chemical storage facility also had no issues, was secure and with a spill kit in place. There were no issues with the on-site sewage facility.

3.2.2 Surface water

3.2.2.1 Surface water abstraction monitoring by Methanex

Since 1992, water for operation of the Waitara Valley site has been supplied from headworks constructed for supply of the Methanex Motunui site. The headworks are located approximately one kilometre above the Bertrand Road bridge, and supplement the supply from the original Mamaku Road headworks.

Daily volumes of water entering the Waitara Valley site from the Waitara River are recorded and reported to the Council on a monthly basis. Consent 0801-2 allows Methanex to take up to 300 m^3/ hr from the Waitara River (Photo 6) when the river flow at the Bertrand Road gauging station is above 4,600 L/s (16,560 m^3/hr).

Photo 6 Waitara Valley water take

Water use reduction report

The Council received a report from Methanex in December 2022 relating to water use reduction at Waitara Valley during the 2020 and 2021 calendar years (included as Appendix V). This report is a requirement of condition 5b of Consent 0801-2. The Waitara Valley plant produced methanol during 2020 except during plant shutdowns for maintenance purposes. In January 2021 crude methanol production at the plant ceased, and for the remainder of the year only one distillation unit ('D2") was operated intermittently, distilling crude methanol produced at the Motunui site. Due to this only a minimal amount of water was required for the operation of one small package boiler and for cooling water, and this was taken from the Tikorangi Road water intake solely between January 2020 and February 2021 accounting for approximately 6% of their allocation. The next report is due by the end of 2024.

Resource Management (Measurement and Reporting of Water Takes) Amendment Regulations 2020

The installation and verification of the accuracy of the Waitara Valley site's raw water flow meter was undertaken during the 2017-2018 monitoring period. The Council has reviewed and accepted the reports relating to this. Flow meters are required to be verified every five years by a certified verifier. As Waitara Valley are not currently exercising this consent to take water, no flow validation is required.

3.2.2.2 Effluent monitoring

Wastewater from the Waitara Valley site is treated and discharged to the Waitara marine outfall. During the period under review, treated plant effluent comprised of process and water treatment wastes and stormwater. The discharge is provided for by consent 3399-2.

Effluent monitoring data gathered by Methanex was sent to the Council on a monthly basis. The data is made up of continuous online data, laboratory analysis of a 24-hour composite effluent sample and mass discharge of water treatment chemicals calculated by Methanex using chemical consumption data.

Continuous measurement

Flow and pH were measured by online analysers, and recorded continuously at the Waitara Valley effluent discharge point. The figures reported to the Council were daily averages (m^3/hr), daily maximum (L/s) and daily volume (m^3/day) for flow, and minima, maxima and daily averages for pH.

A summary of this data is presented in Table 15 and Table 16.

Special condition 6 of consent 3399-2 states,

> *"That the pH of the effluent shall not exceed the range pH 6 to pH 9 unless it is to be combined with the lime treated wastewater from the Waitara Wastewater Treatment Plant, in which case, it shall not exceed the range of pH 6 to pH 11."*

As the WWWTP ceased operation in August 2014, the pH values of 6 and 9 are used for assessing consent compliance.

Analysis of composite samples

A proportional sampler was used to create a daily composite sample representative of the daily flow of effluent. This was analysed by the Methanex laboratory, to determine compliance with their discharge consent 3399-2. A summary of this data is presented in Table 15.

Table 15 Summary of the Waitara Valley site's monitoring results of effluent during 2022-2023

	Unit	Minimum	Maximum	Consent limit	Number of breaches
Continuous measurement					
Volume of discharge	m^3/day	0	3300	5,000	0
pH	-	5.99	8.92	6-9	1
Daily measurement					
Chemical oxygen demand	g/m^3	<25	<25	200	0
Petroleum hydrocarbons	g/m^3	<1	<1	10	0
Methanol	g/m^3	<2	<2	15	0
Suspended solids	kg/day	<1	20	500	0
Monthly measurements					
Ammonia	g/m^3	<0.02	<0.4	200	0
Copper	g/m^3	<0.05	0.06	0.5	0
Nickel	g/m^3	<0.05	<0.05	1.0	0
Zinc	g/m^3	<0.05	0.36	2.0	0

The effluent discharge rates are limited by consent 3399-2 to a daily discharge of not more than 5,000 m^3 and at a maximum rate of 60 L/s. From the data provided by the consent holder, full compliance was maintained throughout the monitoring period with regard to this requirement.

Compliance with conditions on effluent composition was achieved throughout the monitoring period from July 2022 to June 2023, with the exception of one pH sample in April 2023 which was slightly below the consent limit by 0.01. This result was within the 5% margin of error and so minor that it was not deemed a non-compliance.

Chemical dosing rates

Consent 3399-2 (for discharge of process waste from the Waitara Valley site) sets mass discharge limits on the water treatment chemicals used on the site. Methanex calculated water treatment chemical mass

discharge rates using chemical consumption data. A summary of this data for the monitoring period is presented in Table 16.

Table 16 Summary of Waitara Valley chemical discharge data (calculated) for July 2022 to June 2023

Consent 3399-2 (special condition 8)					
Chemical	**Unit**	**Minimum**	**Maximum**	**Average**	**Consent Limit**
Cortrol OS7780	kg/day	0	13	5	300
Flogard MS6209	kg/day	0	3	1	20
Flogard POT6101	kg/day	0	0	0	15
Foamtrol AF2290	kg/day	0	0	0	2
Gengard GN8020	kg/day	0	8	3	70
Inhibitor AZ8104	kg/day	1	8	3	30
Klaraid PC1192	kg/day	0	59	19	150
Optisperse HTP 73301	kg/day	0	0	0	50
Optisperse HTP 73611	kg/day	0	11	4	35
Optisperse PO5211A	kg/day	0	0	0	15
Solus AP25	kg/day	0	0	0	10
Spectrus BD1501E	kg/day	0	0	0	25
Spectrus NX1100	kg/day	0	3	1	9
Steamate NA0880	kg/day	0	2	1	25

Equivalent chemical

No requests for any changes to the water treatment chemicals for the Waitara Valley site were received during the monitoring period.

Permitted activity – onsite sewage disposal

The Waitara Valley site has operated a sewage treatment unit since 2011 (when Methanex surrendered their consent to discharge sewage via the Waitara marine outfall). In May 2017 Methanex advised the Council that they intended to replace the existing unit with a new unit that would be of a larger capacity, as well as providing a higher level of treatment than the existing unit. The Council was advised that effluent quality from this type of system was expected to be better than 20 mg/L BOD_5 and 20 mg/L suspended solids with removal of over 99% of faecal coliforms. This effluent, similarly to the existing system, would be disposed of by trickling to the land below the site ponds. The Council was advised that the unit is a Hynds Submerged Aerated Filtration Wastewater System.

The matter was considered and was found to meet the permitted activity rule criteria of the RFWMP, as had the previous system.

3.2.3 Uncontaminated stormwater

All stormwater from process areas is contained on the Waitara Valley site in the stormwater pond. Consent 0802-2 allows for the discharge of uncontaminated stormwater to the Waitara River. In April 1994, Methanex made a decision to discharge all routine stormwater from the site via the Waitara marine outfall (consent 3399-2).

The Waitara River discharge (consent 0802-2) occurs very rarely and only when there is an extreme rainfall event, when the pumps to the outfall cannot keep up with the stormwater received from the site.

To monitor any effects to the Waitara River caused by the stormwater discharge, a total of 37 biological surveys of three sites were carried out between June 1983 and May 1994. No adverse effect on riverbed macroinvertebrate communities or algal populations were found, which could be attributed to the stormwater discharge.

This consent was exercised during the 2022-2023 monitoring period on 19 August 2022 where it was advised that due to the high volume of rain Methanex will be discharging stormwater into the Waitara River.

3.2.4 Inter-laboratory comparisons

The Council carried out one inter-laboratory comparison for the Waitara Valley site during the monitoring period under review on 18 January 2023. The second inter-laboratory comparison did not take place due to the plant not being operational and thus no samples could be collected at this time.

Due to insufficient samples collected, the suspended solids test returned a higher than normal detection limit. With the Waitara Valley plant not in production, the low volumes would continue therefore this scenario would likely re-occur, hence no further inter-laboratory comparisons were undertaken in 2022/2023.

3.2.4.1 Methanex Waitara Valley annual report

Condition 15 of consent 3399 requires Methanex to provide the Council with an annual report on its wastewater disposal system, including the performance of the outfall and compliance with the consent. It was agreed in 2010 that this annual report would consist of monthly reports submitted to the Council on the performance of the wastewater disposal system. Methanex have produced and provided reports throughout the monitoring period and thus comply with this condition.

3.2.5 Air

3.2.5.1 Inspections

During the monitoring period, inspections of the Waitara Valley site were completed by an officer of the Council. Inspections are integrated for air and water related monitoring.

No discernible effects on the receiving environment beyond the site perimeter were noted during any of the inspections.

3.2.5.2 Consent requirements

Special condition 4 of resource consent 4045-3 requires that, every three years from the date of granting the consent, Methanex provides the Council with a report covering the following:

- Options for reducing or mitigating emissions, focusing on odorous emissions, carbon dioxide and the cooling tower plume.
- An emissions inventory (excluding carbon dioxide).
- Energy efficiency measures implemented at the Waitara Valley site.
- Any other relevant matters.

A biennial report covering the period January 2018 to December 2019 was received in January 2020. Methanex elects to undertake this reporting on a biennial basis as similar reporting is required for the Motunui site biennially.

The report is included as Appendix VI of the 2020/2021 compliance monitoring report. The report outlined a review of technology advances to reduce or mitigate emissions, an inventory of emissions, ambient atmospheric monitoring and energy efficiency. The report was reviewed by Council officers and found to meet the consent requirements.

The next report covering the 2020, 2021 and 2022 calendar years is due by the end of 2023, and will be discussed in the 2023-2024 compliance monitoring report.

3.3 Investigations, interventions, and incidents

In the 2022-2023 period, the Council was not required to undertake significant additional investigations and interventions, or record incidents, in association with Methanex's conditions in resource consents or provisions in Regional Plans.

3.4 Discussion

3.4.1 Discussion of site performance

During each inspection by the Council, officers have noted that the facility is well managed, with a high standard of housekeeping apparent.

3.4.2 Environmental effects of exercise of water permits

Methanex continued to show good control of the activities permitted by the resource consents associated with the Waitara Valley site and no adverse environmental effects in relation to the discharges to the marine outfall were observed during the period under review. Consent 0801-2 has expired and is not currently being exercised as the Waitara valley site is not abstracting water.

3.4.3 Environmental effects of exercise of air discharge permit

Neighbourhood effects

Methanex continued to show good control of the activities permitted by the air discharge resource consent associated with the Waitara Valley site. No off-site effects were noted during the period under review.

Ecological effects

No adverse environmental effects were observed during the period under review.

3.4.4 Evaluation of performance

A tabular summary of Methanex's compliance record for the year under review is set out in Table 17 to Table 21.

Table 17 Summary of performance for Consent 0801-2

Purpose: To *take water from Waitara River*		
Condition requirement	**Means of monitoring during period under review**	**Compliance achieved?**
1. Limit on total volume of water from the two intakes no more than 300 m^3	Review of self-monitoring data provided monthly	Yes
2. Water take should be maximised from the Motunui intake structure	Liaison with the consent holder	Yes

Purpose: To *take water from Waitara River*		
Condition requirement	**Means of monitoring during period under review**	**Compliance achieved?**
3. Water take managed to ensure Waitara River flow at Bertrand Rd > 4,600 L/s. No taking to occur when the river level falls below this	Ongoing monitoring of river levels and Methanex self-monitoring data	Yes
4. Installation and maintenance of an appropriate water meter and provision of records to the Council	During 2017-2018 Methanex installed and verified flowmeters	Yes
5. Provision of reports on the testing of pipeline integrity and water use reduction programmes	Water conservation reports received January 2021. There has been no testing of the Methanex water take pipelines due to the existing issue of there not being any practical methodology to carry out pressurising of the pipes.	Yes Pipeline testing report on hold through discussion with Council
6. Appropriate screening of intake to prevent fish entrainment	Inspection and liaison with consent holder	Yes
7. Lapse condition	N/A	N/A
8. Review provision	N/A	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 18 Summary of performance for Consent 0802-2

Purpose: *To discharge uncontaminated stormwater to the Waitara River*		
Condition requirement	**Means of monitoring during period under review**	**Compliance achieved?**
1. Adoption of best practicable option	Inspections and liaison with consent holder	Yes
2. Activity to be undertaken generally in accordance with the consent application documentation	Liaison with consent holder	Yes
3. Any stormwater to be discharged to the Waitara River to be tested and results provided to the Council for approval before discharge	Review of self-monitoring data provided monthly	Yes
4. Specified chemical constituents not to be exceeded in the discharge	Review of self-monitoring data provided monthly	Yes
5. Specified prohibited effects on the receiving water	Review of self-monitoring data provided monthly	Yes

Purpose: *To discharge uncontaminated stormwater to the Waitara River*		
Condition requirement	**Means of monitoring during period under review**	**Compliance achieved?**
6. Lapse condition	N/A	N/A
7. Review provision	Adopted 2013/2014 monitoring report recommendation to not review consent. No further provision for review	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 19 Summary of performance for Consent 3399-2

Purpose: *To discharge treated wastewater into the Tasman Sea*		
Condition requirement	**Means of monitoring during period under review**	**Compliance achieved?**
1. Consent holder to adopt best practicable option to prevent or minimise adverse effects	Inspections and liaison with consent holder	Yes
2. Consent holder to maintain a record of the volume of effluent discharged each day	Monthly reports received	Yes
3. Maximum daily discharge 5,000 m^3/ day, 60 L/s	Monthly reports received	Yes
4. Minimum initial dilution of effluent 100:1	Outfall designed to specific design and physical modelling was undertaken. Review of effluent data and volumes discharged was also undertaken	Yes
5. Maximum daily discharge of suspended solids 500 kg	Monthly reports	Yes
6. pH not to exceed range of 6 to 9	Monthly reports	Yes
7. Limits on concentration of COD, hydrocarbons, methanol, ammonia, copper, nickel, zinc	Consent holder provided data	Yes
8. Allowable water treatment chemicals and volumes	Inspection and liaison with consent holder	Yes
9. Approval from the Council required to discharge 'equivalent' chemical	Not requested during this monitoring period	N/A
10. Definition of 'equivalent'	N/A	N/A
11. Discharge of equivalent chemical requires written request	Not requested during this monitoring period	N/A
12. Conditions 5, 6, 7 and 8 apply to effluent prior to entry into the outfall line	Monitoring/sampling undertaken in accordance with this provision	Yes

Purpose: *To discharge treated wastewater into the Tasman Sea*		
Condition requirement	**Means of monitoring during period under review**	**Compliance achieved?**
13. Limits in conditions 7 and 8 apply unless the Council has given approval for a short term change	Limits met	Yes
14. Effects on receiving waters	Previous marine ecological surveys (separate programme)	N/A
15. Consent holder to maintain contingency plan	Contingency plan in place	Yes
16. No domestic sewage in discharge after closure of Waitara Municipal WWTP	Inspection and liaison with consent holder	Yes
17. Consent holder to certify the structural integrity and dilution performance of outfall at least every five years	Report received December 2019. The dilution performance was analysed through a modelling exercise	Yes
18. Consent holder to supply an annual report by 31 March each year	Reports received monthly and reviewed as satisfactory	Yes
19. Lapse of consent	N/A	N/A
20. Review of consent	No further provision for review	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 20 Summary of performance for Consent 3960-2

Purpose: *To construct a rock groyne in the Waitara River*		
Condition requirement	**Means of monitoring during period under review**	**Compliance achieved?**
1. Notification prior to maintenance works	No maintenance work required	N/A
2. Removal of structures when no longer required	N/A	N/A
3. Optional review provision re environmental effects	No further provision for review	N/A
Overall assessment of consent compliance and environmental performance in respect of this consent		**N/A**
Overall assessment of administrative performance in respect of this consent		**N/A**

N/A = not applicable

Table 21 Summary of performance for Consent 4045-3

Purpose: *To discharge contaminants into the air*		
Condition requirement	**Means of monitoring during period under review**	**Compliance achieved?**
1. Adoption of best practicable options likely to minimise adverse effects on the environment	Ongoing inspection and liaison with consent holder	Yes
2. Minimisation of emissions through control of processes	Ongoing inspection and liaison with consent holder	Yes
3. Consultations prior to alterations to the plant or processes	Inspection and liaison found no alterations to plant or processes requiring additional approvals	Yes
4. Triennial written air discharge report	Report received January 2021, next due 2023	Yes
5. Maximum ground-level concentrations of methanol beyond boundaries	Consent holder data. Previous modelling has shown compliance when site in full operation	Yes
6. Maximum ground-level concentrations of carbon monoxide beyond boundaries	Consent holder data. Previous modelling has shown compliance when site in full operation	Yes
7. Maximum ground-level concentrations of nitrogen dioxide beyond boundaries	Consent holder data. Previous modelling has shown compliance when site in full operation	Yes
8. Maximum ground-level concentrations of other contaminants beyond boundaries	Previous modelling has shown compliance when site in full operation	Yes
9. No offensive or objectionable odour at or beyond the site boundaries	Inspection	Yes
10. Adverse effects on ecosystems not permitted	Inspection of neighbourhood found no adverse effects	Yes
11. Optional review provision – notification within 6 months of receiving report (condition 4) re environmental effects	No review	N/A
12. Monitoring to the satisfaction of the Council	Annual review and ongoing liaison	Yes
13. Lapse condition	N/A	N/A
14. Review provision	No further provision for review	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 22 Evaluation of environmental performance over time

Year	Consent no	High	Good	Improvement req	Poor
2013-2014	0801-2	1	-	-	-
	0802-2	N/A	-	-	-
	3399-2	1	-	-	-
	3960-2	N/A	-	-	-
	4045-3	1	-	-	-
2014-2015	0801-2	1	-	-	-
	0802-2	1	-	-	-
	3399-2	1	-	-	-
	3960-2	N/A	-	-	-
	4045-3	1	-	-	-
2015-2016	0801-2	1	-	-	-
	0802-2	N/A	-	-	-
	3399-2	1	-	-	-
	3960-2	N/A	-	-	-
	4045-3	1	-	-	-
2016-2017	0801-2	1	-	-	-
	0802-2	N/A	-	-	-
	3399-2	1	-	-	-
	3960-2	N/A	-	-	-
	4045-3	1	-	-	-
2017-2018	0801-2	1	-	-	-
	0802-2	N/A	-	-	-
	3399-2	1	-	-	-
	3960-2	N/A	-	-	-
	4045-3	1	-	-	-
2018-2019	0801-2	1	-	-	-
	0802-2	N/A	-	-	-
	3399-2	1	-	-	-
	3960-2	N/A	-	-	-
	4045-3	1	-	-	-
2019-2020	0801-2	1	-	-	-
	0802-2	1	-	-	-
	3399-2	1	-	-	-
	3960-2	N/A	-	-	-
	4045-3	1	-	-	-

Year	Consent no	High	Good	Improvement req	Poor
2020-2021	0801-2	1	-	-	-
	0802-2	N/A	-	-	-
	3399-2	1	-	-	-
	3960-2	N/A	-	-	-
	4045-3	1	-	-	-
2021-2022	0801-2	1	-	-	-
	0802-2	N/A	-	-	-
	3399-2	1	-	-	-
	3960-2	N/A	-	-	-
	4045-3	1	-	-	-
2022-2023	0801-2	1	-	-	-
	0802-2	1	-	-	-
	3399-2	1	-	-	-
	3960-2	N/A	-	-	-
	4045-3	1	-	-	-
Totals		33	0	0	0

In assessing a compliance and environmental performance ranking for Methanex, consideration was also given to the incidents that occurred during the monitoring period as well as overall environmental performance and risk management. The one slightly low pH result (only 0.01 below consent limit) had no environmental impact, was within the 5% margin of error and not deemed a non-compliance. During the period, Methanex demonstrated a high level of environmental and administrative performance and compliance with their resource consents for the Waitara Valley site as defined in Appendix II.

3.5 Recommendations from the 2021-2022 Annual Report

In the 2021-2022 Annual Report, it was recommended:

1. THAT in the first instance, monitoring of consented activities at Methanex Waitara Valley in the 2022-2023 year continue at the same level as in 2021-2022.
2. THAT should there be issues with environmental or administrative performance in 2022-2023, monitoring may be adjusted to reflect any additional investigation or intervention as found necessary.

Recommendation 1 was implemented in full. There were no issues with environmental or administrative performance identified and therefore no adjustment to monitoring was required (recommendation 2).

3.6 Alterations to monitoring programmes for 2023-2024

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 2023-2024 in the first instance, monitoring of consented activities at Methanex Waitara Valley site continue at the same level as in 2022-2023.

It should be noted that the proposed programme represents a reasonable and risk-based level of monitoring for the sites in question. The Council reserves the right to subsequently adjust the programme from that initially prepared, should the need arise if potential or actual non-compliance is determined at any time during 2022-2023.

3.7 Recommendations

1. THAT in the first instance, monitoring of consented activities at Methanex Waitara Valley in the 2023-2024 year continue at the same level as in 2022-2023.
2. THAT should there be issues with environmental or administrative performance in 2023-2024, 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:

Bund	A wall around a tank to contain its contents in the case of a leak.
CBOD	Carbonaceous biochemical oxygen demand. A measure of the presence of degradable organic matter, excluding the biological conversion of ammonia to nitrate.
COD	Chemical oxygen demand. A measure of the oxygen required to oxidise all matter in a sample by chemical reaction.
Conductivity	Conductivity, an indication of the level of dissolved salts in a sample, usually measured at 25°C and expressed in µS/cm.
Council	The Taranaki Regional Council.
Cu*	Copper.
Cumec	A volumetric measure of flow- 1 cubic metre per second (1 m^3/s).
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.
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.
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.
L/s	Litres per second.
m^2	Square metres.
m^3	Cubic metres.
mg/L	Milligrams per litre.
µS/cm	Microsiemens per centimetre.
Mixing zone	The zone below a discharge point where the discharge is not fully mixed with the receiving environment. For a stream, conventionally taken as a length equivalent to 7 times the width of the stream at the discharge point.
NH_4	Ammonium, normally expressed in terms of the mass of nitrogen (N).
Ni	Nickle.
NPDC	New Plymouth District Council.
pH	A numerical system for measuring acidity in solutions, with 7 as neutral. Numbers lower than 7 are increasingly acidic and higher than 7 are increasingly alkaline. The scale is logarithmic i.e. a change of 1 represents a ten-fold change in strength. For example, a pH of 4 is ten times more acidic than a pH of 5.

Physicochemical	Measurement of both physical properties (e.g. temperature, clarity, density) and chemical determinants (e.g. metals and nutrients) to characterise the state of an environment.
Resource consent	Refer Section 87 of the RMA. Resource consents include land use consents (refer Sections 9 and 13 of the RMA), coastal permits (Sections 12, 14 and 15), water permits (Section 14) and discharge permits (Section 15).
RMA	*Resource Management Act 1991* and including all subsequent amendments.
SS	Suspended solids.
Temp	Temperature, measured in °C (degrees Celsius).
WWTP	Wastewater treatment plant.
Zn*	Zinc.

*an abbreviation for a metal or other analyte may be followed by the letters 'As', to denote the amount of metal recoverable in acidic conditions. This is taken as indicating the total amount of metal that might be solubilised under extreme environmental conditions. The abbreviation may alternatively be followed by the letter 'D', denoting the amount of the metal present in dissolved form rather than in particulate or solid form.

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

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Appendix I

Resource consents held by Methanex

(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.

Water Permit

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

Name of Consent Holder:	Methanex Motunui Limited Private Bag 2011 NEW PLYMOUTH
Consent Granted Date:	29 April 2008

Conditions of Consent

Consent Granted:	To take water from two sites on the Waitara River for use at the Waitara Valley methanol plant at or about 2618429E-6240375N and 2619820E-6238250N
Expiry Date:	1 June 2021
Review Date(s):	June 2015
Site Location:	Waitara Valley Intake Structure, Mamaku Road, Waitara and Motunui Intake structure, East Bank, Waitara River
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 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 total volume of water taken from the two intake sites shall not exceed 300 cubic metres per hour.

2. The consent holder shall maximise the water take from the Waitara River at the Motunui intake structure and minimise abstraction at the Waitara Valley intake structure.

3. The taking of water authorised by this consent shall be managed to ensure that the flow in the Waitara River at Bertrand Road gauging station is no less than 4600 litres per second. No taking shall occur when the flow is less than 4600 litres per second.

4. The consent holder shall install, and thereafter maintain, a water meter that will record the rate and volume of water taken(date, hourly abstraction rate, and daily total abstraction) to an accuracy of ± 5% and make these records available to the Chief Executive, Taranaki Regional Council in a suitable digital format, no later than 31 July of each year. The water meter shall be capable of being equipped with a digital data logger compatible with the Taranaki Regional Council's hydrologic recording software.

5. Notwithstanding the terms and conditions of this consent the consent holder shall take all reasonable steps to avoid, remedy or mitigate any adverse effect on the environment arising from the exercise of this consent, including, but not limited to, the efficient and conservative use of water. This shall include:

a. testing of the pipeline from the intake to the plant every five years to establish pipeline integrity; and
b. a written report to the Chief Executive of Taranaki Regional Council, at intervals not exceeding two years, on the results of water use reduction programmes.

6. The consent holder shall ensure that the intake structure is appropriately screened to avoid the entrainment of fish. The intake shall be regularly monitored and maintained to achieve compliance with this condition.

7. 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.

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 2015, for the purpose of : [a] 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; [b] the amount of water authorised to be taken is consistent with the consent holders reasonable requirements.

Signed at Stratford on 29 April 2008

For and on behalf of
Taranaki Regional Council

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Director-Resource Management

Discharge Permit

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

Name of Consent Holder:	Methanex Motunui Limited Private Bag 2011 NEW PLYMOUTH
Consent Granted Date:	31 March 2008

Conditions of Consent

Consent Granted:	To discharge stormwater from the Waitara Valley Methanol Plant into the Waitara River at or about 2618495E-6241539N
Expiry Date:	1 June 2021
Review Date(s):	June 2015
Site Location:	Waitara Valley Methanol Plant, Mamaku Road, Waitara
Legal Description:	Lot 1 DP 13541 Blk V 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 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 on the environment from the exercise of this consent.

2. The exercise of this consent shall be undertaken generally in accordance with the documentation submitted in support of application 4599. In the case of any contradiction between the documentation submitted in support of application 4599 and the conditions of this consent, the conditions of this consent shall prevail.

3. The consent holder shall test the levels of contaminants in the stormwater prior to discharge into the Waitara River and advise the Chief Executive of Taranaki Regional Council of the results. The stormwater shall not be discharged until the Chief Executive of Taranaki Regional Council has advised the consent holder that the discharge will comply with the standards specified in condition 5.

4. The following constituents of the discharge shall not be exceeded in the discharge:

Constituent	**Standard**
pH (range)	6.0-9.0
suspended solids	100 gm^{-3}
hydrocarbons	15 gm^{-3}
methanol	15 gm^{-3}

5. After allowing for a 50 metre mixing zone extending downstream of the discharge point the discharge shall not give rise to any of the following effects in the receiving waters of the Waitara River:

   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.

6. This consent shall lapse on the expiry of 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.

7. 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, 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 31 March 2008

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:	Methanex Motunui Limited Private Bag 2011 NEW PLYMOUTH
Consent Granted Date:	29 April 2008

Conditions of Consent

Consent Granted:	To take water from the Waitara River for use at the Motunui plant at or about 2619820E-6238250N
Expiry Date:	1 June 2021
Review Date(s):	June 2015
Site Location:	Motunui Intake Structure, East Bank, Waitara River
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 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 volume of water taken shall not exceed 1400 cubic metres per hour.

2. The taking of water authorised by this consent shall be managed to ensure that the flow in the Waitara River at the Bertrand Road gauging station is no less than 4,600 litres per second. No taking shall occur when the flow is less than 4,600 litres per second.

3. The consent holder shall install, and thereafter maintain, a water meter that will record the rate and volume of water taken(date, hourly abstraction rate, and daily total abstraction) to an accuracy of ± 5% and make these records available to the Chief Executive, Taranaki Regional Council in a suitable digital format, no later than 31 July of each year. The water meter shall be capable of being equipped with a digital data logger compatible with the Taranaki Regional Council's hydrologic recording software.

4. Notwithstanding the terms and conditions of this consent the consent holder shall take all reasonable steps to avoid, remedy or mitigate any adverse effect on the environment arising from the exercise of this consent, including, but not limited to, the efficient and conservative use of water. This shall include:

   a. testing of the pipeline from the intake to the plant every five years to establish pipeline integrity; and

   b. a written report to the Chief Executive of Taranaki Regional Council, at intervals not exceeding two years, on the results of water use reduction programmes.

5. The consent holder shall ensure that the intake structure is appropriately screened to avoid the entrainment of fish. The intake structure shall be regularly monitored and maintained to achieve compliance with this condition.

6. 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.

7. 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, for the purpose of: [a] 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; [b] the amount of water authorised to be taken is consistent with the consent holders requirements.

Signed at Stratford on 29 April 2008

For and on behalf of
Taranaki Regional Council

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Director-Resource Management

Discharge Permit

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

Name of Consent Holder:	Methanex Motunui Limited Private Bag 2011 NEW PLYMOUTH 4342
Decision Date:	29 November 2012
Commencement Date:	29 November 2012

Conditions of Consent

Consent Granted:	To discharge uncontaminated stormwater from outfalls into an unnamed tributary of the Waihi Stream at or about (NZTM) 1711804E-5683660N and into the the Manu Stream at or about (NZTM)1710848E-5683737N
Expiry Date:	1 June 2027
Review Date(s):	June 2015, June 2021
Site Location:	State Highway 3, Motunui, Waitara
Legal Description:	Lot 1 DP 324944 Pt Ngatirahiri 2F Pt Lot 1 DP 10081 Ngatirahiri 2C1C 2B2B2 2B2A1 2C1B 2B2A2B Pt 2B1 2B2A2A 2B2B1 2C1A [Discharge source & site]
Catchment:	Waihi

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 [the Council] all the administration, monitoring and supervision costs of this consent, fixed in accordance to section 36 of the Resource Management Act.

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 on the environment from the exercise of this consent.

2. The stormwater discharged shall be from a catchment area not exceeding 240000 m^2 for the Waihi Stream tributary, and 294000 m^2 for the "Duck Pond", as specified in Methanex drawing number g10637 supplied with application 5748 .

3. The consent holder shall maintain a contingency plan that details measures and procedures to be undertaken to prevent spillage or any discharge of contaminants not authorised by this consent. The contingency plan shall be followed in the event of a spill or unauthorised discharge and shall be certified by the Chief Executive, Taranaki Regional Council as being adequate to avoid, remedy or mitigate the environmental effects of such a spillage or discharge.

4. The consent holder shall maintain a stormwater management plan that documents how the site is to be managed to minimise the contaminants that become entrained in the stormwater. This plan shall be followed at all times, shall be certified by the Chief Executive, Taranaki Regional Council, and shall include but not necessarily be limited to:

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

5. Constituents of the discharge shall meet the standards shown in the following table.

Constituent	Standard
pH	Within the range 6.0 to 9.5
suspended solids	Concentration not greater than 100 gm^{-3}
total recoverable hydrocarbons	Concentration not greater than 5 gm^{-3}

This condition shall apply to the uncontaminated stormwater prior to entry into the body of water commonly known as the "Duck Pond" and the unnamed tributary of the Waihi Stream at a designated sampling point approved by the Chief Executive, Taranaki Regional Council.

6. After allowing for reasonable mixing, within a mixing zone extending to the downstream end of the body of water known as 'The Duck Pond' the discharge shall not give rise to any of the following effects in the receiving waters of the Manu 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.

7. After allowing for reasonable mixing, within a mixing zone extending 25 metres downstream of the discharge points into the unnamed tributary of the Waihi Stream the discharge shall not give rise to any of the following effects in the receiving waters of the Waihi 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.

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, a brief description of the activity consented and an assessment of the environmental effects of any changes, and be emailed to consents@trc.govt.nz.

9. 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 29 November 2012

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:	Methanex Motunui Limited Private Bag 2011 NEW PLYMOUTH
Consent Granted Date:	31 March 2008

Conditions of Consent

Consent Granted:	To discharge stormwater from the Motunui intake facility into an unnamed tributary of the Waitara River at or about 2619942E-6238671N
Expiry Date:	1 June 2021
Review Date(s):	June 2015
Site Location:	Motunui intake facility, Tikorangi Road, Waitara
Legal Description:	Pt Lot 2 DP 12099 Blk IX 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 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 on the environment from the exercise of this consent.

2. The exercise of this consent shall be undertaken generally in accordance with the documentation submitted in support of application 4594. In the case of any contradiction between the documentation submitted in support of application 4594 and the conditions of this consent, the conditions of this consent shall prevail.

3. After allowing for reasonable mixing, within a mixing zone extending 25 metres downstream of the confluence of unnamed tributary and the Waitara River, the discharge shall not give rise to an increase in turbidity of greater than 50% [as determined using NTU (nephelometric turbidity units)], in the receiving waters.

4. This consent shall lapse on the expiry of 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.

5. 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, 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 31 March 2008

For and on behalf of
Taranaki Regional Council

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Director-Resource Management

Discharge Permit

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

Name of Consent Holder:	Methanex Motunui Limited Private Bag 2011 NEW PLYMOUTH
Consent Granted Date:	31 March 2008

Conditions of Consent

Consent Granted:	To discharge wastewater from the Motunui intake facility into an unnamed tributary of the Waitara River at or about 2619942E-6238671N
Expiry Date:	1 June 2021
Review Date(s):	June 2015
Site Location:	Motunui Intake Station, Tikorangi Road, Waitara
Legal Description:	Pt Lot 2 DP 12099 Blk IX 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 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 maximum daily discharge shall not exceed 1000 cubic metres per day.

2. The consent holder shall at all times adopt the best practicable option, as defined in section 2 of the Resource Management Act 1991, to prevent or minimise any adverse effects on the environment from the exercise of this consent.

3. The exercise of this consent shall be undertaken generally in accordance with the documentation submitted in support of application 4595. In the case of any contradiction between the documentation submitted in support of application 4595 and the conditions of this consent, the conditions of this consent shall prevail.

4. After allowing for reasonable mixing, within a mixing zone extending 25 metres downstream of the confluence of the unnamed tributary with the Waitara River, the discharge shall not give rise to an increase in turbidity of greater than 50% [as determined using NTU (nephelometric turbidity units)], in the receiving waters.

5. 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, 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 31 March 2008

For and on behalf of
Taranaki Regional Council

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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:	Methanex Motunui Limited Private Bag 2011 NEW PLYMOUTH
Consent Granted Date:	29 April 2008

Conditions of Consent

Consent Granted:	To discharge treated wastewater and stormwater from the Waitara Valley methanol plant into the Tasman Sea via the Waitara marine outfall at or about 2615711E-6246696N
Expiry Date:	1 June 2021
Review Date(s):	June 2015
Site Location:	at or beyond 1250 metre offshore from Waitara River mouth
Catchment:	Tasman Sea

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 on the environment from the exercise of this consent.

2. The consent holder shall maintain a record of the volume of effluent discharged each day to an accuracy of ±5% and make these records available to the Chief Executive, Taranaki Regional Council in a digital format compatible with Council software, no later than 20th of the following month.

3. The maximum daily discharge shall be 5000 cubic metres per day at a maximum rate of 60 litres per second.

4. The consent holder shall ensure that the minimum initial dilution of the effluent above the outfall diffuser shall be 100:1.

5. The maximum daily discharge of suspended solids shall be 500 kilograms.

6. The consent holder shall ensure that the pH of the effluent shall not exceed the range of pH 6 to pH 9 unless it is to be combined with the lime treated wastewater from the Waitara Wastewater Treatment Plant, in which case, it shall not exceed the range pH 6 to pH 11.

7. On the basis of 24-hour flow proportioned composite samples, constituents of the discharge shall meet the standards shown below:

Constituent	**Standard**
Chemical oxygen demand	concentration no greater than 200 gm^{-3}
Hydrocarbons	concentration no greater than 10 gm^{-3}
Methanol	concentration no greater than 15 gm^{-3}
Ammonia	concentration no greater than 200 gm^{-3}
Copper	concentration no greater than 0.5 gm^{-3}
Nickel	concentration no greater than 1.0 gm^{-3}
Zinc	concentration no greater than 2.0 gm^{-3}

8. Subject to condition 9, only the water treatment chemicals listed in Table 1 shall be discharged, and the daily quantity discharged shall not exceed the limits given Table 1 below.

Table 1: List of water treatment chemicals

Purpose	**Trade name**	**Maximum Daily discharge (kg)**
Corrosion control in high pressure boiler	Optisperse HTP 7330 & 73611	50
Corrosion control in medium pressure boiler	Optisperse PO5211A	15
Oxygen removal from boiler feed water	Cortrol OS7780	300
pH control of steam/condensate to prevent corrosion.	Steamate NA0880	25
Corrosion control of re-circulating cooling water.	Continuum AEC3109	100
Control biological activity in cooling water	Spectrus BD1500	50
Corrosion control of re-circulating cooling water	Inhibitor AZ8104	30
Reduce foam formation of cooling water	Foamtrol AF2290	2
Coagulant	Klaraid PC 1192	150

9. In addition to the water treatment chemical listed in Table 1 [condition 8], water treatment chemicals considered to be 'equivalents' may be discharged as an alternative to those listed in Table 1, provided approval for the equivalent chemical has been given by the Chief Executive of Taranaki Regional Council in accordance with condition 11.

10. For the purpose of this consent an 'equivalent' is defined as a chemical that, when compared the chemical listed in Table 1, the Chief Executive of Taranaki Regional Council has determined that:

a) it is of a similar nature and used for a similar purpose;
b) it has similar breakdown products; and
c) it has potential environmental effects that are similar.

11. Any discharge of an equivalent chemical in accordance with condition 9, shall only occur after a written request to discharge an equivalent chemical has been approved by Chief Executive Taranaki Regional Council. Any such request shall include:

a) name of equivalent chemical;
a) proposed concentration of equivalent in the discharge; and
b) details of the nature of the chemical including its breakdown products; and
c) an assessment of the potential effects of the change on the receiving environment.

Note that the Chief Executive of Taranaki Regional Council may take up to 20 days to consider the request.

12. Special conditions 5, 6, 7 and 8 apply to effluent prior to entry into the outfall line, at a designated sampling point approved by the Chief Executive of Taranaki Regional Council.

13. The limits in special conditions 7 and 8 apply unless the Chief Executive of Taranaki Regional Council has given approval for a short term change for the purpose of routine maintenance including physical and chemical cleaning and catalyst changeouts, as per condition 11.

14. After allowing for reasonable mixing, being outside of a zone of 200 metres from the centreline of the outfall diffuser, the discharge shall not give rise to any of the following effects in the receiving waters:

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 effects on aquatic life, habitats or ecology;
e) any undesirable biological growths.

15. The consent holder shall maintain a comprehensive contingency plan, to be put into operation to prevent unauthorised discharge resulting from spillages, accidental discharges or pipeline failure. The plan shall be provided to the Chief Executive, Taranaki Regional Council no more than thirty [30] days after this consent is first exercised and thereafter reviewed at two yearly intervals.

16. There shall be no domestic sewage [human effluent] in the discharge authorised by this consent following the closure of the Waitara municipal wastewater treatment plant.

17. At the request of the Chief Executive, Taranaki Regional Council, but at intervals of no less than five years, the consent holder shall certify the structural integrity and dilution performance of the outfall.

18. The consent holder shall provide to the Chief Executive, Taranaki Regional Council, an annual report on its waste treatment system discharges. The annual report shall include:

    a) daily volumes;
    b) results of any and all analyses undertaken by or on behalf of the consent holder; and
    c) compliance with the consent.

    This report shall be provided by the 31st March each year and covering the previous calendar year period.

19. This consent shall lapse on the expiry of 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.

20. 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 or within 3 months of receipt of notification under condition 11, 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 29 April 2008

For and on behalf of
Taranaki Regional Council

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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:	Methanex Motunui Limited Private Bag 2011 NEW PLYMOUTH 4342
Decision Date (Change):	29 July 2013
Commencement Date (Change):	29 July 2013 (Granted: 29 April 2008)

Conditions of Consent

Consent Granted:	To discharge treated wastewater and stormwater from the Waitara Valley Methanol Plant into the Tasman Sea via the Waitara marine outfall
Expiry Date:	1 June 2021
Review Date(s):	June 2015 and/or within 3 months of notification under special condition 11
Site Location:	At or beyond 1250 metre offshore from Waitara Rivermouth
Grid Reference (NZTM)	1705615E-5684951N
Catchment:	Tasman Sea

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 on the environment from the exercise of this consent.

2. The consent holder shall maintain a record of the volume of effluent discharged each day to an accuracy of ±5% and make these records available to the Chief Executive, Taranaki Regional Council in a digital format compatible with Council software, no later than 20th of the following month.

3. The maximum daily discharge shall be 5000 cubic metres per day at a maximum rate of 60 litres per second.

4. The consent holder shall ensure that the minimum initial dilution of the effluent above the outfall diffuser shall be 100:1.

5. The maximum daily discharge of suspended solids shall be 500 kilograms.

6. The consent holder shall ensure that the pH of the effluent shall not exceed the range of pH6 to pH 9 unless it is to be combine with the line treated wastewater from the Waitara Wastewater Treatment Plant, in which case, it shall not exceed the range pH 6 to pH 11.

7. On the basis of 24-hour flow proportioned composite samples, constituents of the discharge shall meet the standards shown below:

Constituent	Standard
Chemical oxygen demand	concentration no greater than 200 gm^{-3}
Hydrocarbons	concentration no greater than 10 gm^{-3}
Methanol	concentration no greater than 15 gm^{-3}
Ammonia	concentration no greater than 200 gm^{-3}
Copper	concentration no greater than 0.5 gm^{-3}
Nickel	concentration no greater than 1.0 gm^{-3}
Zinc	concentration no greater than 2.0 gm^{-3}

8. Subject to condition 9, only the water treatment chemicals listed in Table 1 shall be discharged, and the daily quantity discharged shall not exceed the limits given Table 1 below.

Table 1: List of water treatment chemicals

Purpose	Trade name	Maximum Daily discharge (kg)
Corrosion control in high pressure boiler	Optisperse HTP 73301 & 73611	50
Corrosion control in medium pressure boiler	Optisperse PO5211A	15
Oxygen removal from boiler feed water	Cortrol OS7780	300
pH control of steam/condensate to prevent corrosion.	Steamate NA0880	25
Corrosion control of re-circulating cooling water.	Gengard GN8020 Flogard MS6209	70 20
Biocidal dispersant	Spectrus BD1500	50
Corrosion control of re-circulating cooling water	Inhibitor AZ8104	30
Reduce foam formation of cooling water	Foamtrol AF2290	2
Coagulant	Klaraid PC 1192	150
Secondary biocide	Spectrus CT1300	5

9. In addition to the water treatment chemical listed in Table 1 (condition 8), water treatment chemicals considered to be 'equivalents' may be discharged as an alternative to those listed in Table 1, provided approval for the equivalent chemical has been given by the Chief Executive of Taranaki Regional Council in accordance with condition 11.

10. For the purpose of this consent an 'equivalent' is defined as a chemical that, when compared the chemical listed in Table 1, the Chief Executive of Taranaki Regional Council has determined that:

    a) it is of a similar nature and used for a similar purpose;
    b) it has similar breakdown products; and
    c) it has potential environmental effects that are similar.

11. Any discharge of an equivalent chemical in accordance with condition 9, shall only occur after a written request to discharge an equivalent chemical has been approved by Chief Executive Taranaki Regional Council. Any such request shall include:

    a) name of equivalent chemical;
    a) proposed concentration of equivalent in the discharge; and
    b) details of the nature of the chemical including its breakdown products; and
    c) an assessment of the potential effects of the change on the receiving environment.

    Note that the Chief Executive of Taranaki Regional Council may take up to 20 days to consider the request.

12. Special conditions 5, 6, 7 and 8 apply to effluent prior to entry into the outfall line, at a designated sampling point approved by the Chief Executive of Taranaki Regional Council.

13. The limits in special conditions 7 and 8 apply unless the Chief Executive of Taranaki Regional Council has given approval for a short term change for the purpose of routine maintenance including physical and chemical cleaning and catalyst changeouts, as per condition 11.

14. After allowing for reasonable mixing, being outside of a zone of 200 metres from the centreline of the outfall diffuser, the discharge shall not give rise to any of the following effects in the receiving waters:

    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 effects on aquatic life, habitats or ecology;
    e) any undesirable biological growths.

15. The consent holder shall maintain a comprehensive contingency plan, to be put into operation to prevent unauthorised discharge resulting from spillages, accidental discharges or pipeline failure. The plan shall be provided to the Chief Executive, Taranaki Regional Council no more than thirty (30) days after this consent is first exercised and thereafter reviewed at two yearly intervals.

16. There shall be no domestic sewage (human effluent) in the discharge authorised by this consent following the closure of the Waitara municipal wastewater treatment plant.

17. At the request of the Chief Executive, Taranaki Regional Council, but at intervals of no less than five years, the consent holder shall certify the structural integrity and dilution performance of the outfall.

18. The consent holder shall provide to the Chief Executive, Taranaki Regional Council, an annual report on its waste treatment system discharges. The annual report shall include:

    a) daily volumes;
    b) results of any and all analyses undertaken by or on behalf of the consent holder; and
    c) compliance with the consent.

    This report shall be provided by the 31st March each year and covering the previous calendar year period.

19. This consent shall lapse on the expiry of 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.

20. 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 or within 3 months of receipt of notification under condition 11, 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 29 July 2013

For and on behalf of
Taranaki Regional Council

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Director-Resource Management

Consent 3960-2

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:	Methanex Motunui Limited Private Bag 2011 NEW PLYMOUTH
Consent Granted Date:	14 May 2003

Conditions of Consent

Consent Granted:	To construct and maintain a rock groyne in the Waitara River to control against further river bed degradation at or about GR: Q19:185-405
Expiry Date:	1 June 2021
Review Date(s):	June 2009, June 2015
Site Location:	Pump Station, Mamaku Road, Waitara
Legal Description:	River Reserve Blk V 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 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 Consents Section of the Taranaki Regional Council at least 24 hours prior to any maintenance works which would involve disturbance of, or deposition to the riverbed, or discharges to water.

2. That the structures authorised by this consent shall be removed and the area reinstated, if and when the structures are no longer required. The consent holder shall notify the Consents Section of the Taranaki Regional Council at least 48 hours prior to structure removal and reinstatement.

3. In accordance with section 128 and section 129 of the Resource Management Act 1991, the Taranaki Regional Council may serve notice of its intention to review, amend, delete or add to the conditions of this resource consent by giving notice of review during the month of June 2009 and/or June 2015, for the purpose of ensuring that the conditions are adequate to deal with any adverse effects on the environment arising from the exercise of this resource consent, which were either not foreseen at the time the application was considered or which it was not appropriate to deal with at the time.

Transferred at Stratford on 26 April 2005

For and on behalf of
Taranaki Regional Council

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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:	Methanex Motunui Limited Private Bag 2011 NEW PLYMOUTH
Consent Granted Date:	29 April 2008

Conditions of Consent

Consent Granted:	To discharge treated wastewater and stormwater from the Motunui methanol plant into the Tasman Sea via the Waitara marine outfall at or about 2615711E-6246696N
Expiry Date:	1 June 2021
Review Date(s):	June 2015
Site Location:	At or beyond 1250 metres offshore from Waitara River mouth
Catchment:	Tasman Sea

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 on the environment from the exercise of this consent.

2. The consent holder shall maintain a record of the volume of effluent discharged each day to an accuracy of ±5% and make these records available to the Chief Executive, Taranaki Regional Council in a digital format compatible with Council software, no later than 20th of the following month

3. The maximum daily discharge shall be 12,096 cubic metres per day at a maximum rate of 140 litres per second.

4. The consent holder shall ensure that the minimum initial dilution of the effluent above the outfall diffuser shall be 100:1.

5. The maximum daily discharge of suspended solids shall be 500 kilograms.

6. The consent holder shall ensure that the pH of the effluent shall at all times be within the range of pH 6 to pH 9.

7. On the basis of 24-hour flow proportioned composite samples, constituents of the discharge shall meet the standards shown below.

Constituent	**Standard**
Chemical oxygen demand	concentration no greater than 200 gm^{-3}
Hydrocarbons	concentration no greater than 10gm^{-3}
Methanol	concentration no greater than 15 gm^{-3}
Copper	concentration no greater than 0.5 gm^{-3}
Nickel	concentration no greater than 1.0 gm^{-3}
Zinc	concentration no greater than 1.0 gm^{-3}

8. Subject to condition 9, only the water treatment chemicals listed in Table 1 shall be discharged, and the daily quantity discharged shall not exceed the limits given in Table 1.

Table 1: List of water treatment chemicals

Purpose	Trade name	Maximum Daily
Corrosion control in high pressure boiler	Optisperse HTP 7330 & 73611	120
Corrosion control in medium pressure boiler	Optisperse PO5211A	20
Oxygen removal from boiler feed water	Cortrol OS7780	400
pH control of steam/condensate to prevent corrosion.	Steamate NA0880	40
Corrosion control of recirculating cooling water.	Continuum AEC3109	300
Control biological activity in cooling water	Spectrus BD1500	200
Corrosion control of recirculating cooling water	Inhibitor AZ8104	300
Control biological activity in cooling water	Spectrus NX1100	50
Control biological activity in cooling water	Spectrus CT1300	20
Corrosion control of recirculating cooling water	Flogard MS6207	40
Reduce foam formation of cooling water	Foamtrol AF2290	40
Coagulant	Klaraid PC 1190P	600
Flocculant	Betzdearborn AE1115	60

9. In addition to the water treatment chemicals listed in Table 1, water treatment chemicals determined to be 'equivalents' may be discharged as an alternative to those listed in Table 1, provided approval for the equivalent chemical has been given by the Chief Executive of Taranaki Regional Council in accordance with condition 11.

10. For the purpose of this consent an 'equivalent' is defined as a chemical that, when compared the chemical listed in Table 1, the Chief Executive of Taranaki Regional Council has determined that:

    a) it is of a similar nature and used for a similar purpose;
    b) it has similar breakdown products; and
    c) it has potential environmental effects that are similar.

11. Any discharge of an equivalent chemical in accordance with condition 9, shall only occur after a written request to discharge an equivalent chemical has been approved by Chief Executive Taranaki Regional Council. Any such request shall include:

    a) name of equivalent chemical;
    b) proposed concentration of equivalent in the discharge; and
    c) details of the nature of the chemical including its breakdown products; and
    d) an assessment of the potential effects of the change on the receiving environment.

    Note that the Chief Executive of Taranaki Regional Council may take up to 20 days to consider the request.

12. Special conditions 5, 6, 7 and 8, apply to effluent prior to entry into the outfall line, at a designated sampling point approved by the Chief Executive of Taranaki Regional Council.

13. The limits in special conditions 7 and 8 apply unless the Chief Executive of Taranaki Regional Council has given approval for a short term change for the purpose of routine maintenance including physical and chemical cleaning and catalyst changeouts, as per special condition 11.

14. After allowing for reasonable mixing, being outside of a zone of 200 metres from the centreline of the outfall diffuser, the discharge shall not give rise to any of the following effects in the receiving waters:

    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 effects on aquatic life, habitats or ecology;
    e) any undesirable biological growths

15. The consent holder shall maintain a comprehensive contingency plan, to be put into operation to prevent unauthorised discharge resulting from spillages, accidental discharges or pipeline failure. The plan shall be provided to the Chief Executive, Taranaki Regional Council no more than 30 days after this consent is first exercised and thereafter reviewed two yearly intervals.

16. No discharge of domestic sewage [human effluent] shall be permitted under the exercise of this consent.

17. The consent holder shall notify the Chief Executive, Taranaki Regional Council at least seven days before this consent is first exercised.

18. The consent holder shall on request by the Chief Executive, Taranaki Regional Council, but at intervals of no less than five years, certify the structural integrity and dilution performance of the outfall.

19. The consent holder shall provide to the Chief Executive, Taranaki Regional Council, an annual report on its waste treatment system discharges. The annual report shall include:

    a) daily volumes;
    b) results of any and all analyses undertaken by or on behalf of the consent holder;
    c) compliance with the consent.

    This report shall be provided by the 31st March each year and covering the previous calendar year period.

20. This consent shall lapse on the expiry of 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.

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 or within 3 months of receipt of notification under special condition 11, 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 29 April 2008

For and on behalf of
Taranaki Regional Council

_____

Director-Resource Management

Discharge Permit

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

Name of Consent Holder:	Methanex Motunui Limited Private Bag 2011 NEW PLYMOUTH
Consent Granted Date:	12 February 2008

Conditions of Consent

Consent Granted:	To discharge contaminants into the air from the Motunui methanol plant and ancillary facilities at or about 2621399E-6245496N
Expiry Date:	1 June 2028
Review Date(s):	June 2013, June 2018, June 2023
Site Location:	Main North Road, Motunui, Waitara
Legal Description:	Lot 1 DP 334095 Pt Ngatirahiri 2F Blk Pt Lot 1 DP 10081 Ngatirahiri 2C1A Blk Ngatirahiri 2C1C Blk Lot 1 DP 16686 Pt Ngatirahiri 2B2B2 Blk Ngatirahiri 2B2A1 Blk Ngatirahiri 2C1B Blk Ngatirahiri 2B2A2B Blk

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 on the environment from the exercise of this consent.

2. The exercise of this consent shall be undertaken generally in accordance with the documentation submitted in support of application 4596. In the case of any contradiction between the documentation submitted in support of application 4596 and the conditions of this consent, the conditions of this consent shall prevail.

3. The consent holder shall at all times operate, maintain, supervise, monitor and control all processes so that emissions authorised by this consent are maintained at the minimum practicable level.

4. Prior to undertaking any alterations to the plant, processes or operations which may significantly change the nature or quantity of contaminants emitted from the site, the consent holder shall consult with the Chief Executive, Taranaki Regional Council, and shall obtain any necessary approvals under the Resource Management Act.

5. The consent holder shall commission reports that detail the technology that could minimise the adverse effects of the water vapour plume from the cooling tower. These reports shall:

a) be prepared by an appropriately qualified independent person approved by the Chief Executive, Taranaki Regional Council;

b) be provided to the Chief Executive, Taranaki Regional within 12 months of the commencement of this consent [in accordance with Section 116 of the Resource Management Act 1991] and at intervals not exceeding 5 years thereafter;

c) detail the: costs; expected levels of reduction in adverse effects; and practical implications of introducing the technology(s) at the Motunui plant;

d) provide an assessment of what constitutes the "best practicable option" for minimising the adverse effects of the water vapour plume from the cooling tower.

6. Other than as provided for under condition 5, the consent holder shall also provide to the Chief Executive, Taranaki Regional Council, within two years from the date on which this consent is granted and every two years thereafter a written report:

a) reviewing any technological advances in the reduction or mitigation of emissions, especially but not exclusively in respect of potential or actual odorous emissions, how these might be applicable and implemented at the Motunui plant, and the costs and benefits of these advances; and

b) detailing an inventory of emissions [excluding carbon dioxide] from the site of such contaminants as the Chief Executive, Taranaki Regional Council may from time to time specify following consultation with the consent holder; and

c) detailing any measures that have been taken by the consent holder to improve the energy efficiency of the Motunui petrochemical plant; and

d) addressing any other issue relevant to the minimization or mitigation of emissions from the site that the Chief Executive, Taranaki Regional Council considers should reasonably be included.

7. The consent holder shall control all emissions of methanol to the atmosphere from the site, so as to ensure that maximum ground level concentrations of methanol do not exceed 9 mg/m^3 measured as a one hour average under ambient conditions, at or beyond the boundary of the site.

8. The consent holder shall control all emissions of carbon monoxide to the atmosphere from the site, so as to ensure that the maximum ground level concentration of carbon monoxide measured under ambient conditions does not exceed 10 mg/m^3 [average exposure over any period of eight hours or longer], or 30 mg/m^3 [one hour average], at or beyond the boundary of the site.

9. The consent holder shall control all emissions of nitrogen dioxide or its precursors to the atmosphere from the site, so as to ensure that the maximum ground level concentration of nitrogen dioxide measured under ambient conditions does not exceed 200 ug/m^3 [one hour average], or 100 ug/m^3 [twenty four hour average], at or beyond the boundary of the site.

10. The consent holder shall control all emissions to the atmosphere from the site of contaminants other than methanol, carbon monoxide, and nitrogen dioxide and its precursors, so as to ensure that the maximum ground level concentration for any particular contaminant at or beyond the boundary of the site is not increased above background levels:

    a) by more than 1/30 th of the relevant Occupational Threshold Value Time Weighted Average, or by more than the Short Term Exposure Limit at any time; or

    b) if no Short Term Exposure Limited is set, by more than three times the Time Weighted Average at any time [Workplace Exposure Standards effective from 2002, Department of Labour].

11. The consent holder shall compile an inventory of emissions discharged to air from the incinerator stacks including the date, time, nature of discharge and any visual impact of emissions offsite. The data gathered shall be supplied as part of report on air emissions stated in special condition 6.

12. The discharges authorised by this consent shall not give rise to an odour at or beyond the boundary of the site that in the opinion of at least one enforcement officer of the Taranaki Regional Council, is offensive or objectionable.

13. The discharges authorised by this consent shall not give rise to any significant adverse ecological effect on any ecosystems, including but not limited to habitats, plants, animals, microflora and microfauna.

14. Pursuant to section 128(1)(a) of the Resource Management Act, the Taranaki Regional Council, may review any or all of the conditions of this consent by giving notice of review within six months of the provision of a written report under special conditions 5 or 6; for the purpose of reviewing the best practicable option or options available to reduce or remove any adverse effects on the environment [including, but not limited to, minimisation of the cooling tower plume], or to deal with any significant adverse ecological effect on any ecosystems, including but not limited to habitats, plants, animals, microflora, and microfauna.

15. The exercise and effects of this consent shall be monitored to the satisfaction of the Chief Executive, Taranaki Regional Council.

16. This consent shall lapse on the expiry of 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.

17. 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 2013 and/or June 2018 and/or June 2023, for the purpose of ensuring that the conditions are adequate to deal with any adverse effects on the environment arising from the exercise of this resource consent, which were either not foreseen at the time the application was considered or which it was not appropriate to deal with at the time.

Signed at Stratford on 12 February 2008

For and on behalf of
Taranaki Regional Council

_____

Director-Resource Management

Discharge Permit

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

Name of Consent Holder:	Methanex Motunui Limited Private Bag 2011 NEW PLYMOUTH
Consent Granted Date:	29 April 2008

Conditions of Consent

Consent Granted:	To discharge contaminants into the air from the Waitara Valley methanol plant at or about 2618266E-6241201N
Expiry Date:	1 June 2021
Review Date(s):	June 2015
Site Location:	Waitara Valley Methanol Plant, Mamaku Road, Waitara
Legal Description:	Lot 1 DP 13541 Blk V 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. The consent holder shall at all times adopt the best practicable option [including but not limited to, minimising carbon dioxide emissions] to prevent or minimise any actual or likely adverse effect on the environment arising from emissions from the site. `Best practicable option' [as defined in section 2 of the Resource Management Act 1991] shall be determined by the Taranaki Regional Council, taking into account the information supplied by the consent holder under condition 4 of this consent, and following review as set out under condition 11 of this consent.

2. The consent holder shall at all times operate, maintain, supervise, monitor and control all processes so that emissions authorised by this consent are maintained at the minimum practicable level.

3. Prior to undertaking any alterations to the plant, processes or operations which may significantly change the nature or quantity of contaminants emitted from the site, the consent holder shall consult with the Chief Executive, Taranaki Regional Council, and shall obtain any necessary approvals under the Resource Management Act.

4. The consent holder shall provide to the Chief Executive, Taranaki Regional Council, within three years from the date on which this consent is granted and every three years thereafter a written report:

a) reviewing any technological advances in the reduction or mitigation of emissions, especially but not exclusively in respect of potential or actual odorous emissions and the cooling tower plume, how these might be applicable and/or implemented at the Waitara Valley methanol plant, and the costs and benefits of these advances; and

b) detailing an inventory of emissions [excluding carbon dioxide] from the methanol distillation tower of such contaminants as the Chief Executive, Taranaki Regional Council may from time to time specify following consultation with the consent holder; and

c) detailing any measures that have been taken by the consent holder to improve the energy efficiency of the Waitara Valley methanol plant; and

d) addressing any other issue relevant to the minimisation or mitigation of emissions from the site that the Chief Executive, Taranaki Regional Council, considers should be included.

5. The consent holder shall control all emissions of methanol to the atmosphere from the site, so as to ensure that maximum ground level concentrations of methanol do not exceed 9 mg/m^3 measured as a one hour average under ambient conditions, at or beyond the boundary of the site.

6. The consent holder shall control all emissions of carbon monoxide to the atmosphere from the site, so as to ensure that the maximum ground level concentration of carbon monoxide measured under ambient conditions does not exceed 10 mg/m^3 [average exposure over any period of eight hours or longer], or 30 mg/m^3 [one hour average], at or beyond the boundary of the site.

7. The consent holder shall control all emissions of nitrogen dioxide or its precursors to the atmosphere from the site, so as to ensure that the maximum ground level concentration of nitrogen dioxide measured under ambient conditions does not exceed 200 ug/m^3 [one hour average], or 100 ug/m^3 [twenty four hour average], at or beyond the boundary of the site.

8. The consent holder shall control all emissions to the atmosphere from the site of contaminants other than methanol, carbon dioxide, carbon monoxide, and nitrogen dioxide and its precursors, so as to ensure that the maximum ground level concentration for any particular contaminant at or beyond the boundary of the site is not increased above background levels:

   a) by more than 1/30 th of the relevant Occupational Threshold Value Time Weighted Average, or by more than the Short Term Exposure Limit at any time; or

   b) if no Short Term Exposure Limited is set, by more than three times the Time Weighted Average at any time [Workplace Exposure Standards effective from 2002, Department of Labour].

9. The discharges authorised by this consent shall not give rise to an odour at or beyond the boundary of the site that in the opinion of at least one enforcement officer of the Taranaki Regional Council, is offensive or objectionable.

10. The discharges authorised by this consent shall not give rise to any significant adverse ecological effect on any ecosystems, including but not limited to habitats, plants, animals, microflora and microfauna.

11. Pursuant to section 128(1)(a) of the Resource Management Act, the Taranaki Regional Council, may review any or all of the conditions of this consent by giving notice of review within six months of the provision of a written report under special condition 4; for the purpose of reviewing the best practicable option or options available to reduce or remove any adverse effects on the environment, or to deal with any significant adverse ecological effect on any ecosystems, including but not limited to habitats, plants, animals, microflora, and microfauna.

12. The exercise and effects of this consent shall be monitored to the reasonable satisfaction of the Chief Executive, Taranaki Regional Council.

13. This consent shall lapse on the expiry of 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.

14. In accordance with section 128 and section 129 of the Resource Management Act 1991, the Taranaki Regional Council may serve notice of its intention to review, amend, delete or add to the conditions of this resource consent by giving notice of review during the month of June 2015, for the purpose of ensuring that the conditions are adequate to deal with any adverse effects on the environment arising from the exercise of this resource consent, which were either not foreseen at the time the application was considered or which it was not appropriate to deal with at the time.

Signed at Stratford on 29 April 2008

For and on behalf of
Taranaki Regional Council

_____

Director-Resource Management

Appendix II

Categories used to evaluate environmental and administrative performance

Categories used to evaluate environmental and administrative performance

Environmental performance is concerned with actual or likely effects on the receiving environment from the activities during the monitoring year. Administrative performance is concerned with the Company's approach to demonstrating consent compliance in site operations and management including the timely provision of information to Council (such as contingency plans and water take data) in accordance with consent conditions.

Events that were beyond the control of the consent holder and unforeseeable (that is a defence under the provisions of the RMA can be established) may be excluded with regard to the performance rating applied. For example loss of data due to a flood destroying deployed field equipment.

The categories used by the Council for this monitoring period, and their interpretation, are as follows:

Environmental Performance

High: No or inconsequential (short-term duration, less than minor in severity) breaches of consent or regional plan parameters resulting from the activity; no adverse effects of significance noted or likely in the receiving environment. The Council did not record any verified unauthorised incidents involving environmental impacts and was not obliged to issue any abatement notices or infringement notices in relation to such impacts.

Good: Likely or actual adverse effects of activities on the receiving environment were negligible or minor at most. There were some such issues noted during monitoring, from self-reports, or during investigations of incidents reported to the Council by a third party but these items were not critical, and follow-up inspections showed they have been dealt with. These minor issues were resolved positively, co-operatively, and quickly. The Council was not obliged to issue any abatement notices or infringement notices in relation to the minor non-compliant effects; however abatement notices may have been issued to mitigate an identified potential for an environmental effect to occur.

For example:

- High suspended solid values recorded in discharge samples, however the discharge was to land or to receiving waters that were in high flow at the time;
- Strong odour beyond boundary but no residential properties or other recipient nearby.

Improvement required: Likely or actual adverse effects of activities on the receiving environment were more than minor, but not substantial. There were some issues noted during monitoring, from self-reports, or during investigations of incidents reported to the Council by a third party. Cumulative adverse effects of a persistent minor non-compliant activity could elevate a minor issue to this level. Abatement notices and infringement notices may have been issued in respect of effects.

Poor: Likely or actual adverse effects of activities on the receiving environment were significant. There were some items noted during monitoring, from self-reports, or during investigations of incidents reported to the Council by a third party. Cumulative adverse effects of a persistent moderate non-compliant activity could elevate an 'improvement required' issue to this level. Typically there were grounds for either a prosecution or an infringement notice in respect of effects.

Administrative performance

High: The administrative requirements of the resource consents were met, or any failure to do this had trivial consequences and were addressed promptly and co-operatively.

Good: Perhaps some administrative requirements of the resource consents were not met at a particular time, however this was addressed without repeated interventions from the Council staff. Alternatively

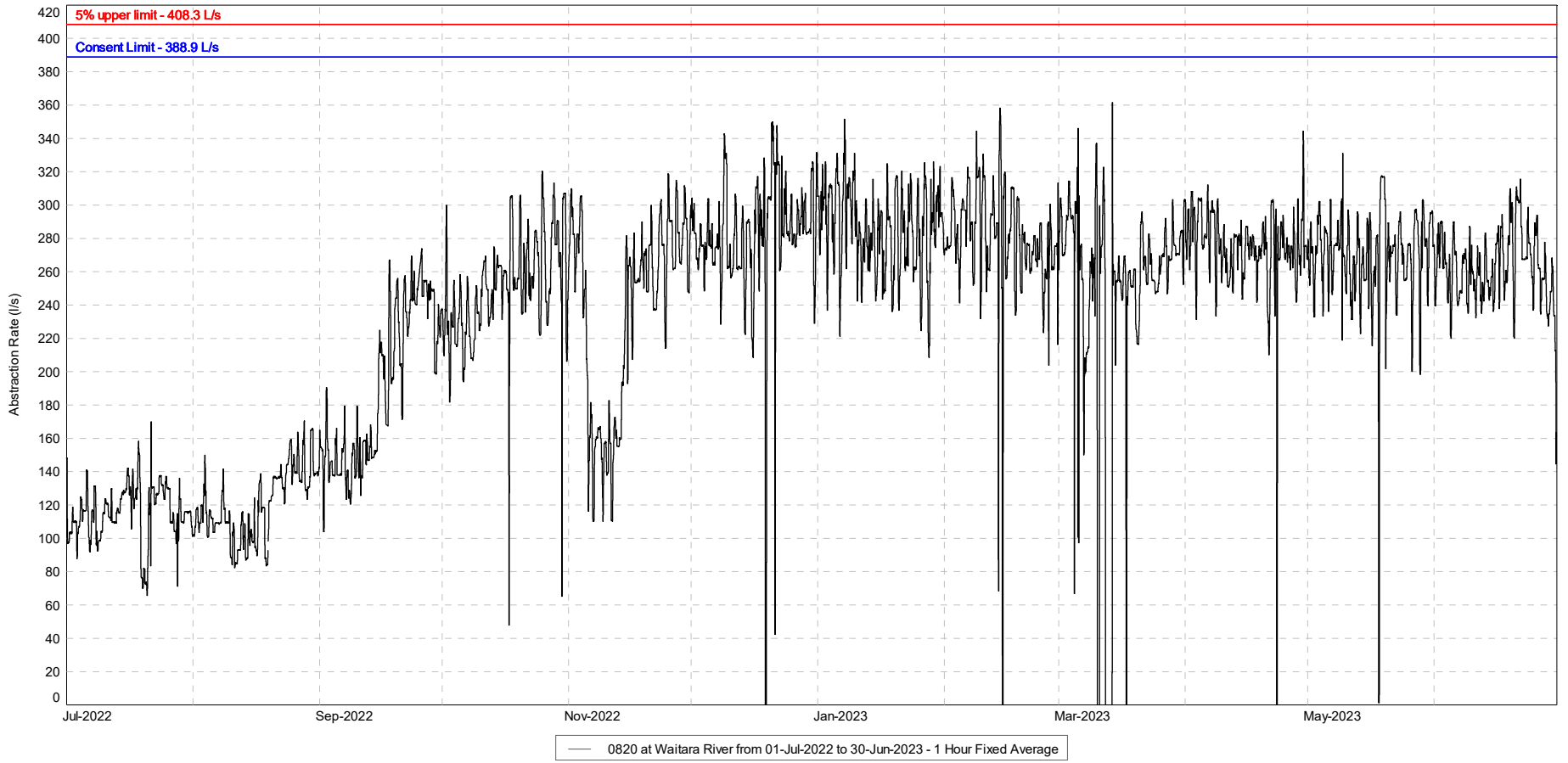
adequate reason was provided for matters such as the no or late provision of information, interpretation of 'best practical option' for avoiding potential effects, etc.

Improvement required: Repeated interventions to meet the administrative requirements of the resource consents were made by Council staff. These matters took some time to resolve, or remained unresolved at the end of the period under review. The Council may have issued an abatement notice to attain compliance.

Poor: Material failings to meet the administrative requirements of the resource consents. Significant intervention by the Council was required. Typically there were grounds for an infringement notice.

Appendix III

Hydrograph for the Waitara River at Bertrand Road for the monitoring period July 2022 to June 2023


5% upper limit - 408.3 L/s
Consent Limit - 388.9 L/s
Abstraction Rate (l/s)
420
400
380
360
340
320
300
280
260
240
220
200
180
160
140
120
100
80
60
40
20
0
Jul-2022
Sep-2022
Nov-2022
Jan-2023
Mar-2023
May-2023
0820 at Waitara River from 01-Jul-2022 to 30-Jun-2023 - 1 Hour Fixed Average

Appendix IV

Air Emissions Report for Methanex NZ Limited Motunui and Waitara Valley Plants for the 2020/2021 Reporting Period

Private Bag 2011
New Plymouth 4342

T: (06) 754 9700
F: (06) 754 9701

Dec 14, 2022

Taranaki Regional Council
Private Bag 713
Stratford

Attention: Leah Miller

AIR EMISSIONS REPORT FOR METHANEX NZ LTD. MOTUNUI & WAITARA VALLEY PLANTS

2020/2021 REPORTING PERIOD

Introduction

Methanex New Zealand Limited is required to supply the Taranaki Regional Council with a report every two years for its Motunui plant and every three years for its Waitara Valley plant addressing requirements detailed in the air discharge consents for the sites.

The consents are:

Motunui Plant: 4042-3

Waitara Valley Plant: 4045-3

Methanex is supplying this combined report for both the Motunui and Waitara Valley plants.

The Motunui site produced methanol during all this reporting period, apart from short-term outages for maintenance purposes.

The Waitara Valley site produced methanol during 2020 except during plant shutdowns for maintenance purposes. In January 2021 crude methanol production at the plant ceased, and for the remainder of the year only one

distillation unit ('D2") was operated intermittently, distilling crude methanol produced at the Motunui site.

Air Emissions Report

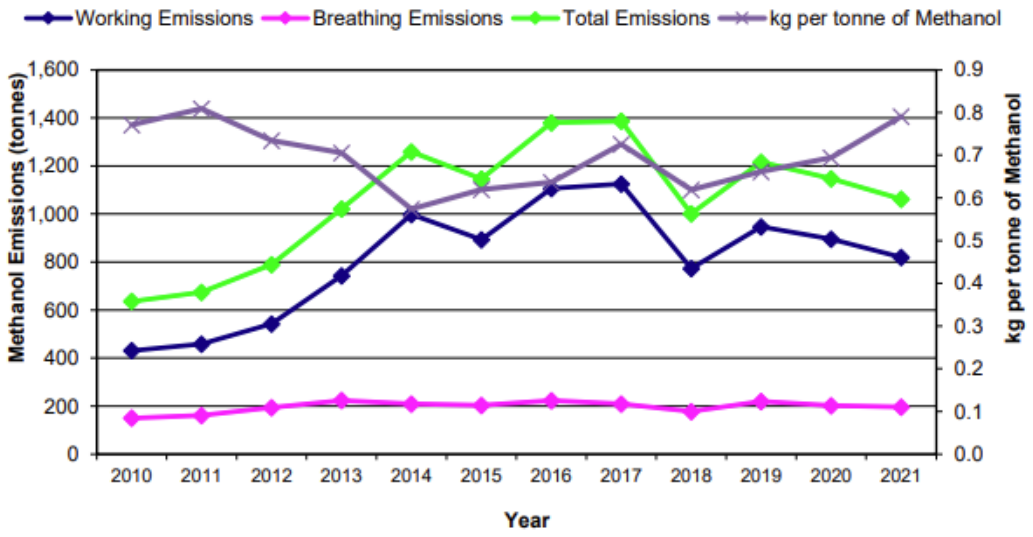
[A] Review of Technological Advances to Reduce or Mitigate Emissions

No new technologies for reducing emissions from the plants were identified that are commercially viable during this reporting period.

[B] Inventory of Emissions (excluding carbon dioxide)

No request from the TRC was received for an inventory of any particular contaminates, however Methanex has calculated emissions as per the following tables.

Methanol Tank Emissions



Distillation Methanol Emissions

	Units	2020	2021
Distillation 1 (Waitara Valley)	tonnes	112.8	11
kg per tonne of methanol distilled	kg/tonne	0.33	0.31
Distillation 2 (Waitara Valley)	tonnes	170	103
kg per tonne of methanol distilled	kg/tonne	0.59	0.71
Distillation 3 (Motunui)	tonnes	296	267
kg per tonne of methanol distilled	kg/tonne	0.48	0.5
Distillation 4 (Motunui)	tonnes	296	300
kg per tonne of methanol distilled	kg/tonne	0.48	0.47

SOx and NOx Emissions

	Units	2020	2021
Motunui Site SOx	tonnes	3.07	2.61
kg per tonne of methanol distilled	kg/tonne	0.002	0.002
Waitara Valley Site SOx	tonnes	0.9	0.25
kg per tonne of methanol distilled	kg/tonne	0.0029	0.008
Motunui Site NOx	tonnes	2081	1824
kg per tonne of methanol distilled	kg/tonne	1.34	1.38
Waitara Valley Site NOx	tonnes	537	116
kg per tonne of methanol distilled	kg/tonne	1.73	3.79

Stack Emissions

Watercare Services Ltd were engaged to carry out the following stack monitoring in July 2020:

Motunui site

• Emissions testing for O2, CO, CO2, NOx and SO2, at Reformer 2 and Package Boiler stacks (Reformer 1 was not operational at time of sampling).

Waitara Valley site

• Emissions testing for O2, CO, CO2, NOx and SO2, at the Reformer and Package Boiler 2 stacks (Package Boiler 1 was not operational at time of sampling).

The water care services are stack monitoring report is attached as attachment A.

[C] Ambient Atmospheric Monitoring

Methanex usually engages Water Services Ltd to carry out perimeter monitoring for methanol, carbon monoxide and nitrogen dioxide on an annual basis. This was not achieved during this reporting period due to challenges related to the Covid pandemic. However, Methanex carries out daily methanol and carbon monoxide monitoring in the process areas of the plants and no levels above consent limits were noted from these readings.

[D] Energy Efficiency

The plants continued to be analysed to ensure operation was at the highest energy efficiency possible for the design of the plants. The Motunui cooling tower refurbishment project which began in 2014 has continued to take place with 4 cells completed and 3 cells currently in the process of being refurbished. As each cell is completed, incremental efficiency gains are made related to the

effectiveness of the fans being required to cool the water at any given ambient temperature.

Report Prepared by:
Fahad Khan
Health, Safety and Environmental Advisor

Appendix V

Biennial Water Use Reduction Report for Methanex NZ Limited Motunui and Waitara Valley Plants 2020/2021 Reporting Period

Private Bag 2011
New Plymouth 4342

T: (06) 754 9700
F: (06) 754 9701

A RESPONSIBLE CARE® COMPANY

Dec 14, 2022

Taranaki Regional Council
Private Bag 713
Stratford

Attention: Leah Miller

BIENNIAL WATER USE REDUCTION REPORT FOR METHANEX NZ LTD.
MOTUNUI & WAITARA VALLEY PLANTS
2020/2021 REPORTING PERIOD

1. Introduction

Methanex New Zealand Ltd is to provide this biennial report to the Taranaki Regional Council to meet conditions in the consents granted for taking water from the Waitara River for use at the Motunui and Waitara Valley plants.

The consents are:

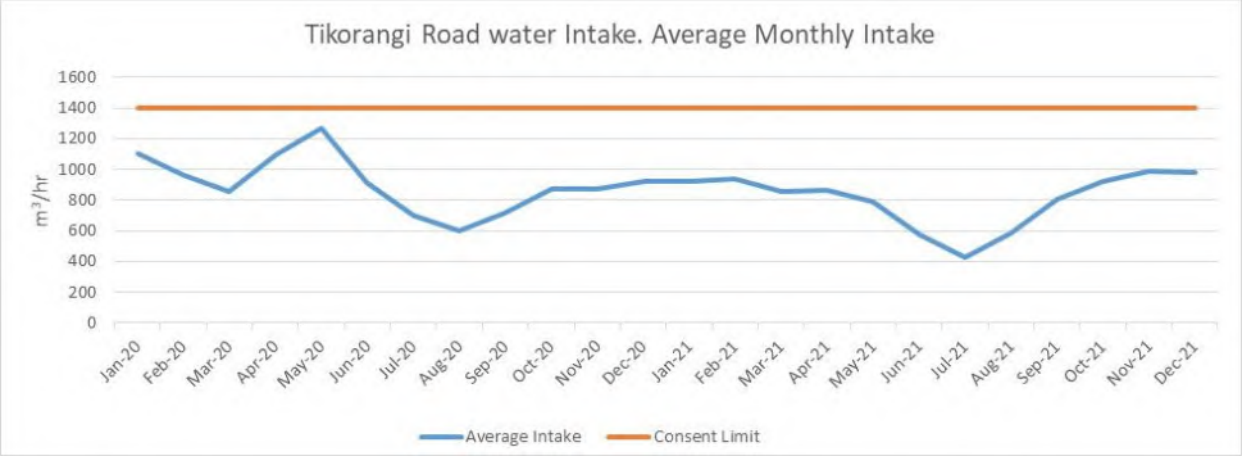
Motunui Plant: 0820-2

Waitara Valley Plant: 0801-2

2. Summary of Plant Operation and Water Use

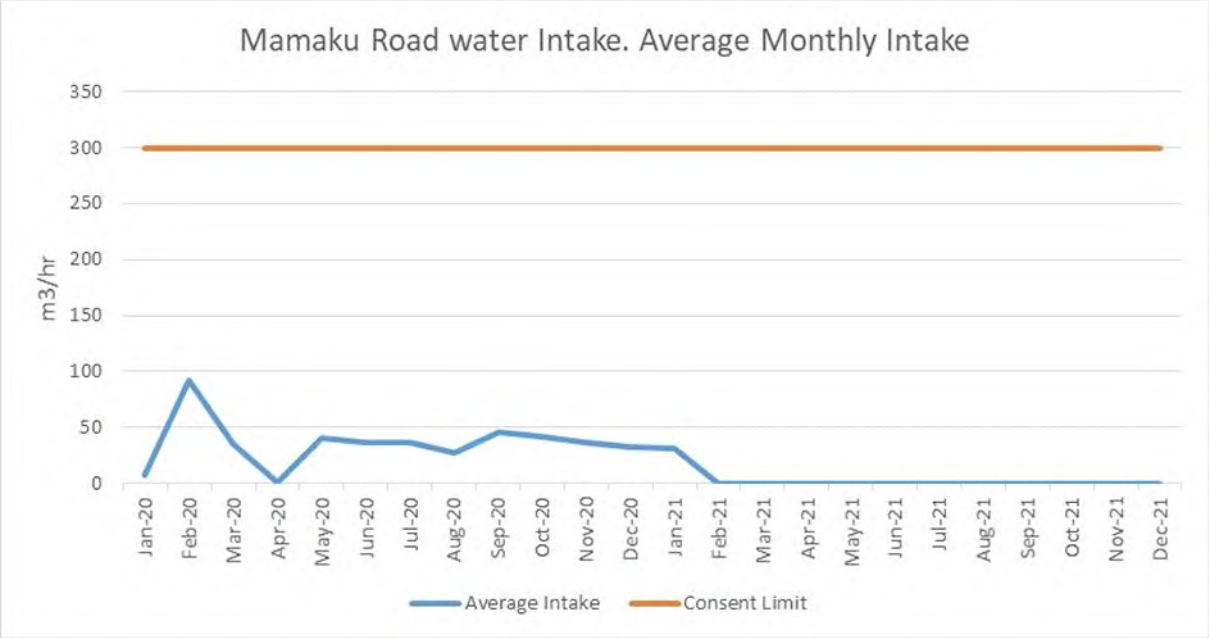
Motunui Plant:
The Motunui plant produced methanol during all the 2020/2021 reporting period except during plant shutdowns for maintenance purposes.

The consent allows for a water take of 1400 cubic meters per hour from the Tikorangi Road water intake; the average take during the reporting period was 856 cubic meters per hour. There is a continuous objective to efficiently use water on site to reduce the amount consumed. This was achieved through a focus on the operation of the plant. There were also increased plant efficiencies from the major maintenance performed on the plant during the planned shutdowns.



Waitara Valley Plant:
The Waitara Valley plant produced methanol during 2020 except during plant shutdowns for maintenance purposes. In January 2021 crude methanol production at the plant ceased, and for the remainder of the year only one distillation unit ('D2") was operated intermittently, distilling crude methanol produced at the Motunui site. Due to this only a minimal amount of water was required for the operation of one small package boiler and for cooling water, and this was taken from the Tikorangi Road water intake solely.

The consent allows for a water take of 300 cubic meters per hour at the Waitara Valley water intake; the average take during the reporting period was 19 cubic meters per hour. There is a continuous objective to efficiently use water on site to reduce the amount consumed.



3. Conclusion

Through the reporting period there has been a reduction in the water consumed through operational and maintenance measures. Both the Motunui and Waitara Valley plants have remained well below the consented levels of water extraction from the Waitara River, with the water taken at the Tikorangi Road and Mamaku Road intakes being 61% and 6% of the consented amount respectively.

There has been continued focus on the efficient use of cooling water and in the production of boiler quality water. Further re-use of steam condensate has been implemented at Motunui, in one distillation unit ('D3') and this is planned to be implemented in the D4 unit as well in 2023.

Methanex maintains a strong Responsible Care ethic which includes sustainability principles; in this regard we continue to investigate further ways to reduce the water consumption at both plants.

Report Prepared by:
Fahad Khan
Health, Safety and Environmental Advisor